

Gerontech and Innovation Expo cum Summit

16 to 18 June 2017

HK Convention and Exhibition Centre

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Plenary Session 3

Innovation in health and social care

- Dr Mok Chun Keung, Chief of Service, Department of Medicine & Geriatrics, Tuen Mun Hospital; Cluster Coordinator (Medicine & Geriatrics), New Territories West Cluster, Hospital Authority

Content

- Population aging – impact to health care system & HA
- Characteristics of elderly patients and management strategies
- Some new ideas / initiatives to meet the challenge – medical social collaboration
- How IT & gerontech development could facilitate the implementation of the new initiatives

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World Population Ageing



0.5 billion elders in
2010
(aged ≥ 65)

→ **1.5 billion** in 2050

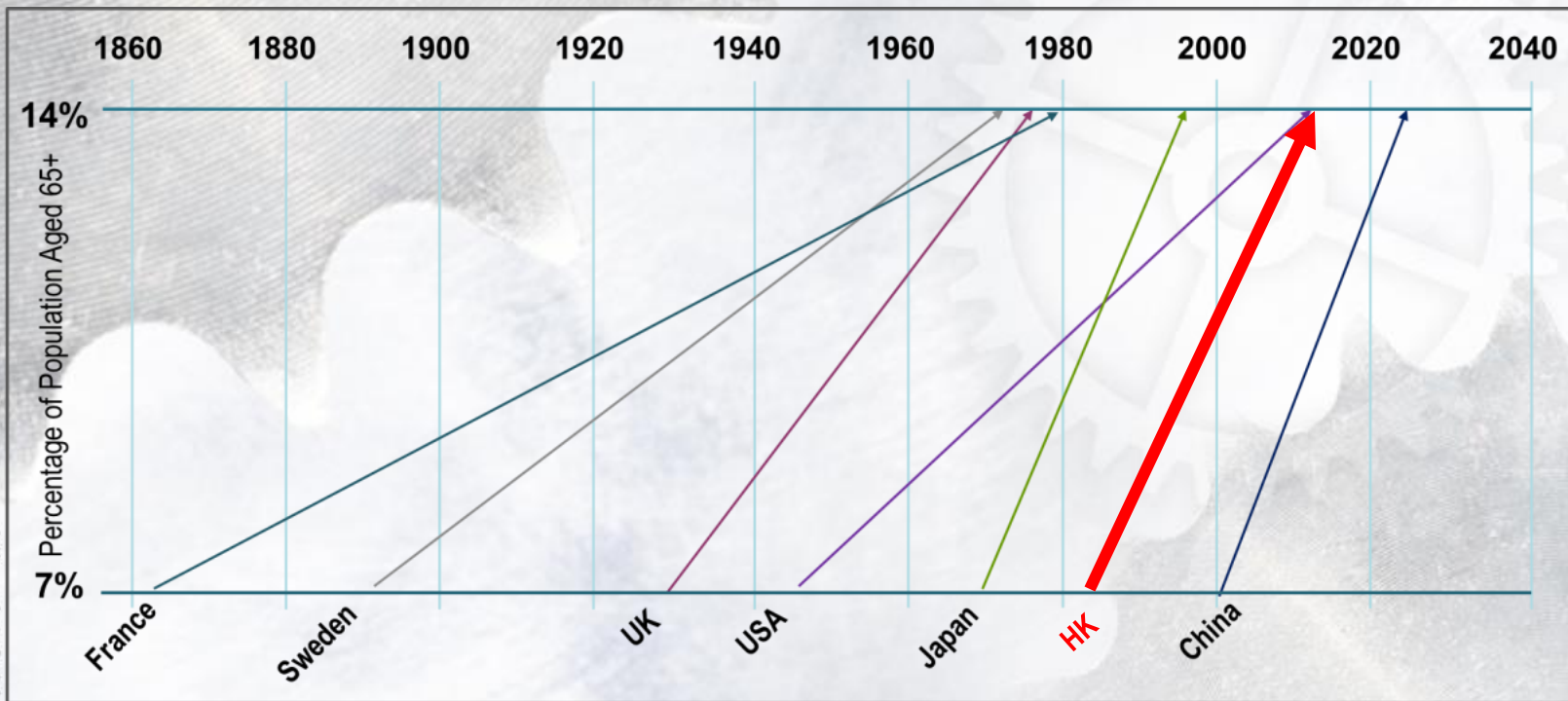


Source: United Nations, Department of Economic and Social Affairs, Population Division
World Population Prospects, the 2015 Revision

Remark: *Refer to the median prediction

Speed of Population Ageing

Time required / expected for the proportion of elderly population to rise from 7% to 14%



Challenge of Aging population

香港女性和男性平均壽命都是全球之冠！日本厚生勞動省公佈，日本男女平均壽命分別為80.79及87.05歲，打破以往紀錄，不過香港女性以87.32歲力壓日本女性，成為全球最長壽。

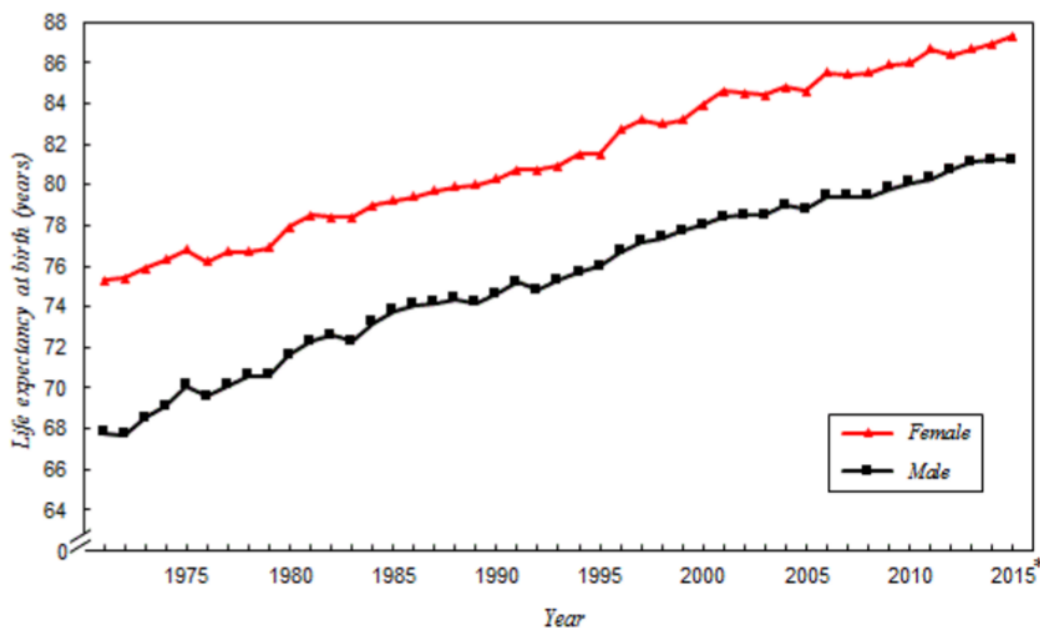
- Home
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Life Expectancy at Birth (Male and Female), 1971 - 2015

The life expectancies at birth for both sexes have steadily increased during the past 45 years, from 67.8 years for males and 75.3 years for females in 1971 to 81.2* years and 87.3* years respectively in 2015.



