

# Outdoor Accessibility Standard for Geriatric Hip Fracture Patients

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# Can a Hip Fracture Patient Back to Community after Rehabilitation?



# Outdoor Activity is Important for Elderly People



**Dangerous?**

# Hip Fracture is Common for Elderly People

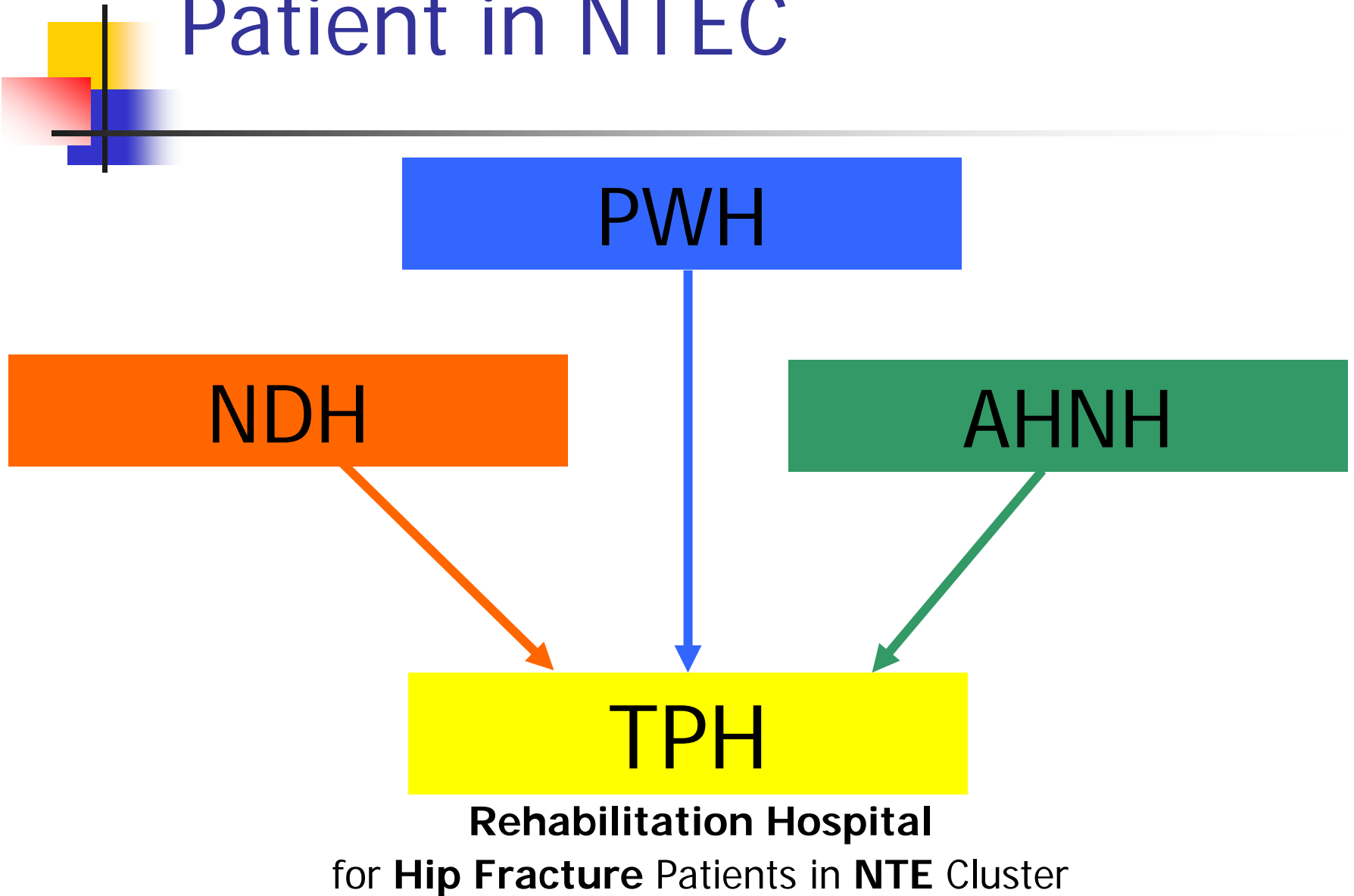
## Prevalence of Hip Fracture in HA

Calendar Yr	2005		2006		2007	
	Episode	Headcount	Episode	Headcount	Episode	Headcount
Grand Total	8502	5600	8351	5623	8223	5748

Source of data:

Clinical Data Analysis & Reporting System (CDARS)

