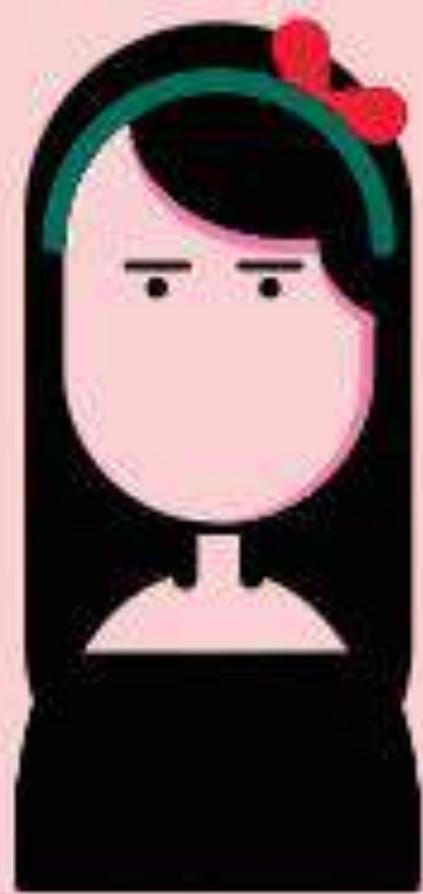


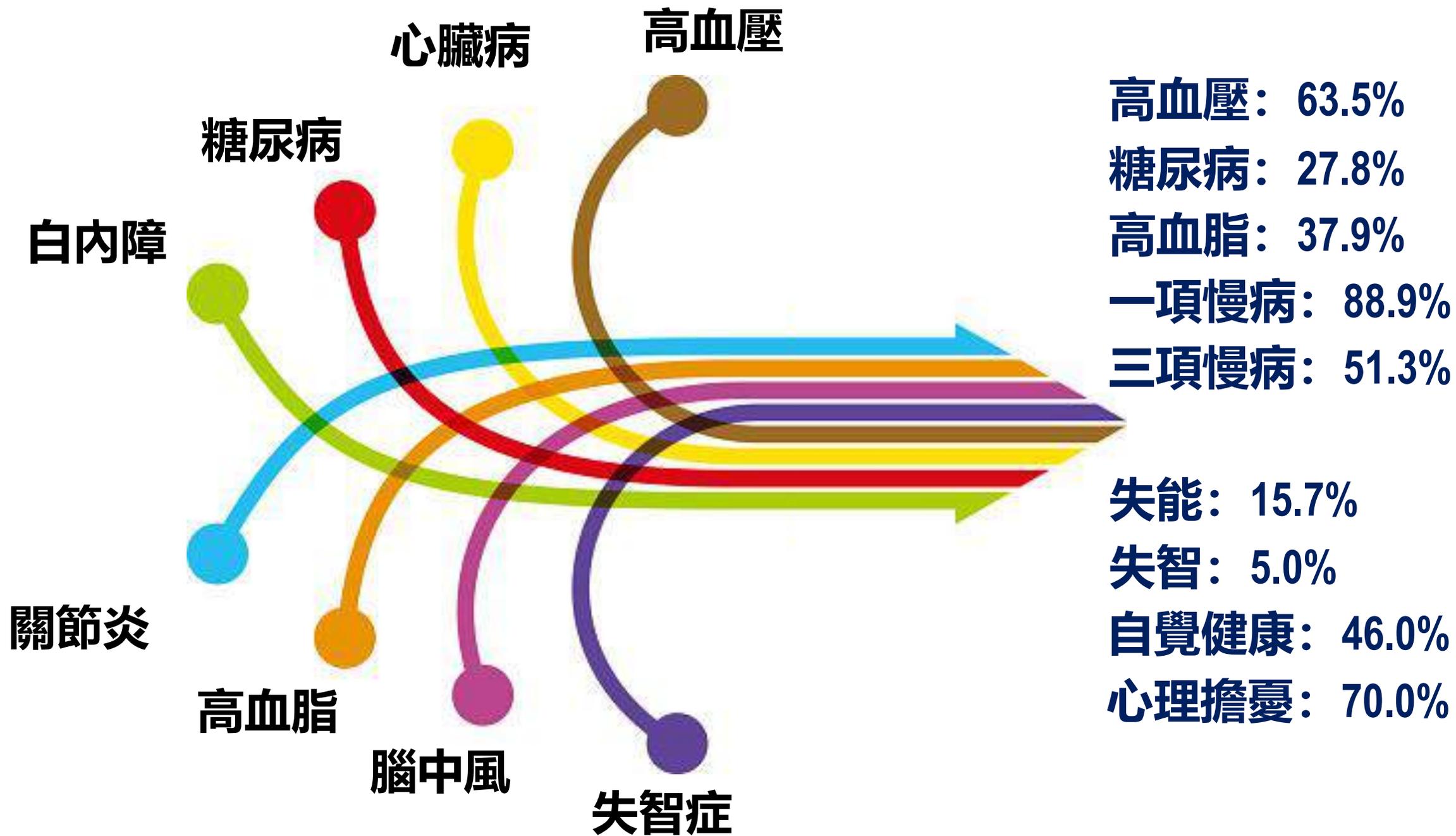
營造健康長壽宜居新社區 數位轉型連結全球行動

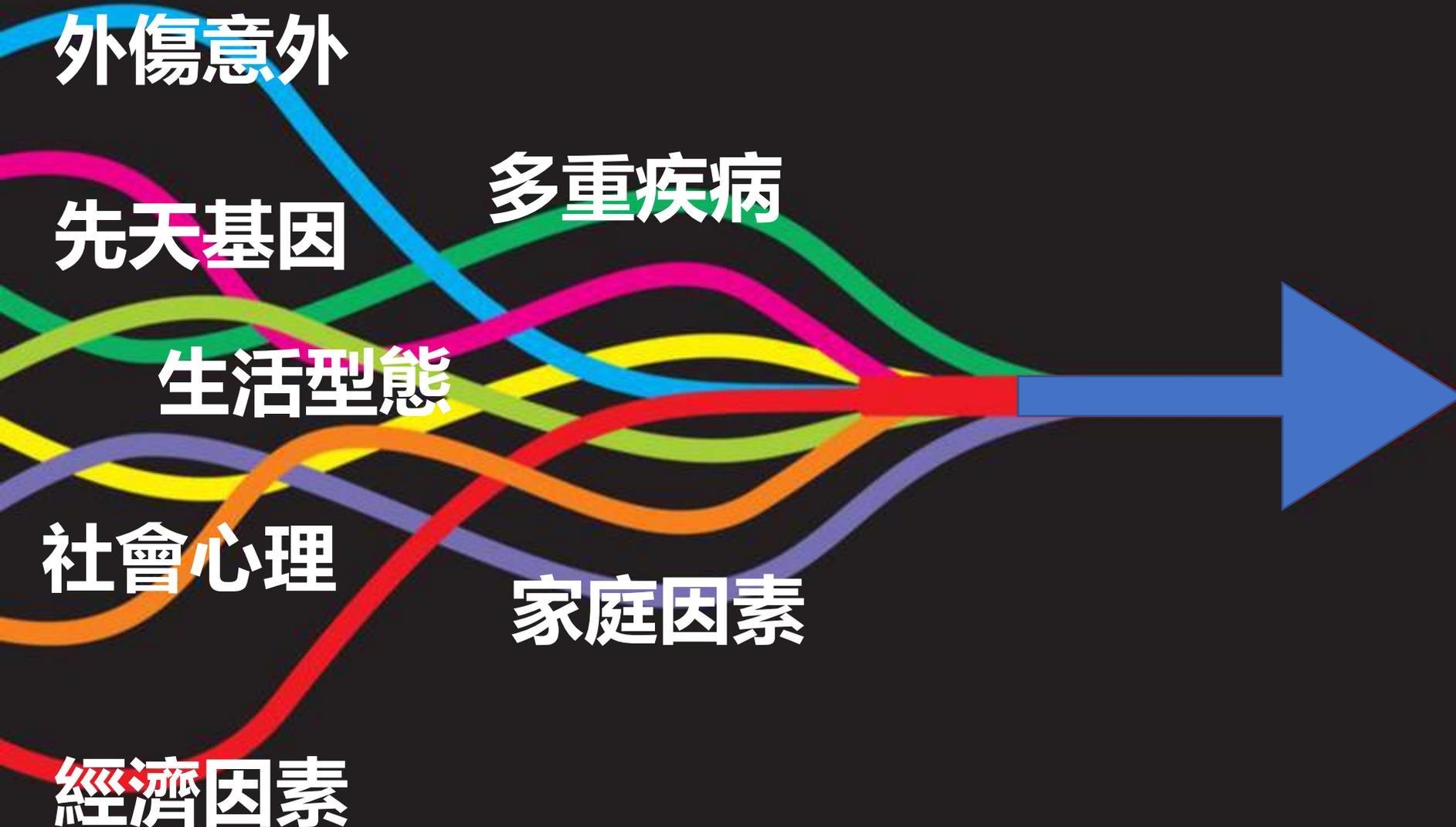
陳亮恭教授

台北市立關渡醫院（北榮經營）院長

國立陽明交通大學醫學系特聘教授