Notes:

Figures from 1996 onwards are compiled based on the population estimates under the "resident population" "extended de facto" approach.

* Provisional figures for year 2015.



Ageing

衰老



Department of Health
The Centre for Health Protection is a professional arm of the Department of Health for disease prevention and control



Hong Kong Health Care System – A Two Tier System

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Public

92%

Prevention & Public Health



33%

Outpatient



100%

A&E



62%

Inpatient & daypatient



97%

Rehab & extended care

Private

8%

67%

0%

38%

3%



2.5% GDP



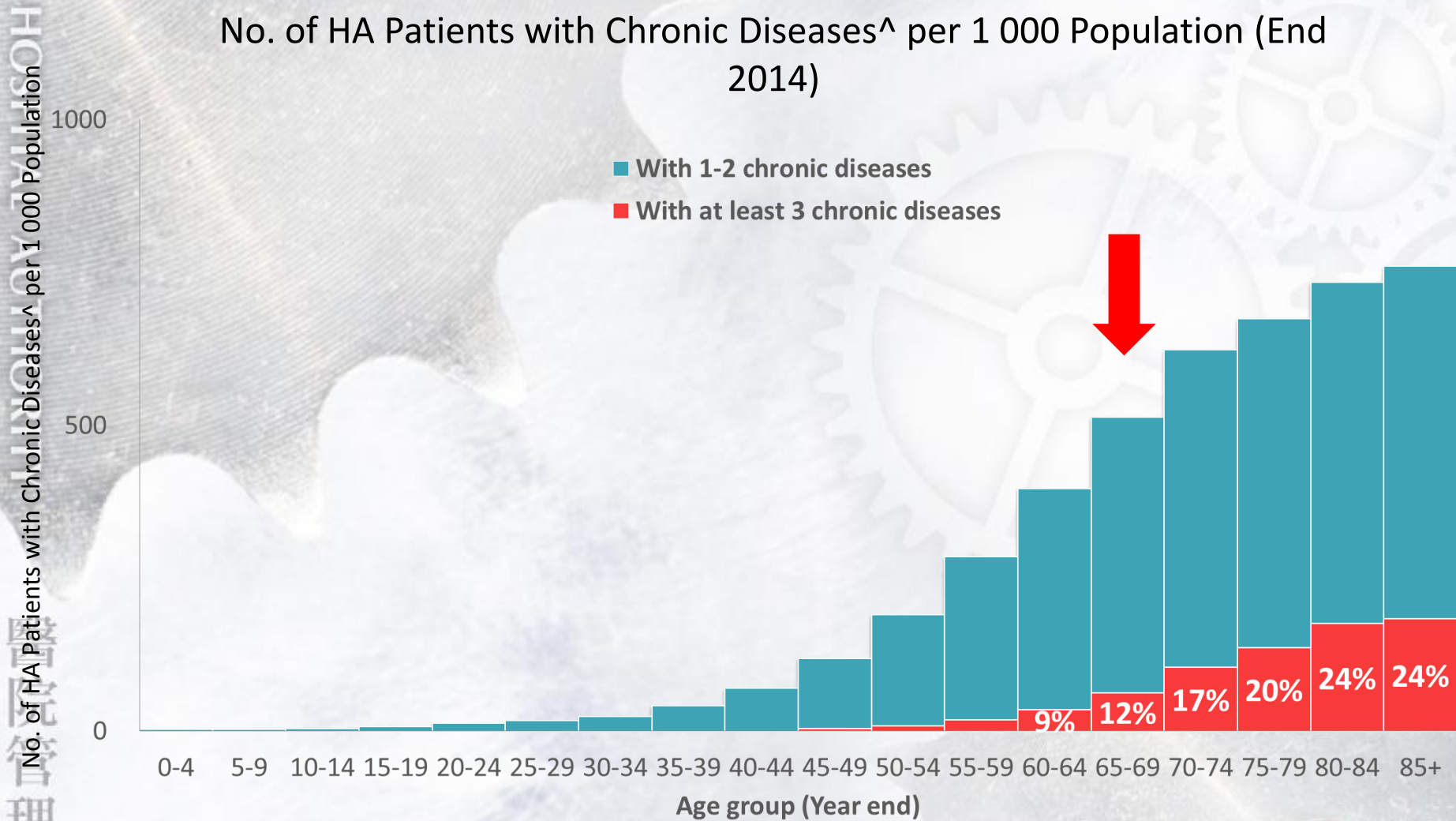
2.6% GDP

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Ageing – Increasing Complexity of health issues

No. of HA Patients with Chronic Diseases[^] per 1 000 Population (End 2014)