# Rehabilitation of Hip Fracture Patient in NTEC





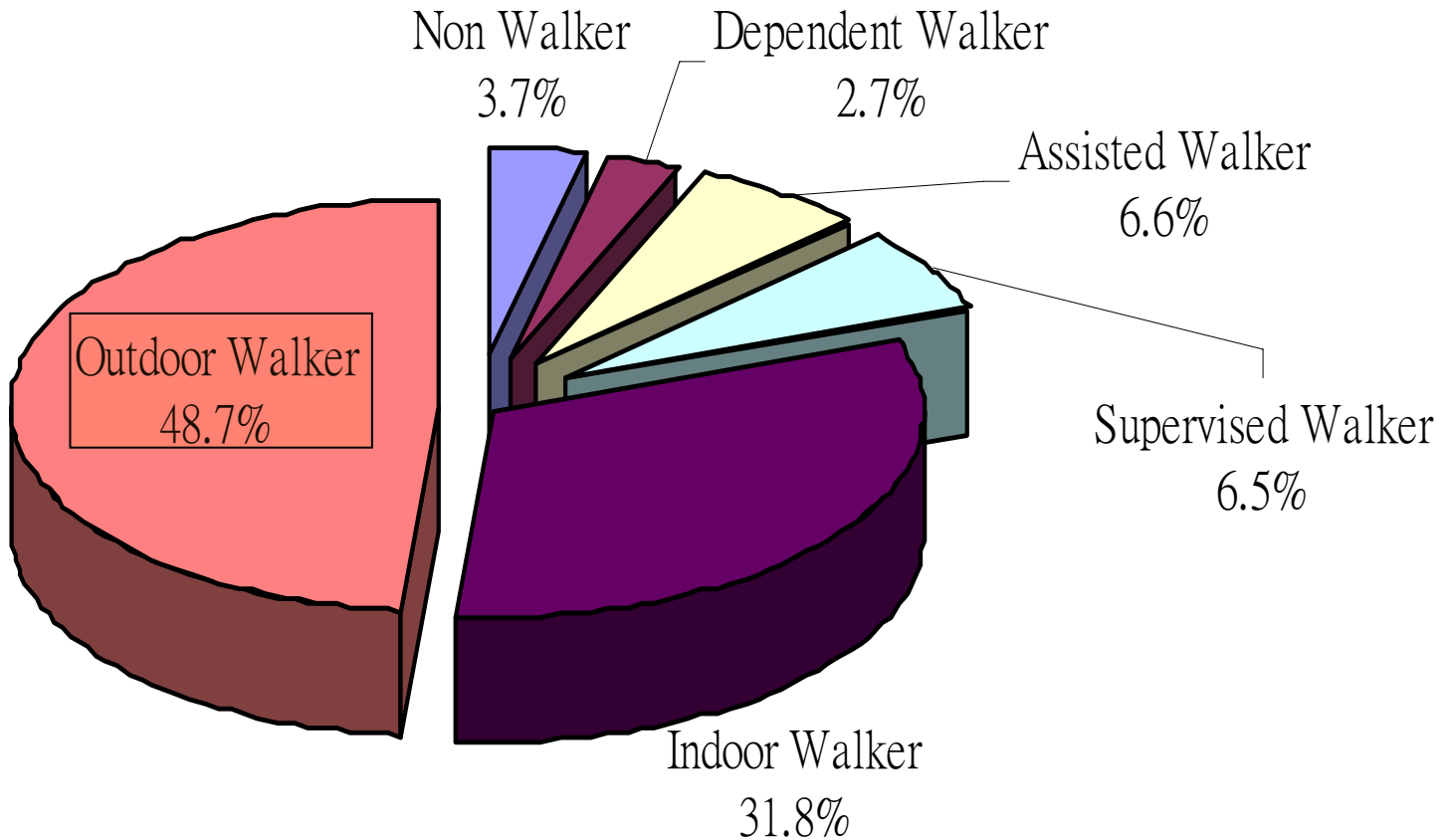
# Hip Fracture Data In TPH

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**In the year 2007,**

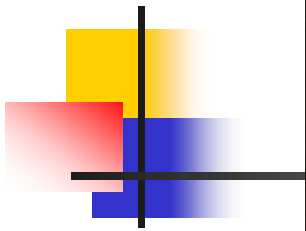
**580** hip fracture patients were  
admitted for rehabilitation in TPH

# % of Distribution of Pre-morbid Mobility Status



Re

acture



PHYSIOTHERAPY PROTOCOL

Hip Fracture  
Rehabilitation Program

Physiotherapy Department

(4<sup>th</sup> edition 04/02)