Begin with the End in Mind

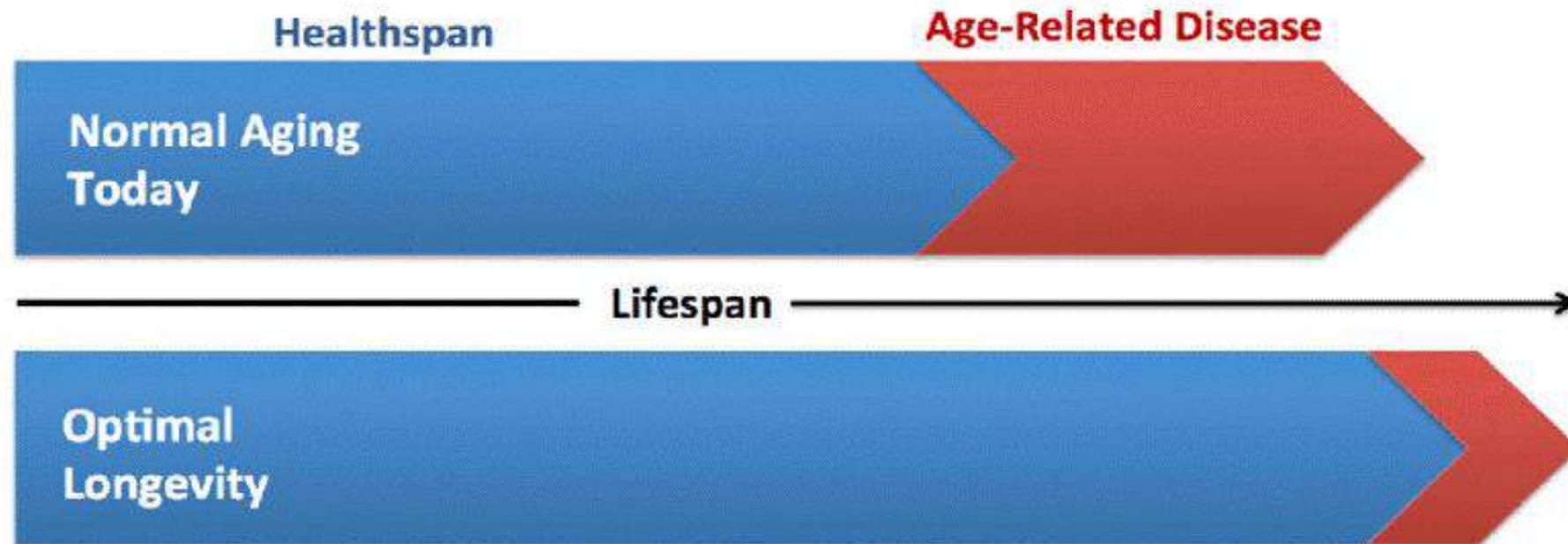
Stephen R. Covey

以終為始

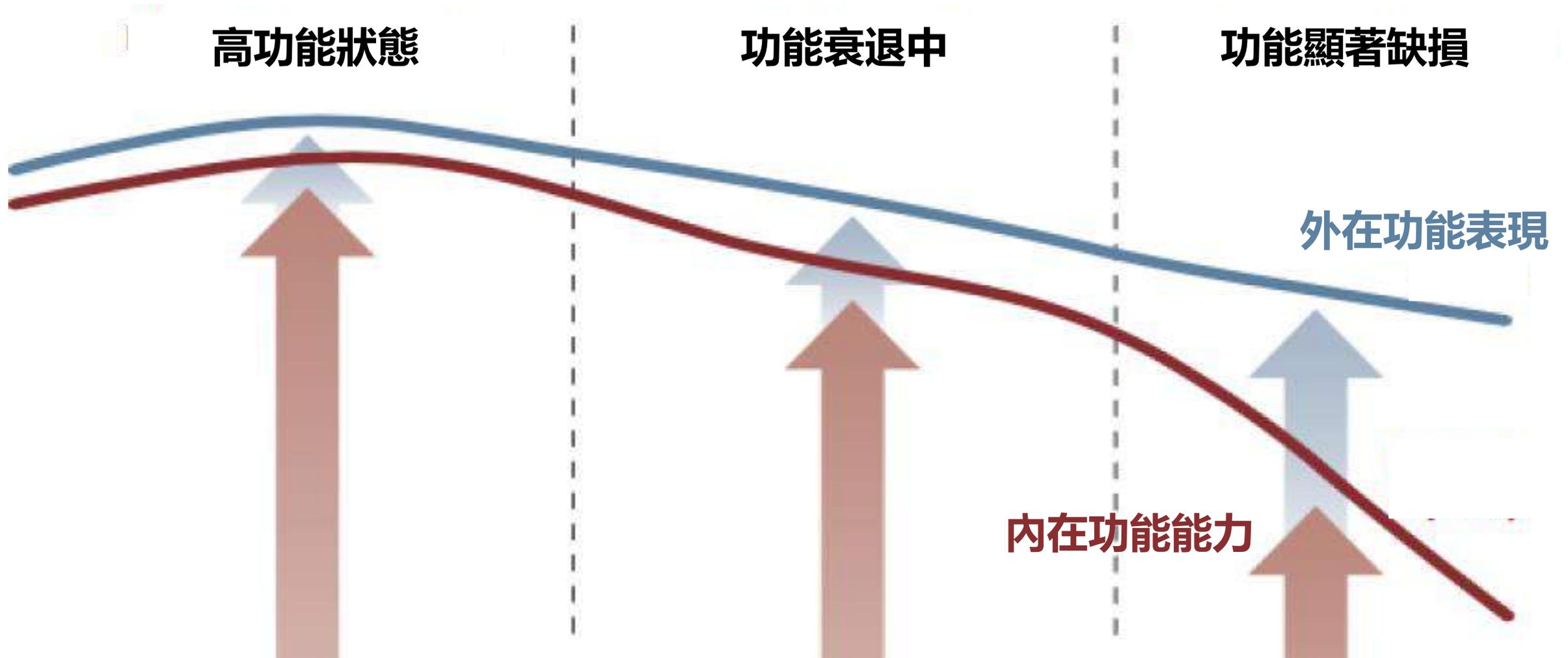
Health for **All** for **LONGER**

健康長壽
(Healthy Longevity)