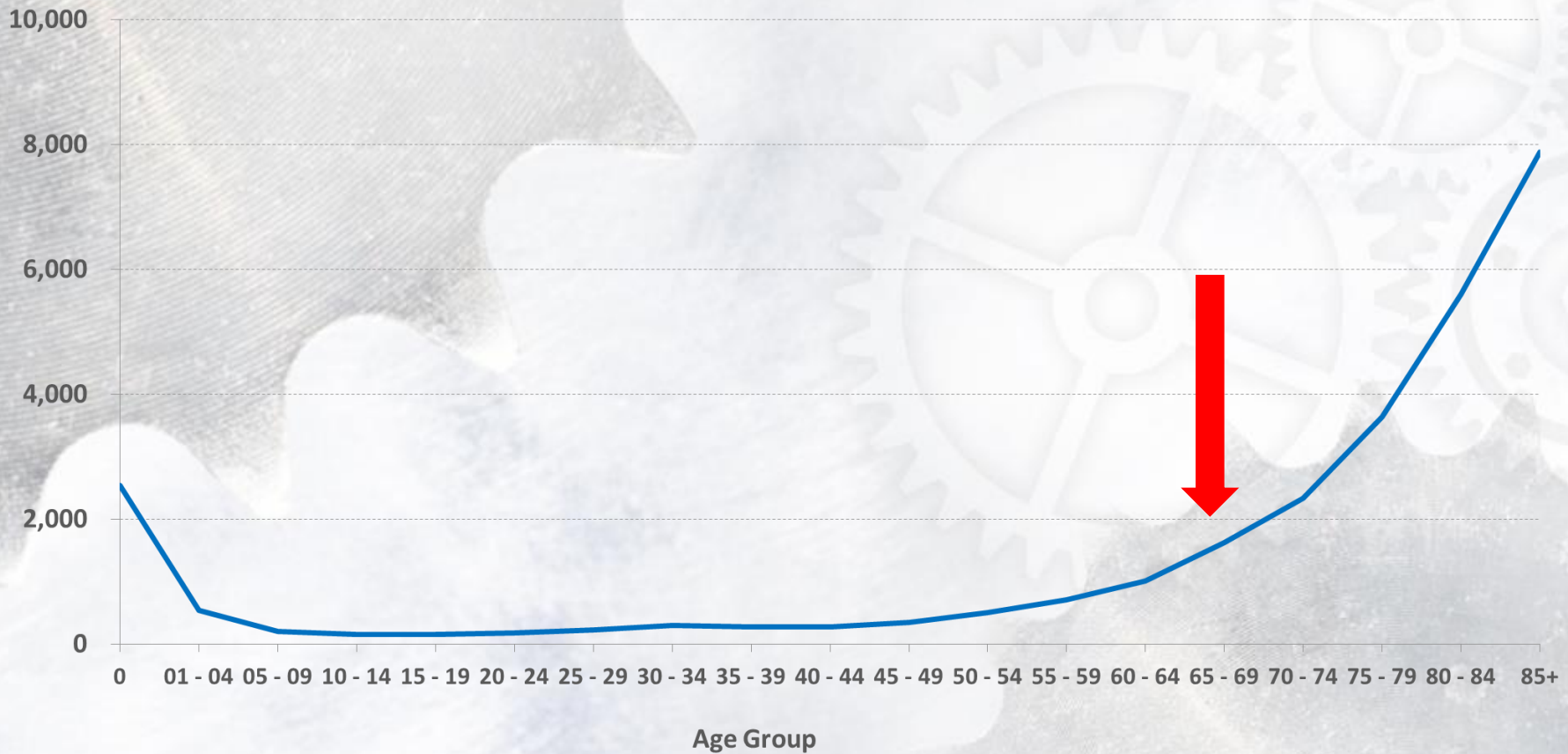


HO
No. of HA Patients with Chronic Diseases[^] per 1 000 Population
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[^] Based on 13 selected chronic diseases

Impact of Population Ageing: Services Utilization

Inpatient Service Utilization Rate (Total Patient days[#] per 1,000 population) in 2010



Remarks:

Patient days for General Specialty only (i.e. Care Category: Acute General or Convalescence/Rehabilitation).

* Figures at age 0 refer to patient days (exclude Nursery only) per 1000 registered births.

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Higher Risk of Hospitalization for Elderly

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Non-Elderly (< 65)

Elderly (≥ 65)



Ever admitted to any HA hospital (General specialty*)

0.7 in 10

2.6 in 10

1

vs.

4

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Remark:

*Refers to Acute General and Convalescence/Rehabilitation in 2010 (excluding aged 0).

Mounting Demand from Elderly

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Per 1000 Non-Elderly (<65)



Hospital Bed Requirement*
(General specialty)



1.3 beds

Per 1000 Elderly (≥ 65)



11.8 beds

1

vs.

9

Remarks:

* Bed requirement is based on the rate of patient days per population for General Specialty only (i.e. Acute General and Convalescence/Rehabilitation) in 2010. Age 0 are excluded in the calculation of hospital service utilization.

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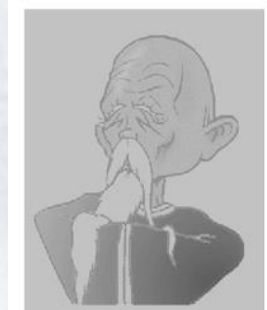
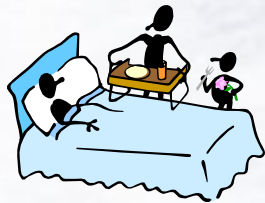
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Characteristics of Elderly Patients

長者病人的獨特需要

- Multidisciplinary team approach important
 - More Chronic illnesses & comorbidities
 - Slower response to treatment
 - Environmental factors important
 - Dementia in Hong Kong
 - 100,000 in 2009 (~ 330,000 by 2039)
- Low “tech” but high “touch” care



- Avoid unnecessary hospitalization
 - Caring at place of residence is better esp for dementia

Adverse outcomes of hospitalization for older patients

Hospital management of older adults. UptoDate May 2017

Functional decline

Falls

Delirium

Sleeplessness/sleep deprivation

Tethers

Infections

Malnutrition

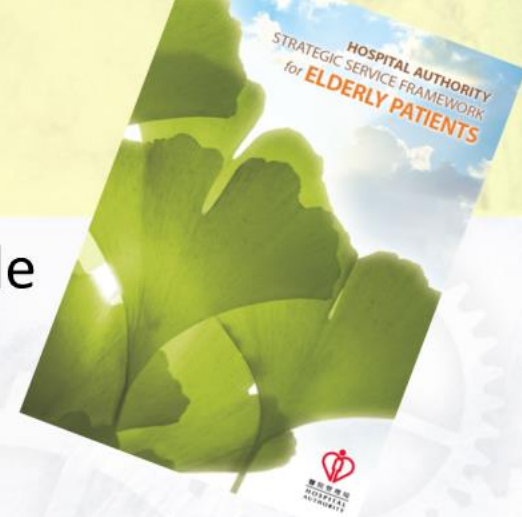
Pressure ulcers

Venous thromboembolism

Adverse drug events

HA's Overall Strategies

- **Strategic Service Framework** for Elderly People
- Provide appropriate level of care based on **stratified risk & needs**