醫院管理局  
HOSPITAL  
AUTHORITY



大埔醫院  
TAI PO HOSPITAL

Physio

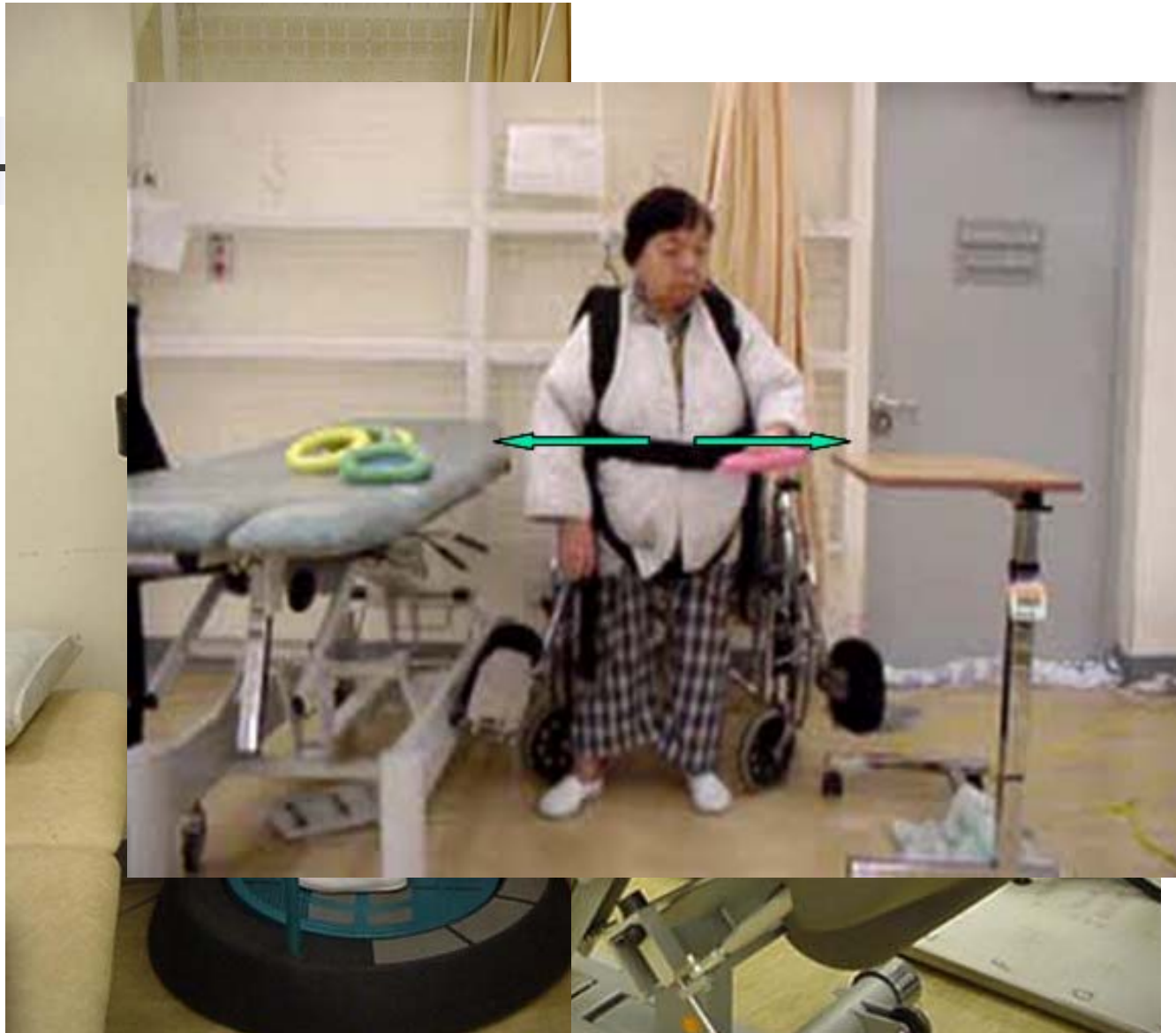
en based

Hi

protocol



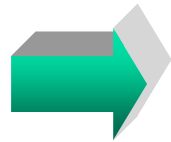
# Physiotherapy Intervention



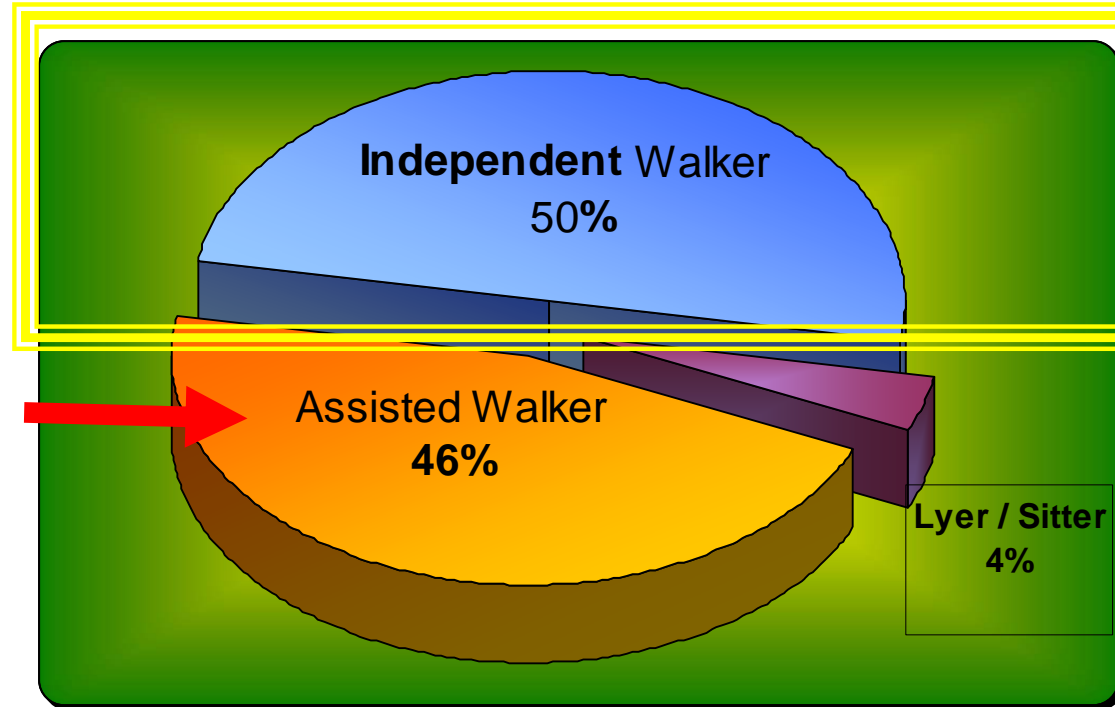
# Change of Mobility Status for Pre-morbid **Outdoor Walker** Admission Vs Discharge