追求晚年生活安適，透過個人化生命歷程觀點，涵蓋身心靈與社會層次的介入



聯合國世界衛生組織之全球策略





典範轉移

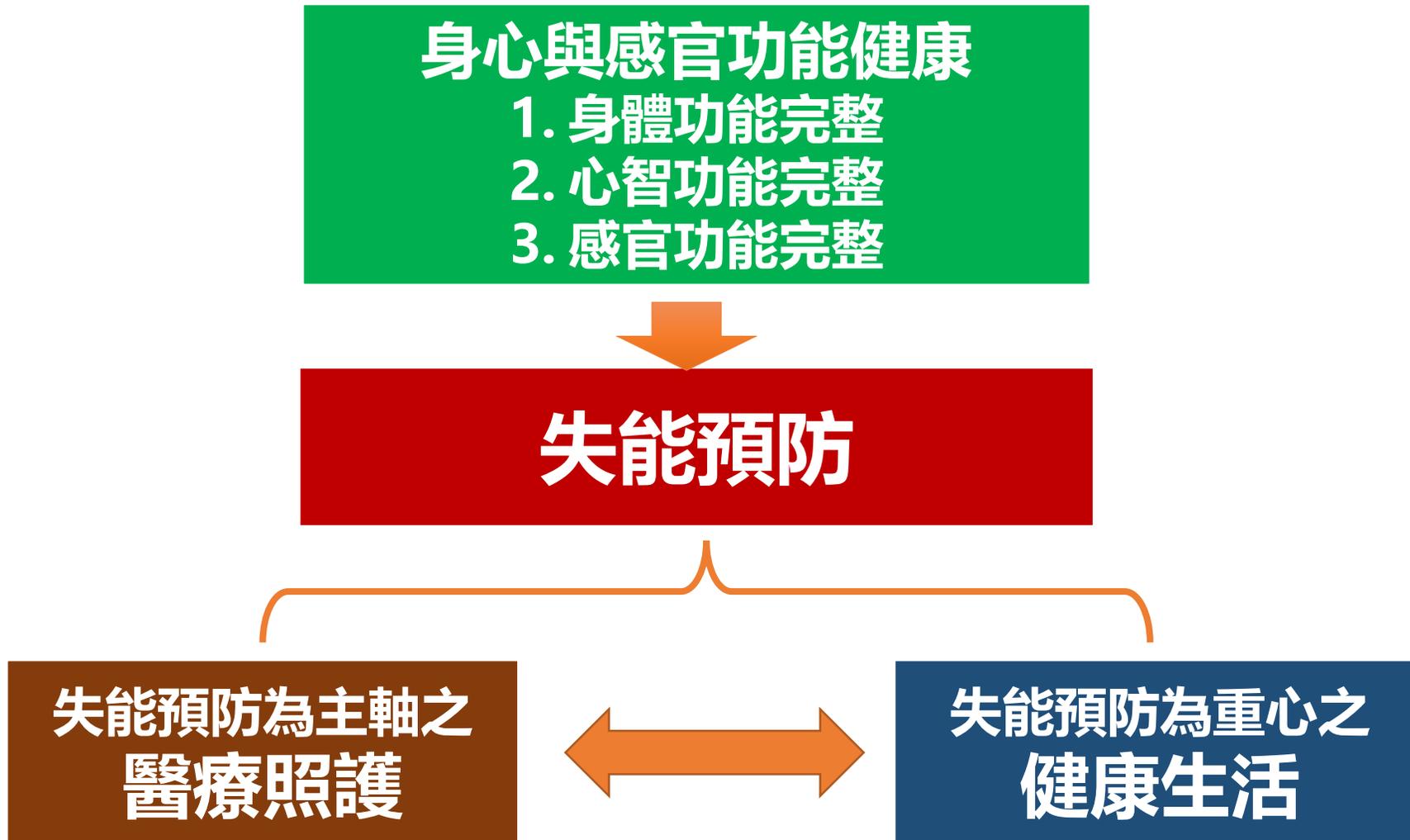
DISEASE



FUNCTION

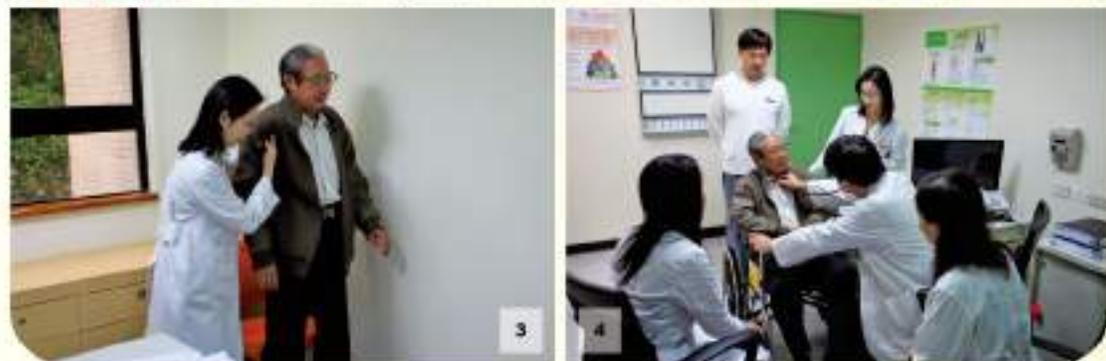


以預防失能為核心的健康照護體系



門診流程

高齡醫學整合門診目前每週開設四診，每診以診治15位病患為原則。每個診次二到四位醫師與一位個案管理師，共同為患者進行看診。



5

1. 基本資料登錄
護理人員針對初次訪談的老年患者，詢問基本資料及護理評估。
2. 完整病史詢問
資深住院醫師，針對老年患者進行初步身體檢查，並了解過去的疾病病史。
3. 安全性老年評估
個案管理師，透過測驗，評估老年患者於日常生活的自主能力。
4. 整合醫療診斷
老年醫學之專科醫師、復健科與精神科醫師，進行整合醫療評估。
5. 完成門診流程，僅以一次計價。

整合門診改善品質

全年照護品質
49.8%

全年醫療費用
35.4%

Tao P, et al., *Geriatr Gerontol Int* 2012;12:612-21



- 1. 復健治療區
附設容易復健室，便於患者就近復健。
- 2. 開放式沐浴間
開放式設計，便於病區直接推入，並備有結構高寬的透明式前置淋浴浴機，便於協助失能患者沐浴清潔。
- 3. 止滑階板扶手設計
便於拄杖、輪椅等輔具使用者，皆可扶撐前進。
- 4. 護理站之欄桿對齊設計
讓非同軸的長者，可方便於護理站諮詢。

高齡病房降低失能

免於重度失能
32.5%

住院後死亡風險
76.2%

Hsu CC, et al., Aging Med Healthc 2021;12:62-67

急後照護提升功能