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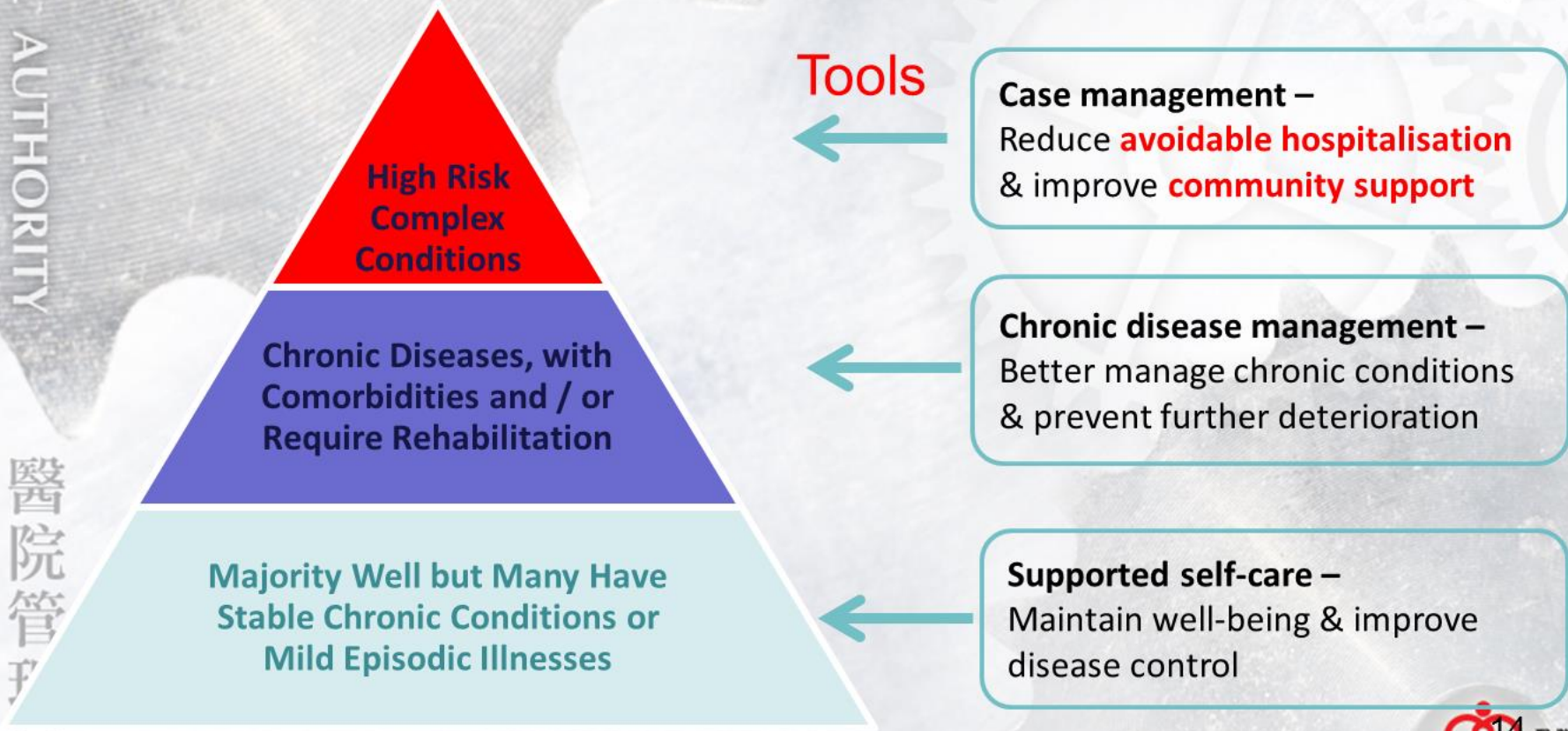


Figure: Pyramid of Healthcare Needs of the Elderly Population

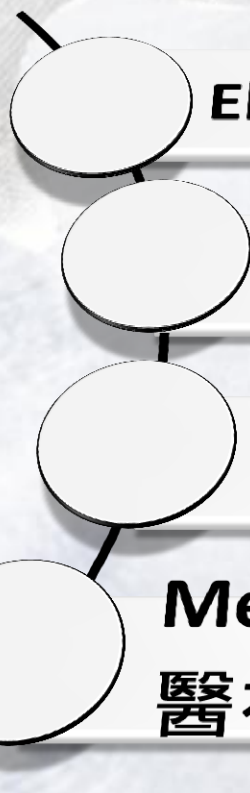
Principle of health care provision to elderly people



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長者醫療
服務

*Elderly
Services*



Elder-centered 以長為先

Accessibility 本區就醫

Community medical care
社區醫護

Medico-social collaboration
醫社結合

Some examples

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Old Age Home distribution in NTWC 新界西區老人院舍分佈情況



Community Geriatric Assessment service

- Community Geriatric Assessment service (CGAS) 社區老人評估服務
- Start in 1994
- Now serves all clusters
 - Timely assessment & appropriate Mx of health problems for elderly people at risk in the community
 - Improve the interface b/w medical & social service sectors
 - Establish community based rehabilitation programs
 - Ensure correct placement of elderly people into institutions
 - Promote quality of care through education of caregivers
- Reduced admission rate, unplanned readmission rate, A&E attendance rate & incidence of adverse events & appraisal of service by clients or caregivers

Community Geriatric Assessment Teams (CGATs) 2016

- Covers ~640 RCHEs (90%)
- Provides outreach medical consultation, nursing assessment, treatment and community rehabilitation



LamTei RCHE project 藍地計劃

Enhanced Community Geriatric Assessment Service (CGAS)

Empowerment of RCHE to care for selected sick inmates

- Ride on existing CGAS platform
- Medical-social care model development
- Medical/ nursing/ AH/ pharmacy/ support
- Governance & finance

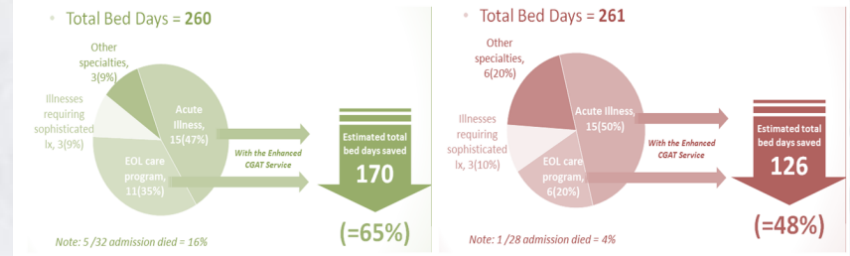
The Sick Bay

- 45 beds
 - **Owned** by POH board
- The Clinical Governance
 - **RCHE inmates** but **CGAT patients**
 - Extended caring of RCHE inmates by CGAT
 - Outpatient status but with more in-depth medical & nursing care
 - Case selected by CGAT
 - For acute, sub-acute, rehabilitation, End-of-life (EOL) care
 - Collaboration with future RCHE resident team