## Admission

Non – Walker	27.3 % (N=75)
Assisted Walker	71.7% (N=197)
Independent Walker	1.1% (N=3)



## Discharge

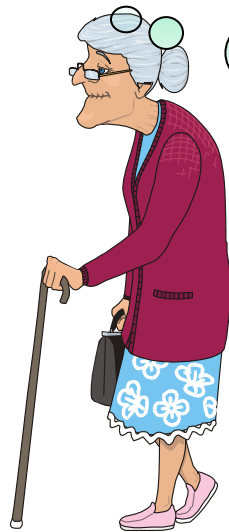
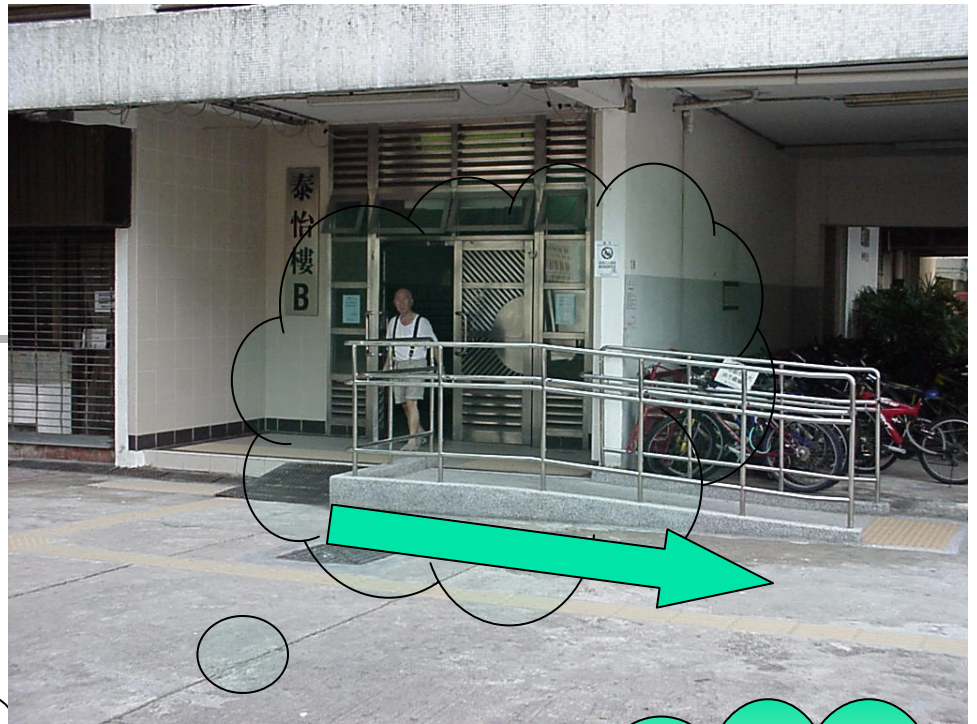




# Consequence of hip Fracture

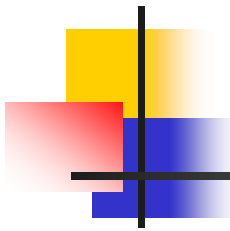
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- Some of these independent walkers become **home bound**
- 1st step to outdoor environment is the **milestone** of returning to previous functional activities e.g. to restaurant, morning walk



Go  
Outside ?

# How to Assess the Outdoor Accessibility ?



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- Need to assess outdoor ability
- How can we know the accessibility ??
- Home visit to assess
- Time is a limiting factor
- How to make a **tailor-made outdoor assessment ?**



# Planning to Improve the Service





**Go to Community  
&**

**Measure it**



# Geographic Consideration

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- Where do most of our geriatric patients live in Tai Po area?