身心功能回復
48.6%

年度死亡風險
62.0%

Chen LK, et al. Ann Med 2010;42:630-6

桃園榮民醫院 Taoyuan

- 1.運動治療室
- 2.診療室
- 3.物理治療室
- 4.交談廳

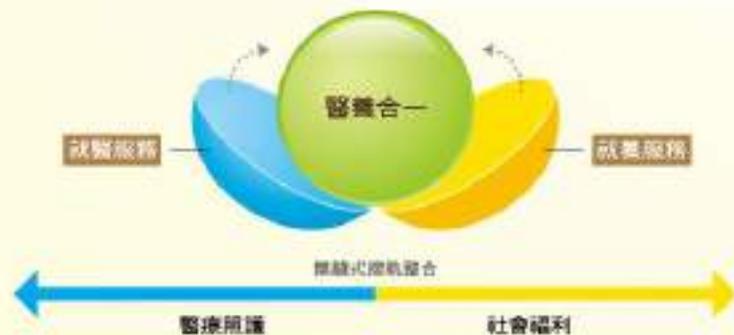
宜蘭榮民醫院 Yilan

- 1.護理室
- 2.物理治療室
- 3.交談廳
- 4.戶外活動場地



連結整合醫療、安養、服務機構功能以及資源，建構樂民健康促進及長期照護制度，使樂民（眷）獲得妥善「全人、全程、全家」的醫療照護。

以榮總為核心，建構榮總、榮院及榮家保健組之「三級醫療」垂直支援與轉診制度，配合榮院水平、垂直整合作法，結合榮家人力、設施，建置門診、復健及長期照護（護理之家）資源。



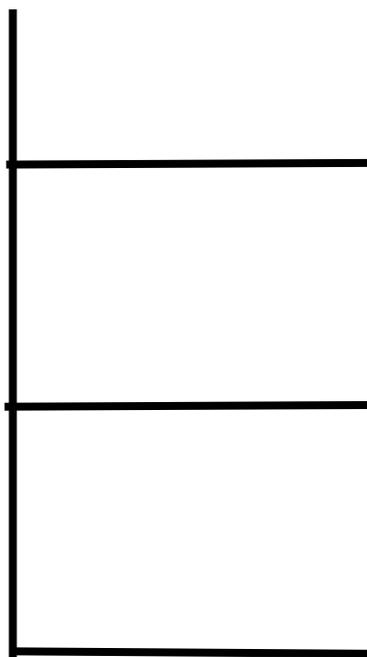
健康長壽整合照護



Lee WJ, et al. *Lancet Healthy Longev.* 2021;2:e712-e723.



臺北市立關渡醫院



國際對照健康長壽社區

- 醫療
照護
- 長期
照護
- 環境
生活

高功能狀態

功能衰退中

已出現功能
障礙

— 外在功能表現
— 內在健康能力



預防慢性病況
早期診治管理

逆轉或延緩衰退

照顧失能

支持強化行為

確保晚年尊嚴

積極功能強化行為促進

排除影響參與及功能代償之障礙

The
Economist



2024/10/15

醫療病床 179

一般病床 (112)

- 急性病床：45
- 慢性病床：67

特殊病床 (67)

- 急診觀察床：3
- 加護病房：3
- 血液透析病床：19
- 慢性呼吸照護：32
- 安寧緩和照護：10

長照相關 (142)