Total Bed Days cared at Sick bay

Possible to have **1/2 to 2/3** of total bed days for the residents with hospitalization need to be cared at Sick Bay

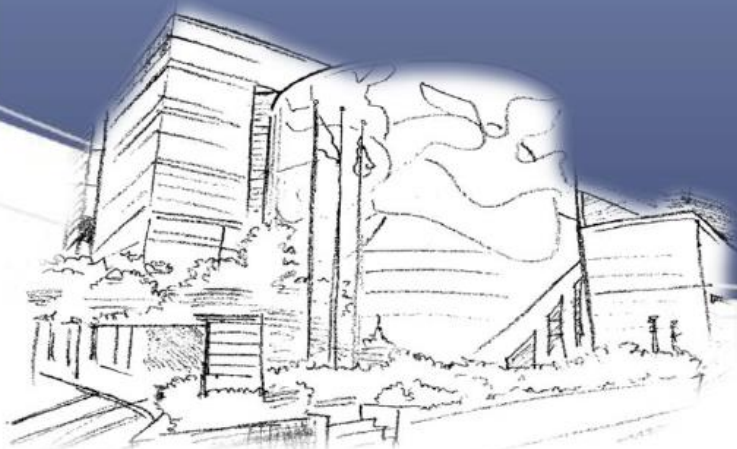


Medical Care Support of the RCHE

Service Provision	
RCHE medical team	<ul style="list-style-type: none"> • Primary care and mild episodic illnesses of residents
CGAS in the usual mode	<ul style="list-style-type: none"> • CGAT to provide current mode of scheduled outreach visits to RCHE residents
Enhanced CGAS in the Sick Bay	<ul style="list-style-type: none"> • HA specialist to provide medical consultation to Sick Bay on daily basis, Mon to Fri, one (AM) session per day • HA specialist to work closely with RCHE resident doctor • Protocol based medical, nursing and rehabilitative care would be implemented • Tele-communication would be utilized at times

Dementia Community Support Scheme

「智友醫社同行」計劃



A 2-year Pilot for Establishing a Medical-social Collaboration Model for Mild to Moderate Dementia



SWD

1. Select DECCs
2. Handle contractual and funding arrangement with NGOs
3. Monitor performance of NGO
4. Coordinate relevant training activities

HA

1. Identify suitable patients and make referrals to NGO
2. Conduct assessment
3. Formulate care plan for individual patient
4. Develop protocol and service standard
5. Facilitate/ Provide training for staff of NGO



Suitable patients with mild to moderate dementia referred by HA

Primary Care (Medical Support)

NGOs (DECCs)

1. To provide services to patients with stable mild to moderate (according to care plan) who are living at home:
 - Training/ rehabilitation of dementia patients according to the careplan designed by HA
 - Day and home care
 - Carer training
 - Other community/social support
2. To report patients' progress

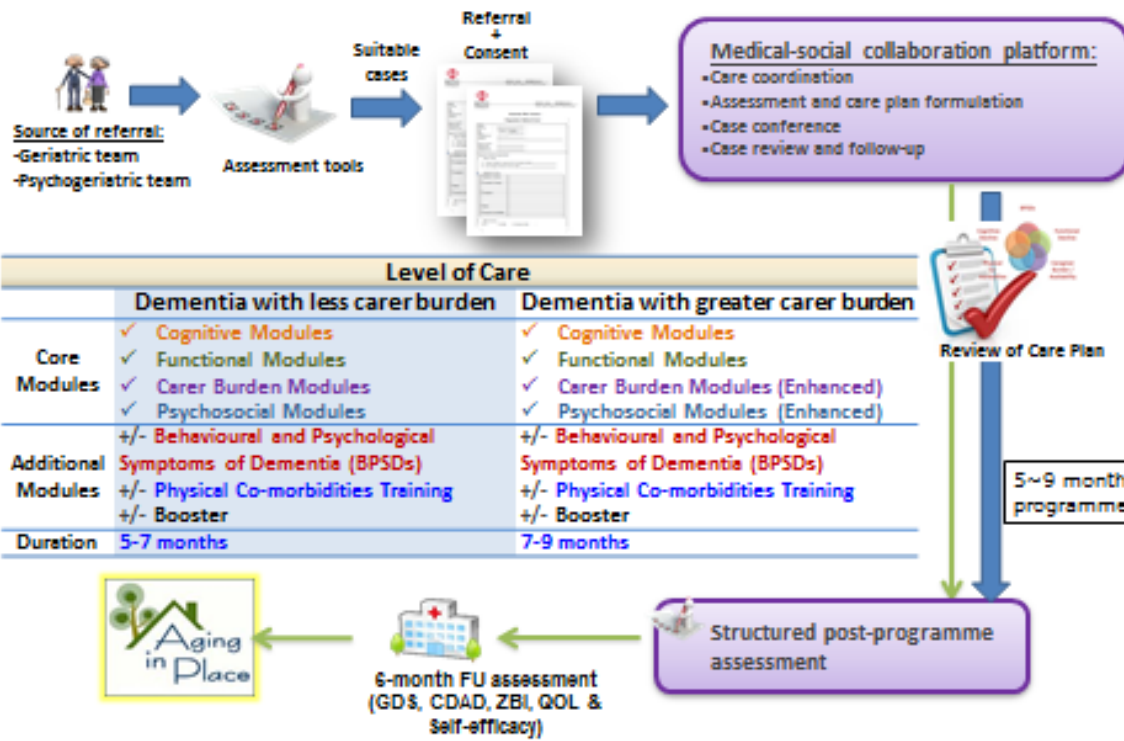
Community members who are prone to dementia

After the time-limited programme



NGO (DECCs)

Patient Flow Arrangement



- Training
- Empowerment
 - Elders
 - Care-givers
 - Social Welfare staffs
- Clinical support
- IT & Technology

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Tele-medicine

Definition

- The delivery of health care services, where **distance is a critical factor**, by all health care professionals using information and communication technologies for the exchange of valid information for **diagnosis, treatment and prevention** of disease and injuries, research and evaluation and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.