# Methodology



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Search :

- the Data Base of Census and Statistics Department
- Web site of Housing Authority:  
[www.housingauthority.gov.hk/en/residential/prh/0,,1-0-0-0,00.html](http://www.housingauthority.gov.hk/en/residential/prh/0,,1-0-0-0,00.html)

# 2006 Population By-census

大埔區		有人居住的屋宇單位 Occupied Quarters	家庭住戶 Domestic Households	人口 Population
總計 Total		90 241	90 581	293 542
屋宇單位類型 Type of Quarters				
永久性房屋 Permanent housing				
公營租住單位 Public rental flats	19 891	20 009	63 385	
房屋委員會資助出售單位 Housing Authority subsidized sale flats	24 734	24 654	87 855	
房屋協會資助出售單位 Housing Society subsidized sale flats	-	-	-	
私人住宅單位 Private residential flats	26 709	27 173	82 584	
別墅／平房／新型村屋 Villas/Bungalows/Modern village houses	15 857	15 831	50 318	
簡單磚石蓋搭建築物／傳統村屋 Simple stone structures/ Traditional village houses	1 365	1 365	3 711	
員工宿舍 Staff quarters	320	317	893	
非住宅用屋宇單位 Non-domestic quarters	279	116	1 685	
臨時房屋 Temporary housing	1 086	1 116	3 111	

~150,000



63 385  
87 855



# Methodology: Data from Web Site of Housing Authority

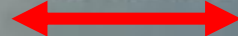
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- In Tai Po, there are 6 public estates
- Tai Yuen Estate accommodates the largest number of elderly people among the Public Estates in Tai Po

# Explore the Outdoor Accessibility

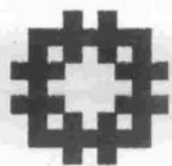


民政事務總署  
大元社區會堂



TAI YUEN COMMUNITY HALL  
HOME AFFAIRS DEPARTMENT

# Methodology – Collection of Floor Plan



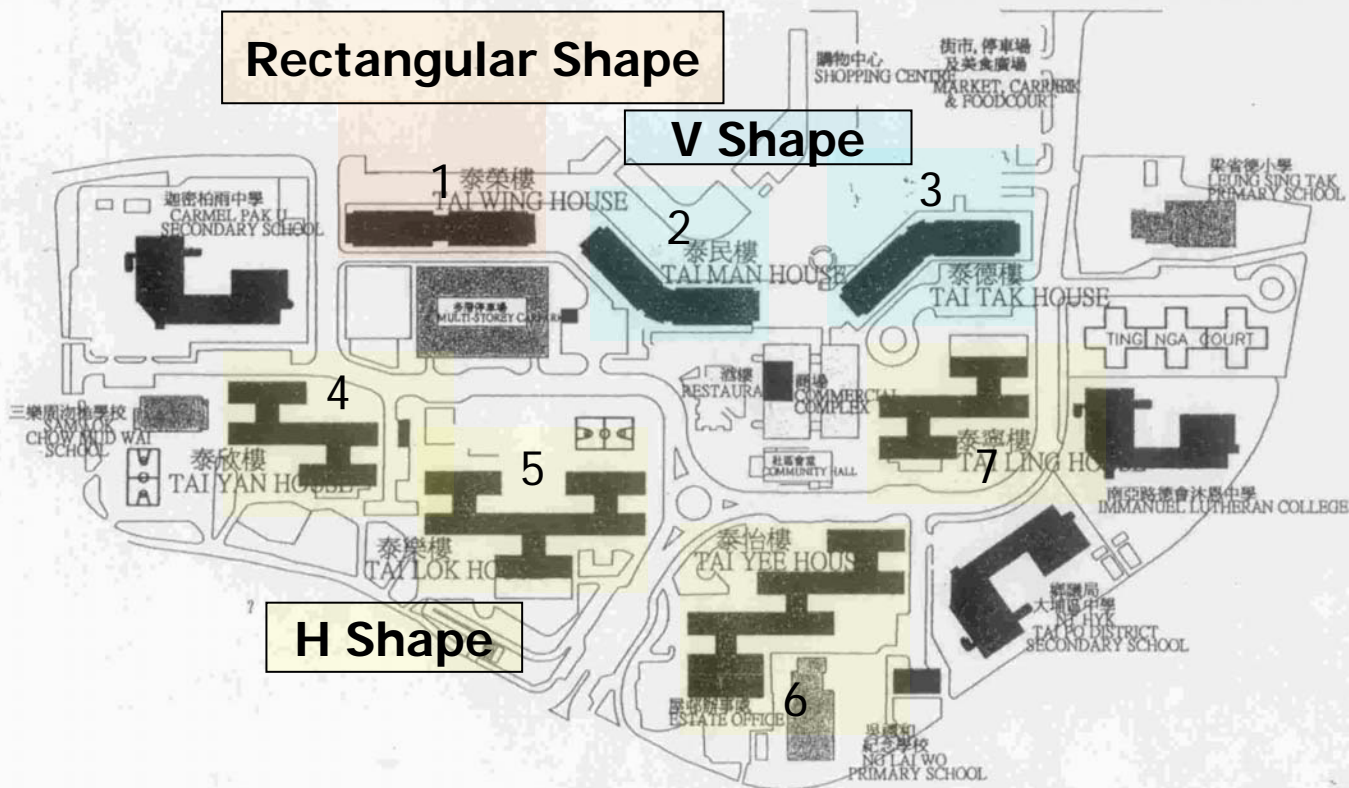
大元邨地圖

TAI YUEN ESTATE PLAN

Rectangular Shape




V Shape

H Shape



圖例  
NOTATION

-  住宅樓宇  
DOMESTIC BLOCK
-  商場/購物中心/街市  
SHOPPING CENTRE/ MARKET
-  停車場  
CARPARK