- 精神科日間：50
- 護理之家：92

總床數 321



社區醫院建構全方位整合照護服務



整合北投區既有社區資源與找尋服務缺口

51 處社區關懷據點

630 位社區發展志工

46 處社區發展協會
各種社區活動在各里辦與據點蓬勃發展 隊

190 個北投區登記之社會團體
活動內容較為單一且較為欠缺科學實證 社區志願服務隊

2,662 位社區發展協會會員

3 處藝文團體登記

全院跨科別每日推動門診整合服務



臺北市立關渡醫院
臺北臺北東區總醫院經營

111年

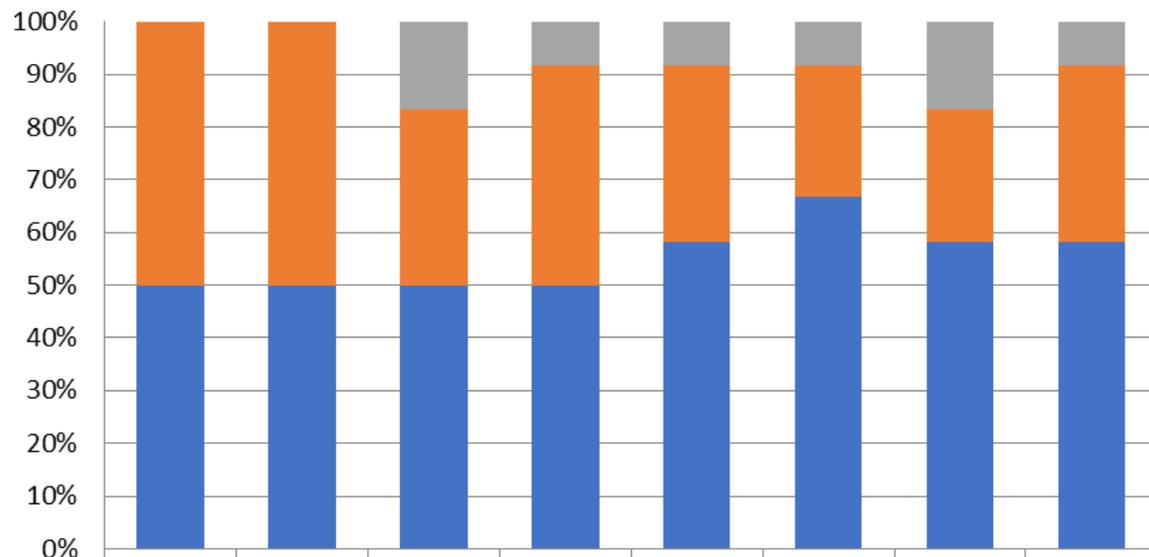
5科別

15位醫師

25診次/週

23,054 累計人次

111年整合門診服務滿意度調查



滿意度	1. 醫師耐心傾聽我的病情	2. 醫師仔細診察及詳細說明病情	3. 醫護人員尊重我的隱私	4. 醫護人員詳細說明看病的程序	5. 減少不同科別間看診有幫助	6. 減少看病次數有幫助	7. 減少用藥數量有幫助	8. 醫院應繼續推動「整合門診」
3分 沒意見			16.70%	8.30%	8.30%	8.30%	16.70%	8.30%
4分 同意	50%	50%	33%	41.70%	33.30%	25%	25%	33.30%
5分 非常滿意	50%	50%	50%	50%	58.30%	66.70%	58.30%	58.30%

急性後期照護病患成效

112年1~12月承接**179**位
10位創傷性神經損傷個案
45位衰弱高齡個案
55位腦中風個案
69位脆弱骨折個案



> 90% 個案在接受急性後期照護後各項功能
評估指標獲得**改善或維持**

包含	Barth index	GDS-5	EQ-5D
	IADL	CAM	MRS
	CFS	2015 Beer's criteria	BI
	SPMSQ	MNA	FOIS

119 位 (66 %) 個案接受**居家復健**

88% 成功返家

出備無縫轉銜居家及長照照護

112年1-12月

出備服務 **564**人次

長照A單位 **7,095**人次

居家醫療 **1,072**人次

居家護理訪視 **3,415**人次

居家遠距照護 **1,976**人次





稻香里辦

桃源里辦

豐年里辦

關渡學苑
稻香

關渡學苑
忠義

一德里辦

關渡里辦

益智學堂

樂齡中心

八仙里辦



全新設立關渡學苑實體運作據點



原有社區據點開設全新實證課程



110.10.19稻香
居家玩運動



110.10.20關渡樂活
國標舞



110.10.22一德里
散步關渡



110.11.04一德里居家動一動



110.11.05
知行教會
中醫保健



110.11.12八仙里
基礎核心



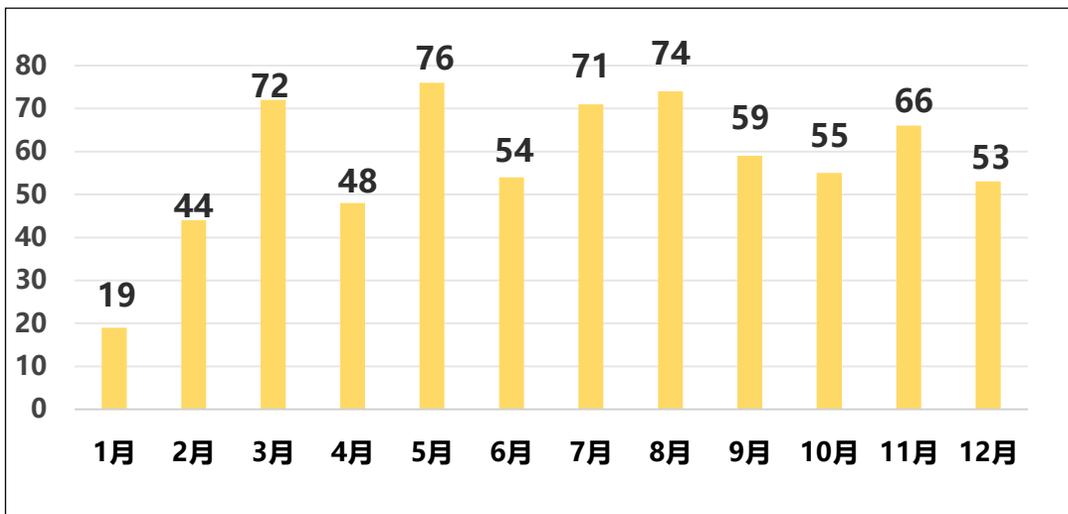
110.11.23稻香里
居家玩運動



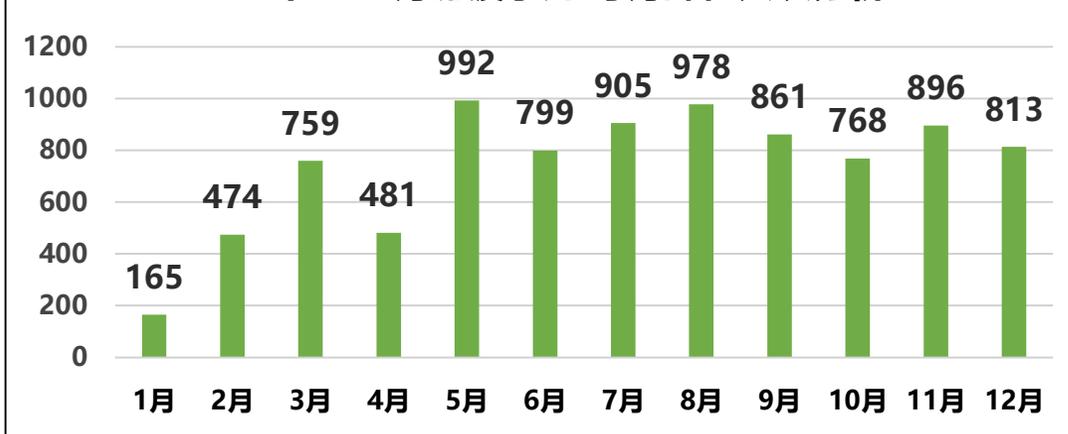
11.11.23一德里(戶外)
散步關渡

健康長壽關渡學苑社區課程

112年1-12月關渡學苑 每月課程場次



112年1-12月關渡學苑 每月課程人次分析



關渡學苑112年1-12月

共 **691** 場次, **8,891** 人次

1. TIGER實體課程

共計 **4,310** 人次

2. 參與文藝娛樂性質的文康活動課程

共計 **1,857** 人次

3. 長者健康管理班(衛生局計畫)