- *A health telematics policy in support of WHO's Health-For-All strategy for global health development: report of the WHO group consultation on health telematics, 11-16 December, Geneva, 1997. Geneva: World Health Organization; 1998*

Categories

- **Store-and-forward** — store-and-forward telemedicine refers to the use of asynchronous (not real-time) computer-based communication between a patient and a consulting provider, or a referring health care provider and a medical specialist at a distant site for the purpose of diagnostic and therapeutic assistance in the care of patients who otherwise have no timely access to specialty care.⁴
- **Real-time interactive telemedicine** — provides synchronous real-time interaction between a patient and health care provider, usually via a videoconferencing device or wireless tools.
- **Home health care and remote monitoring systems** — provides care to individuals and families in their place of residence to promote, maintain, restore health, or to minimise the effects of disability and illness, including terminal illness. Use of remote monitoring and interactive devices allows the patient to remit information about vital signs on a regular basis to a provider without the need for travel.⁵ Monitoring technology is classified into two broad categories, a portable or wearable device (e.g. blood pressure monitor, glucose monitor) and fixed or environmental devices (e.g. motion sensor, acute fall detector).⁶

Information Provision – HA's Smart Patient Website

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Text Only | 繁體純文字 | 简体純文字 | English | 繁體 | 简体 | हिन्दी | Bahasa Indonesia | नेपाली | ਪੰਜਾਬੀ | پنجابی | Tagalog | ភាសាខ្មែរ

SMART PATIENT 智友站

醫院管理局 HOSPITAL AUTHORITY

DISEASE INFORMATION | SELF-CARE TIPS | USEFUL RESOURCES | ABOUT SPW

Smart Elders 智老友
Stage for Chronic Diseases Patient
One-stop information and Care Skills information platform
Carer Corner

Chronic Diseases | Cancer in Focus | More Diseases & Conditions | Find a Patient Group

Empowerment Activities

June 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25

Monthly Recommendation

2016年6份醫院及病友組織活動精選 (Chinese Version Only)

公開教育講座2016 (Chinese Version only)

健康心律坊 (Chinese Version only)

「同是有心人」講座

What's New

CarePlus (Chinese Version Only)

Stage for Chronic Diseases Patient One-stop Information & Care Skills Information Platform

Health InfoWorld

Government Vaccination Programme For 2015/16

Smart Elders

App Store



Cumulative hit counts at 25 Mn

Information Provision – Smart Elders Website

- A one-stop online information platform to empower elders who are suffering from chronic diseases and their carers.



Golden Age Corner

Carer Corner



Electronic Frailty Index

Age and Ageing 2016; 45: 353–360
doi: 10.1093/ageing/afw039
Published electronically 3 March 2016

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Development and validation of an electronic frailty index using routine primary care electronic health record data

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Abstract

Background: frailty is an especially problematic expression of population ageing. International guidelines recommend routine identification of frailty to provide evidence-based treatment, but currently available tools require additional resource.

Objectives: to develop and validate an electronic frailty index (eFI) using routinely available primary care electronic health record data.

Study design and setting: retrospective cohort study. Development and internal validation cohorts were established using a randomly split sample of the ResearchOne primary care database. External validation cohort established using THIN database.

Participants: patients aged 65–95, registered with a ResearchOne or THIN practice on 14 October 2008.

Predictors: we constructed the eFI using the cumulative deficit frailty model as our theoretical framework. The eFI score is calculated by the presence or absence of individual deficits as a proportion of the total possible. Categories of fit, mild, moderate and severe frailty were defined using population quartiles.

Outcomes: outcomes were 1-, 3- and 5-year mortality, hospitalisation and nursing home admission.

Statistical analysis: hazard ratios (HRs) were estimated using bivariate and multivariate Cox regression analyses. Discrimination was assessed using receiver operating characteristic (ROC) curves. Calibration was assessed using pseudo- R^2 estimates.

Results: we include data from a total of 931,541 patients. The eFI incorporates 36 deficits constructed using 2,171 CTV3 codes. One-year adjusted HR for mortality was 1.92 (95% CI 1.81–2.04) for mild frailty; 3.10 (95% CI 2.91–3.31) for moderate

Box 1. List of 36 deficits contained in the eFI.

Activity limitation	Memory and cognitive problems
Anaemia and haematinic deficiency	Mobility and transfer problems
Arthritis	Osteoporosis
Atrial fibrillation	Parkinsonism and tremor
Cerebrovascular disease	Peptic ulcer
Chronic kidney disease	Peripheral vascular disease
Diabetes	Polypharmacy
Dizziness	Requirement for care
Dyspnoea	Respiratory disease
Falls	Skin ulcer
Foot problems	Sleep disturbance
Fragility fracture	Social vulnerability
Hearing impairment	Thyroid disease
Heart failure	Urinary incontinence
Heart valve disease	Urinary system disease
Housebound	Visual impairment
Hypertension	Weight loss and anorexia
Hypotension/syncope	
Ischaemic heart disease	

Innovation for patient care

RCP Excellence in Patient Care Awards

March 2017



Winners announced – RCP Excellence in Patient Care Awards



The winners of the Royal College of Physicians' (RCP) [Excellence in Patient Care Awards](#) were announced at last night's dinner and ceremony following the first day of [Medicine 2017, RCP annual conference](#). The awards aim to recognise and celebrate the impressive work of RCP members, fellows and their teams in contributing to excellent patient care both in the UK and internationally.

We are pleased to announce that our 2017 winners are:



Innovation

Award for outstanding clinical activity that contributes to excellent patient care in an innovative and forward-thinking way.