-  小學  
PRIMARY SCHOOL
-  中學  
SECONDARY SCHOOL
-  屋邨辦事處  
ESTATE OFFICE

-  酒樓  
RESTAURANT
-  垃圾收集站  
REFUSE COLLECTION POINT
-  籃球場  
BASKETBALL COURT



# Equipment



Tapes



Digital Angle Finder



Distance Measuring Wheel

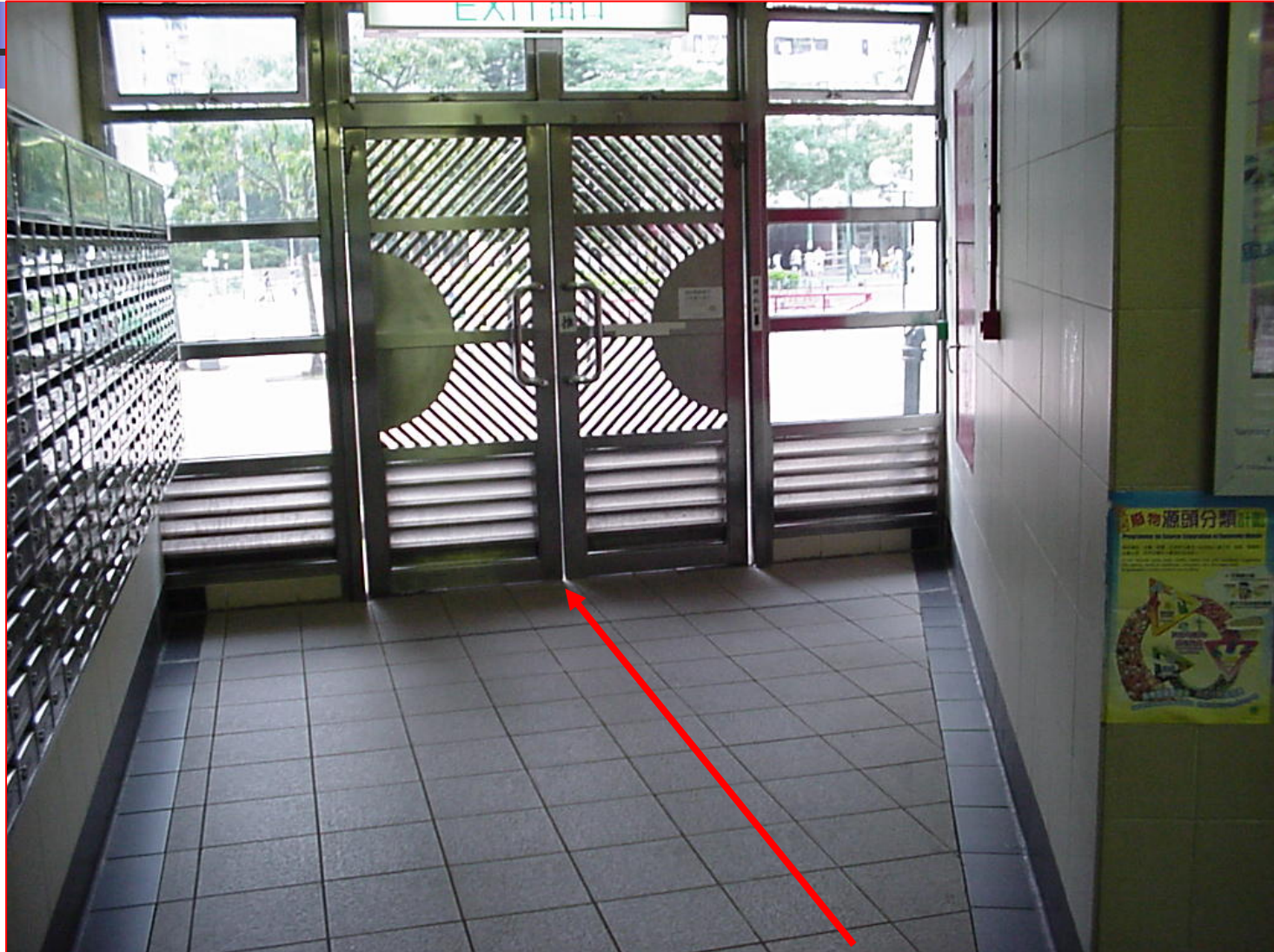


# Distance from **Far Away Flat** to the **Lift**





# Distance from **Lift** to the **Main Entrance**





# Distance from the Main Entrance to Outdoor Chair



# *Any Slope to Climb?*

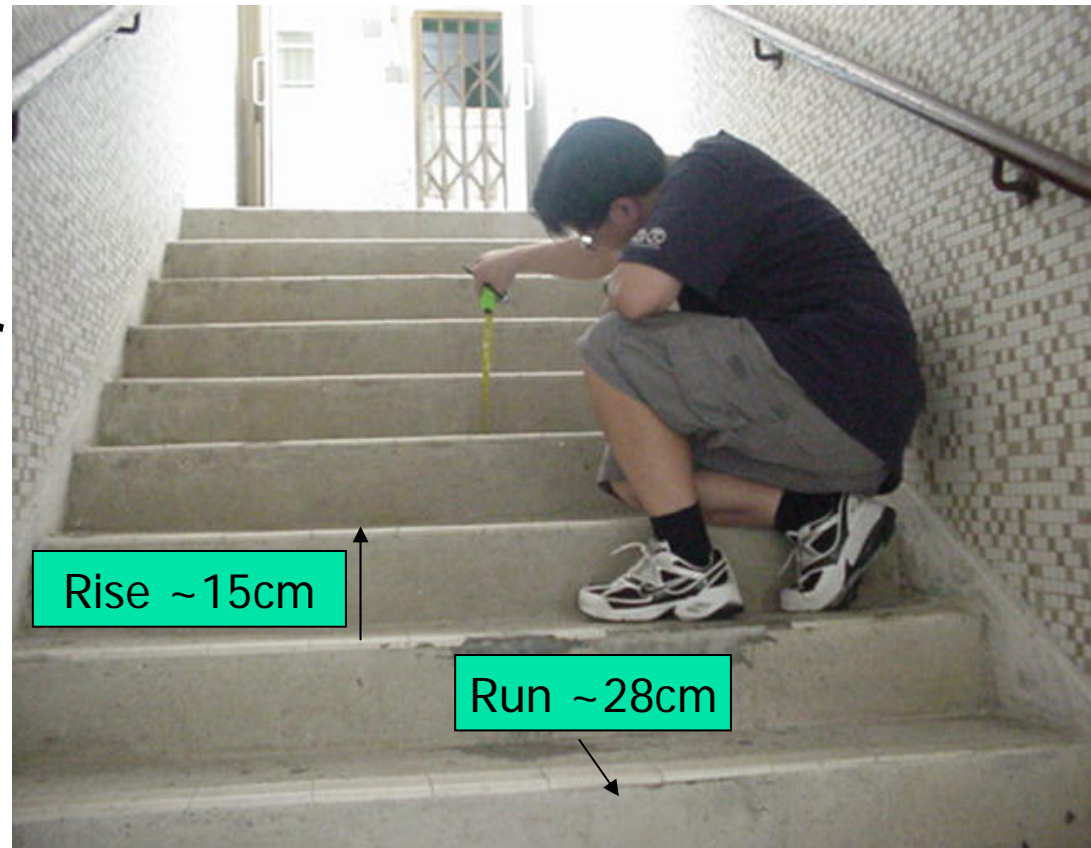
- There is a ramp at the main entrance of each building
- The ramp has **5°** gradient with handrails installed at both sides





# *Any Stairs to Climb ?*

- Most of flats have **direct lift landing**
- Except for the **first** or **highest** floor,
- Need to climb **16 treads of stairs** :



# Result of the Measurement

	Distance form Far Away Flat to the Lift	Distance from Lift to the Outdoor Chair	Total Distance	Ramp	Stair
H Shape	18m	30-51m	48m ( Shortest)	Yes Ramp angle: 5°	16 treads
Horizontal Shape	45m	63m	108m	Yes Ramp angle: 5°	16 treads
V shape	45m	74 - 83m	128m (Longest)	Yes Ramp angle: 5°	16 treads

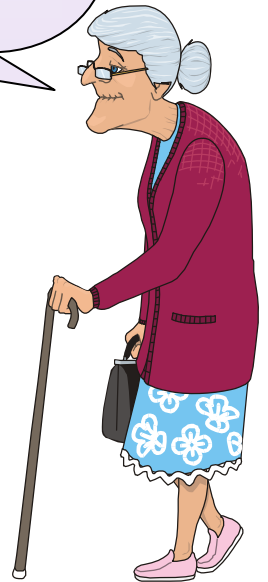
# Summary of the Findings

If a patient can fulfill...