共計 **2,724** 人次

社區化失智友善整合照護服務網絡



112年1~12月

861人 失智個案管理

4,862人次 照護諮詢服務

4,133人次 益智學堂服務

161人 社區志工培訓

365人 完成指紋按捺

11家 失智友善商店

Lin SY, et al. Aging Med Healthc 2023;14:162-168

設置關渡社區失智共照與益智學堂



臺北市立關渡醫院

益智學堂

隨著醫院益智學堂環境的調整，
精進的作息、活動的安排、多元認知活動等非藥物照顧方法，
延緩失智退化，歡迎有興趣的長輩一起來上課！

參加或成為照顧者須符合以下條件：

- 已接種三劑疫苗
- 可配合醫院防疫規定
- 進行中或預期將接受疫苗接種
- 無法可自理、活動自如

課程表 以下課程為長者半日課程與非課程

失智共照個案 **2,753** 人次
失智共照粉專 **332** 人 追蹤



關渡醫院失智據點招募

招募對象

1. 疑似失智者：經相關評估工具評估，
惟尚未確診者。
2. 確診失智者。

課程內容：

活動時間：每週二、三、四 09:00-16:00
活動地點：台北市北投區知行路260巷28號

- 一、認知促進課程
- 二、預防及延緩失能課程

[詳細介紹](#)

失智據點 8月啟用
服務失智個案 **844** 人次
滿意度調查 **100%** 滿意



長照A單位案管量及時效

行政區域	北投					
A單位	台北榮總	關渡醫院	伊甸	(社)靈糧堂	老五老	樂福
案管量(人)	566	576	446	444	252	150
專任人力	4	5	4	3	2	2
契約最高服務量	600	600	500	500	500	1,000