The Electronic Frailty Index Team

The electronic frailty index (eFI)

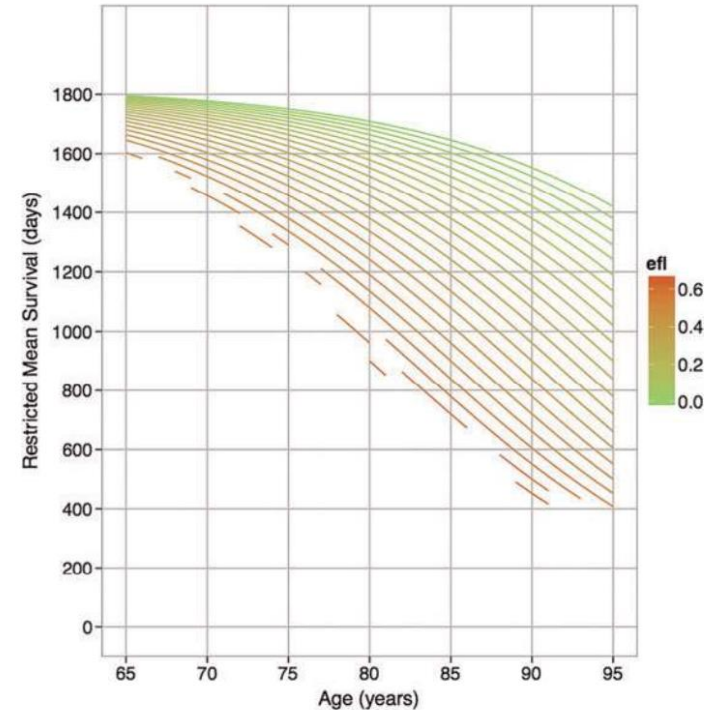
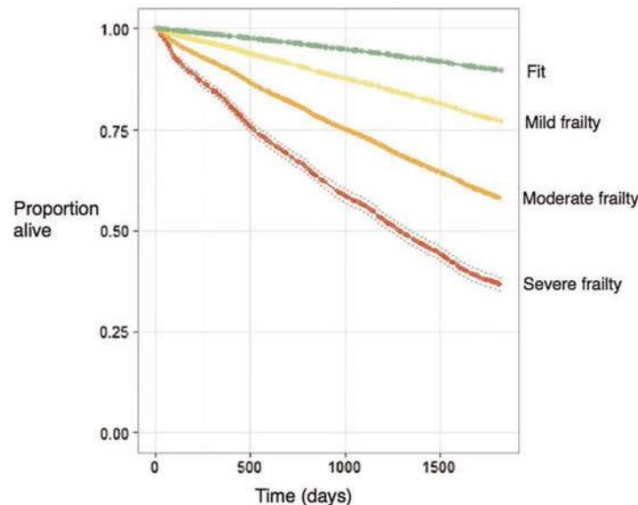


Figure 2. Relationship between age, electronic frailty index score and mortality (internal validation cohort).

Hospital Authority Clinical Management System - Internet Explorer







Logon ID:

Password: Logon

Useful Links

- [NTWC Intranet](#)
- [HA Library Information Systems](#)
- [Fact Sheets for Informed Consent](#)
- [TMH Intranet](#)
- [Drugs Ingredient Search](#)
- [HA Drug Formulary \(HADF\)](#)
- [SESAS](#)
- [Electronic Patient Record](#)
- [Pharmaceutical Service](#)
- [CMS Newsletter](#)

[User Guide](#) [Clinical Dashboard](#)

Important Notes

1. All patient information is strictly confidential
2. Staff may only use the CMS for authorised purpose
3. All access to CMS is logged
4. Please logoff immediately after use
5. Please ensure you have verified the content before

Background Information / Tx **Measurement / Lab Test** Eyes Feet Other Complication(s) Diet Assessment Risk Profile Care Plan