**Outdoor Accessibility Standard** : take a seat at outside

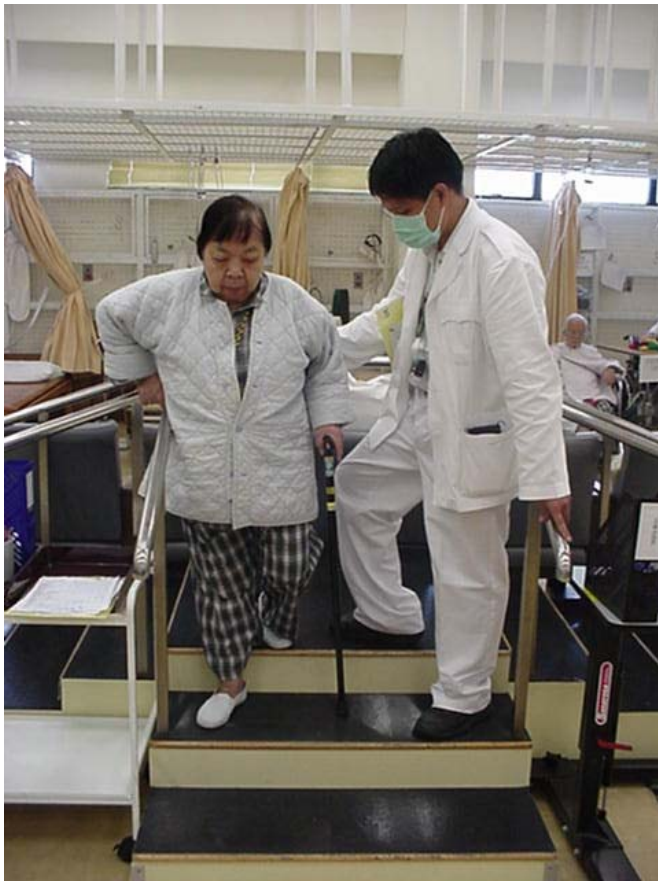
1. Walking > **128 meters**
2. Able to climb a **ramp** with **5°** gradients.
3. ± Climb 16 treads of stairs

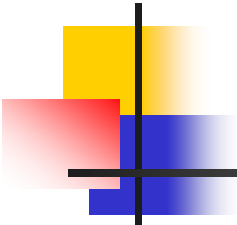
I can go out  
&  
take a seat  
at outside



# Clinical Implication(1)

## Leads to Better Mode of Service





Do You  
Guess ??



# Leads to Better Mode of Service



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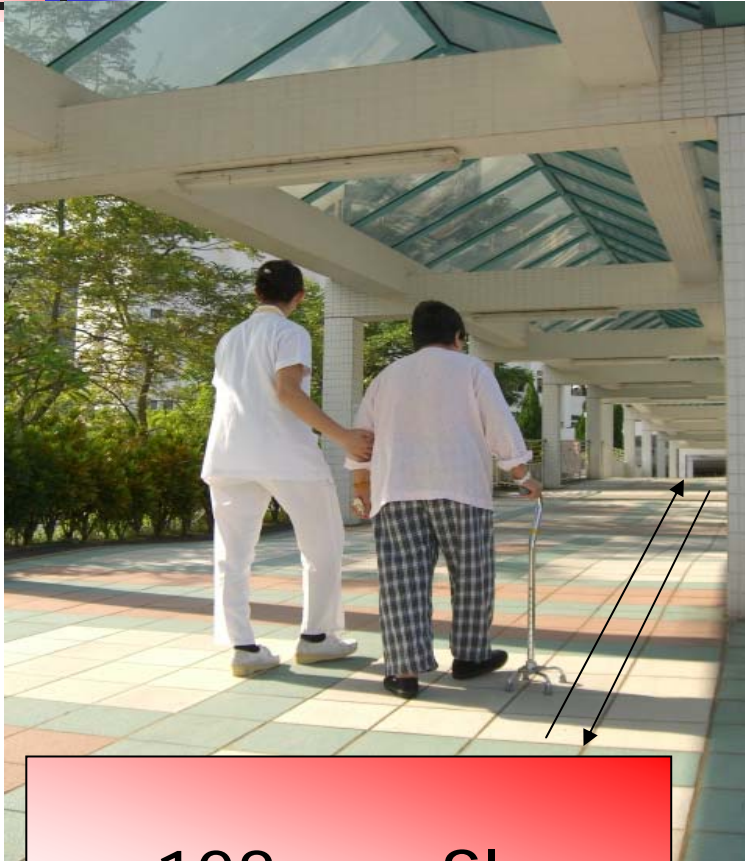
Now, with this standard, we can  
**quantify** the outdoor requirement  
and

improve the **accuracy of  
assessment**

on the **outdoor ability** of patients



# Clinical Implication (2): A More Tailor-made Outdoor Training



= 128 m + Slope



= 16 Steps

# Current Progress

- With support from Orthopedic Dept of CUHK
- A Research Assistant is recruited to assist the measurement



# Future Planning



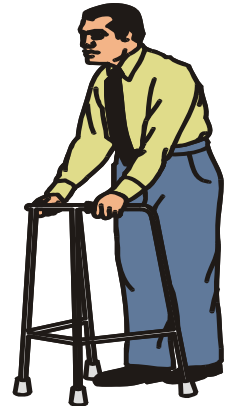
- Plan to extend the measurement on the remained 3 Public Estates
- Attain the Outdoor Accessibility Standard compatible to 50% of Population in Tai Po

# Conclusion

◆ Measuring Community is **simple** but **practical**

◆ **Outdoor Accessibility Standard** : creates an **Important guideline** for **assessment** and **intervention**

◆ This standard is beneficial **not just to** **Hip Fracture** but **Other** patients





Thank You!