A單位家訪完到進入

服務日距 **2.9**天

統計區間：截至112/12/31

關渡學

&andalogy

TIER

PROGRAM

強化 **T**rainning

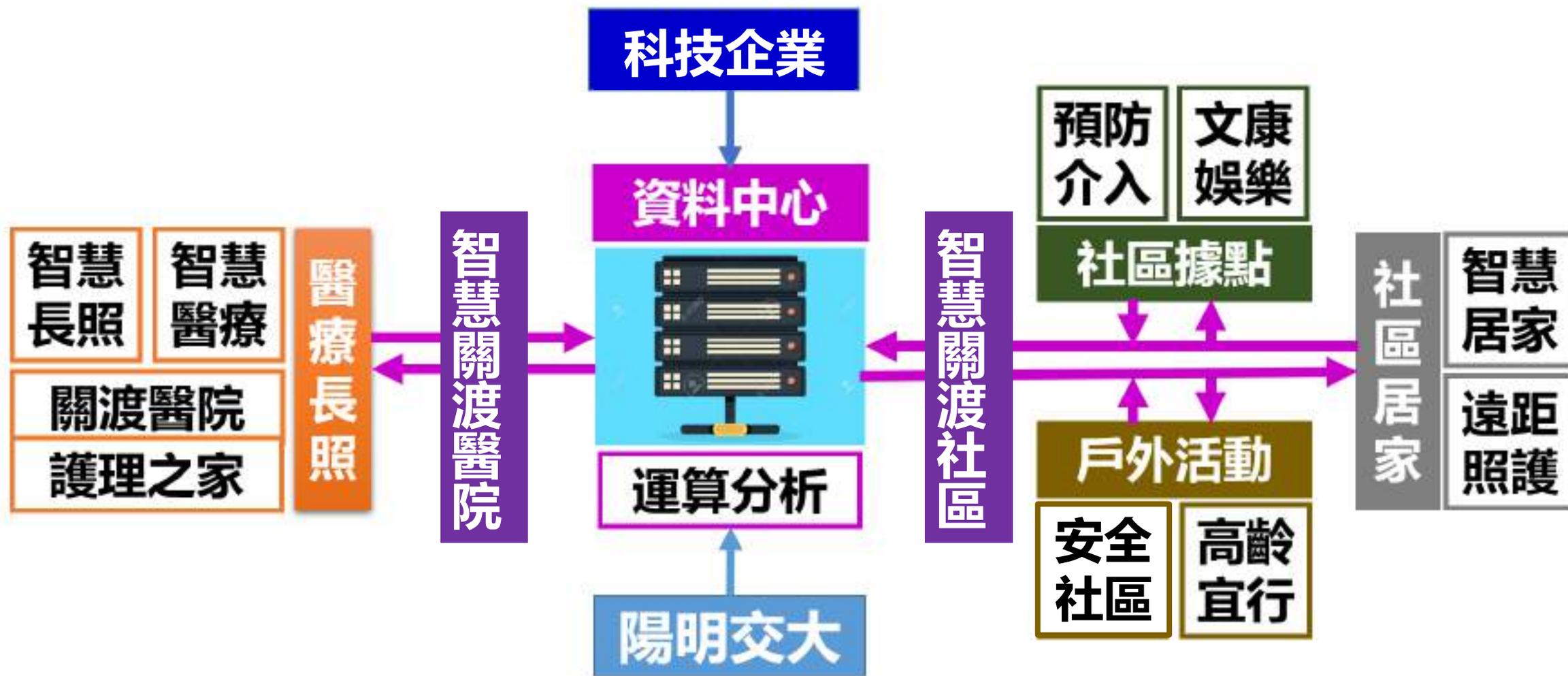
智慧 **I**ntelligence

連結 **G**athering

快樂 **E**njoyment

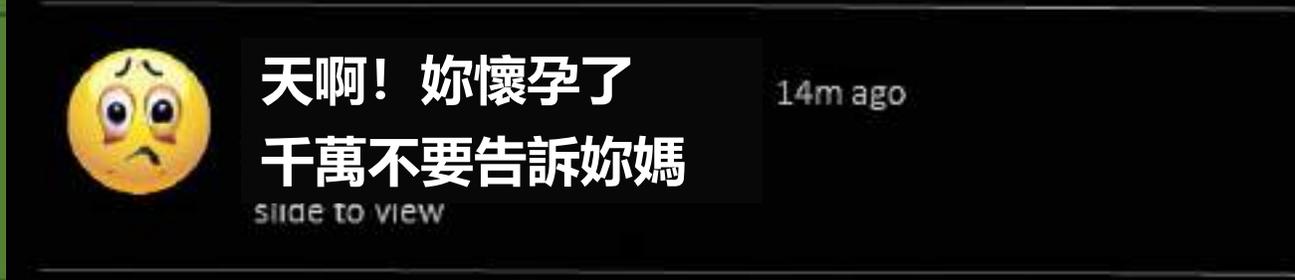
回春 **R**ejuvenation

社區與醫院雲端運算精準強化社區健康



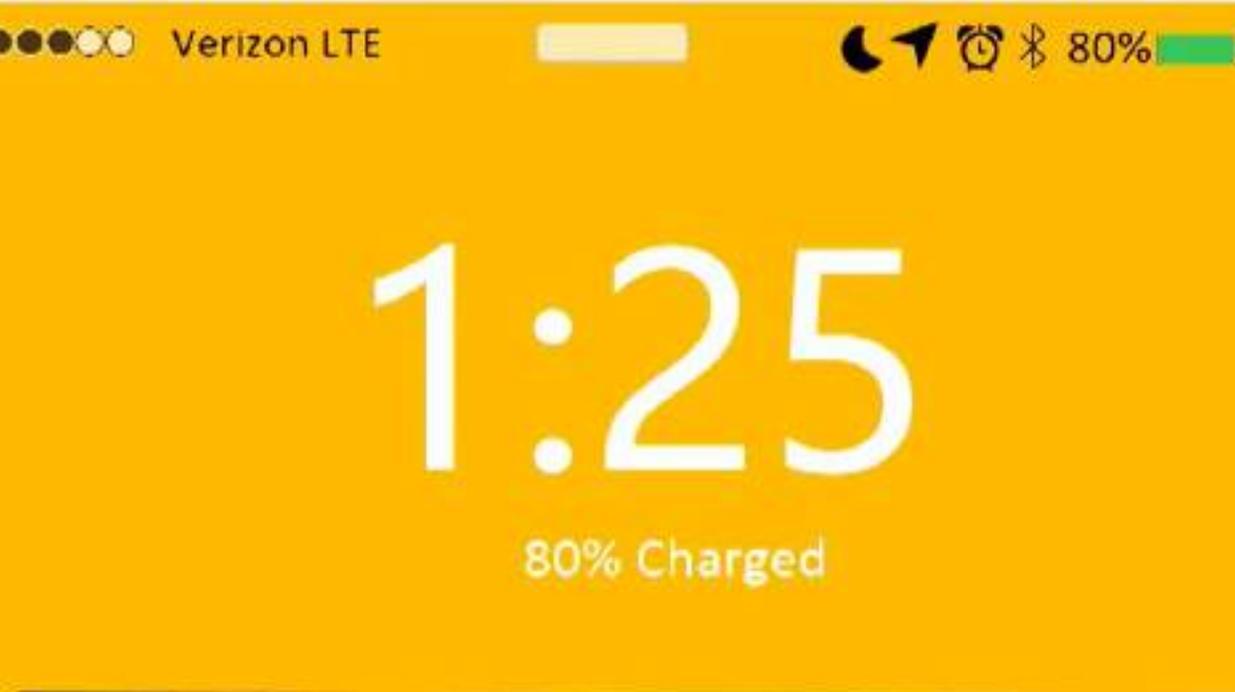
MAKING DATA-DRIVEN DECISIONS





**生物醫學數據通知
經由過去行為資料進行建議**

**生物醫學數據通知
經由過去行為資料進行建議**



**生物醫學與行為數據通知
個人化健康風險預測與通知**

**生物醫學與行為數據通知
個人化健康風險預測與通知**



研究成果 社區實踐

醫院內部管理即時資料支持管理效能

KPI 營運指標系統

★ 我的最愛 □ 瀏覽

主資料夾 > KPI > 年度月報表 > 門住院收入醫療點數_年度

開始日: 11001 結束日: 11011

科別: 全院 費用類別: 總計

門住院: 門診

1 / 1 100%



關渡醫院PCR急門診爽約率只有5%，怎麼做到？

快解陽爽約率達三-四成，蓋柯文哲市長不快
文 / 遠見編輯部 攝影 / 賴永祥

遠見

2022-05-17 瀏覽數 34,050+

檢視報表



ISO14064-1 2023年組織溫室氣體盤查為2,485萬噸CO₂e，參考SBT
「科學基礎減量目標」，本院達**18.3%**，超過國際規範及標準

萬噸CO₂e

臺北市立關渡醫院2050減碳目標

依據經濟部能源查核申報系統，2021~2023年累積抑制
CO₂排放**1,197**公噸，與2020年比較能源管理減碳



智慧醫院護理站

關渡醫院電子白板

關渡醫院 2024/03/28 (四) 17:18

病房

白班 (2) 小夜 (5) 大夜 (4)

人員名單 消防分組 照護組別

張文雲	2	37B	37C	37D	38A	38B	38D
黃建宇	1	31	32	33	35A	35B	35D
李江妮	3	55A	55B	55C	56A	56B	56C
林彥宇	4	47	48A	48B	48C	49A	
李宗達	3	52C	53A	53B	53C		
唐文菁	4	51A	51B	51C	52A	52B	

病床動態

總病人數 50

空床數 47

出院床位 9

三級護理人數 (2)	三級護理人數 (0)	三級護理人數 (0)	三級護理人數 (0)	三級護理人數 (4)
三級護理高齡 (2)	三級護理 (4)	三級護理 (2)	三級護理 (1)	三級護理人數 (3)