Metabolic Risk Assessment Date * 11-Oct-2013 Preview rules History New

Measurements

Blood Pressure
Systolic / Diastolic

Sitting (R) 150 / 110 mmHg
(L) / mmHg

Lying / mmHg

Standing / mmHg

Body

Weight 71.1 kg BMI 29.22 kg/m²
Height 1.56 m

Waist cm WHR
Hip cm

Skinfold Thickness

Abdomen mm
Arm mm
Subscapular mm

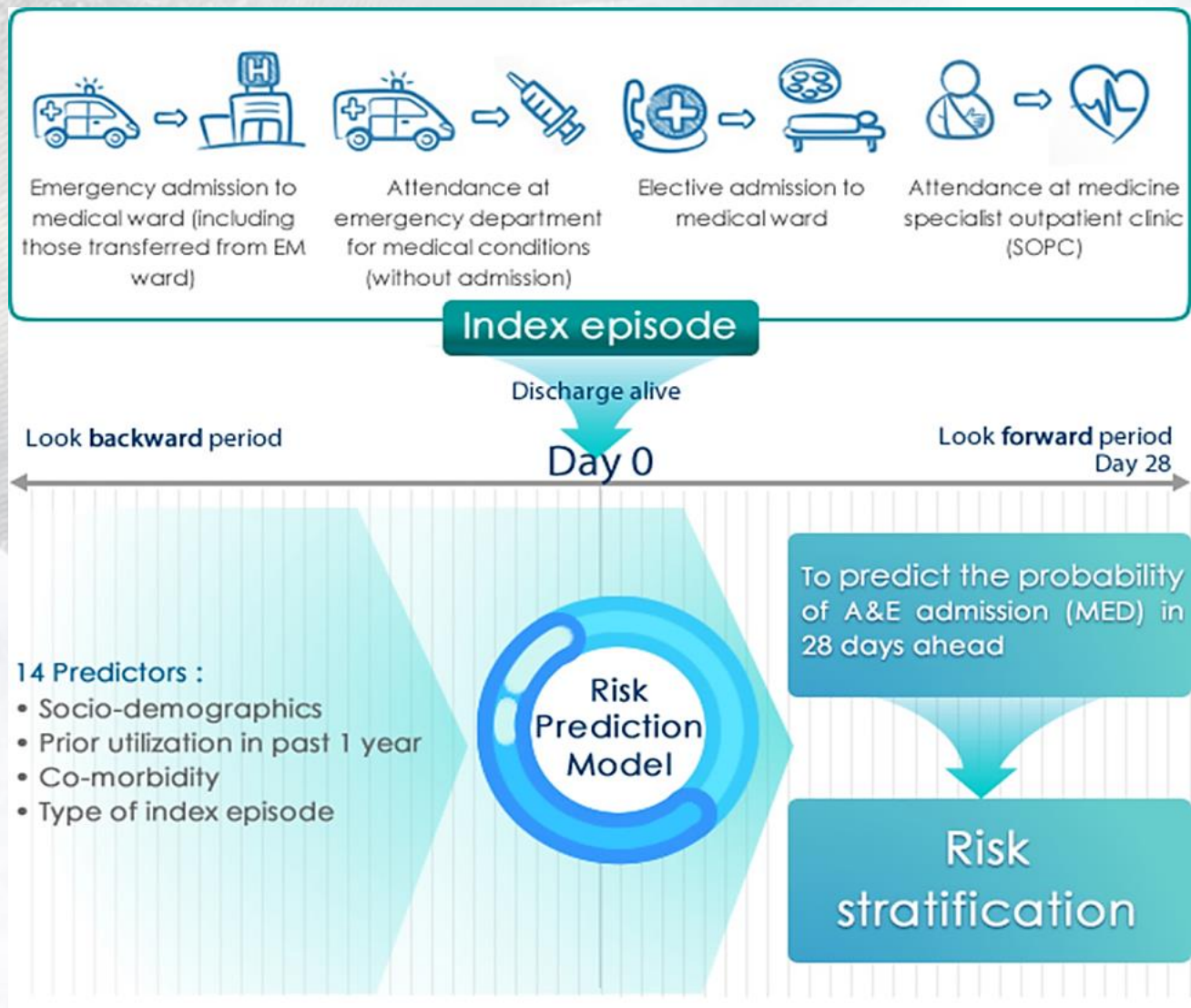
Laboratory Tests

Lab Retrieval Last retrieval: 11-Oct-2013 16:54:49

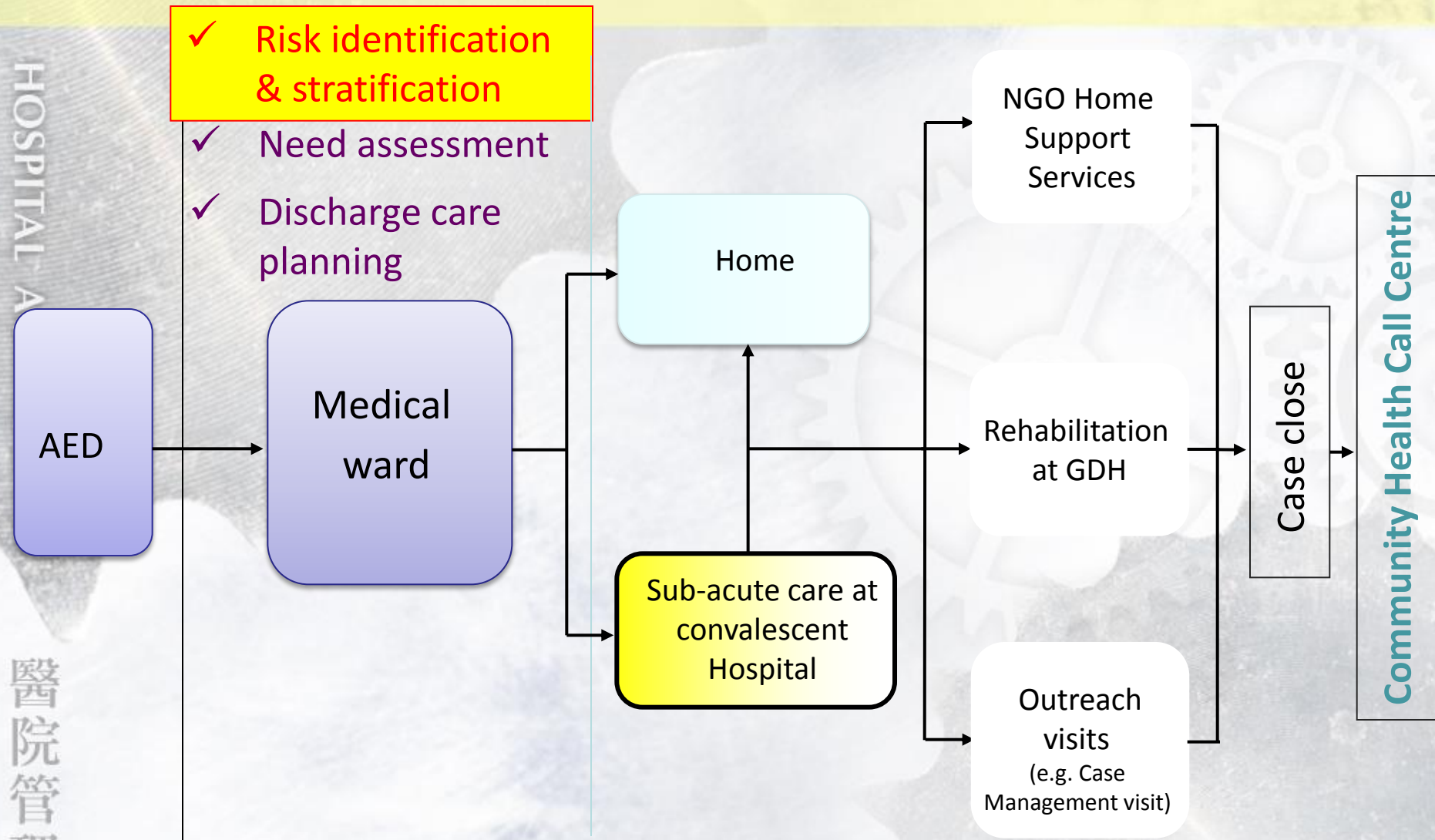
Lab Test	Lab Result	Reference Range	Reference Date
HbA1c	Ref.ePR %		05-Nov-2012
Fasting glucose	3.8 mmol/L	(L)	31-Oct-2012
Total cholesterol	Ref.ePR mmol/L		05-Nov-2012
LDL-C	Ref.ePR mmol/L		05-Nov-2012
HDL-C	Ref.ePR mmol/L		05-Nov-2012
Triglycerides	Ref.ePR mmol/L		05-Nov-2012
Serum K	4.0 mmol/L		24-May-2013
Serum creatinine	80 umol/L		24-May-2013
Calculated eGFR	ml/min/1.73m ²		
Creatinine clearance	150 ml/min	(H)	29-Oct-2012
Proteinuria	0.15 g/d	(H)	24-Nov-2012
Albumin excretion rate	30 mg/d	(H)	05-Nov-2012
Urine alb / Cr ratio	3.3 mg/mmol	(H)	05-Nov-2012
Urine alb concentration	20.00 mg/L		05-Nov-2012

Delete Print Save Draft Save & Sign Off Close

Risk Stratification – HARRPE Score



System of Integrated Care and Discharge Support for High Risk Elderly Patients: Patient Journey



Led by geriatricians and care coordination by link nurses

Integrated Care and Discharge Support for High Risk Elderly Patients



Enablers for success

HOSPITAL AUTHORITY

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醫社合作
居家安老
社區共融

Thank you

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