公告事項

1. Covid19疫苗接種已開始預約。
2. 即日起，本院辦理「全民健康保險住院整合照護服務試辦計畫」服務，歡迎詢問。

本月核對總值	拒收值 1234/ 滯留值 9139/ 313 444
本月查帳總值	滯留值 5678
護理總值	111 222
清潔人員	111 222

數位多媒體播放系統

臺北市立關渡醫院
臺北臺北市民眾健康服務

2024年03月14日

18:35

首頁

看電視

YouTube

衛教影音

醫療團隊

衛教專區

住院須知

交通資訊

輔具使用

訂餐服務

業者資訊

機上盒操作

恭賀 台北市立關渡醫院 榮獲

哈佛商業評論 全球繁體中文版

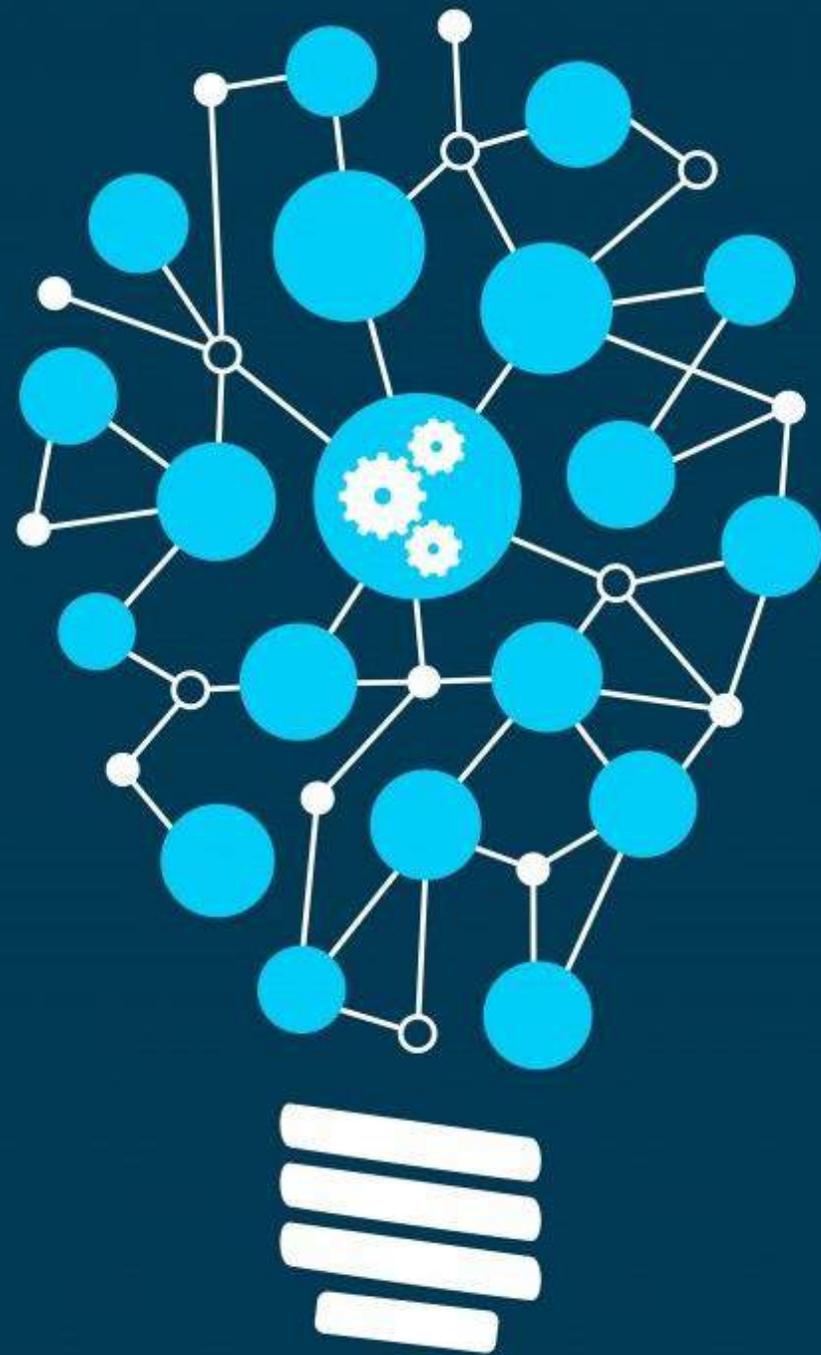
☆☆☆☆
2022
數位轉型鼎革獎
綜合數位轉型
服務業組精銳獎
首獎

☆☆☆☆
2022
數位轉型鼎革獎
精銳獎
首獎

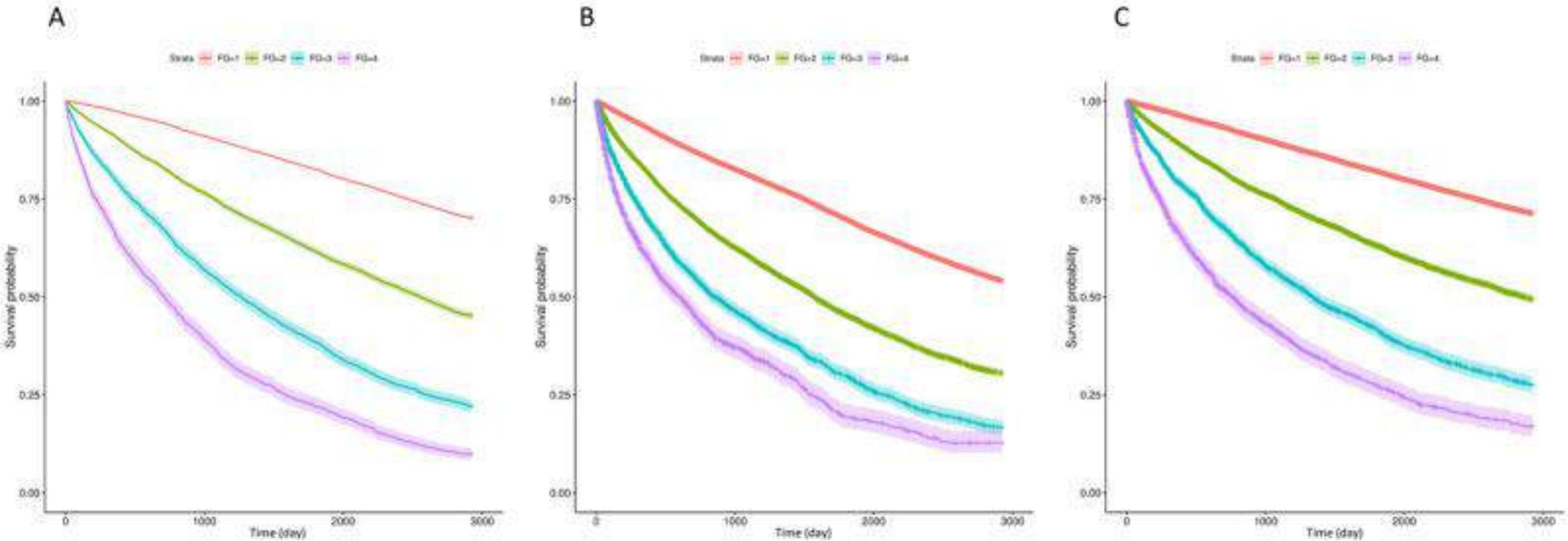
☆☆☆☆
2023
數位轉型鼎革獎
楷模獎
暨
ESG特別獎

醫院病歷系統人工智慧 應用開發

- 1 導入健保資料庫建置之模型
- 2 建立個人化的健康風險管理
- 3 門診ICD診斷碼之建議系統



機器學習建置死亡、住院、重症預測模型



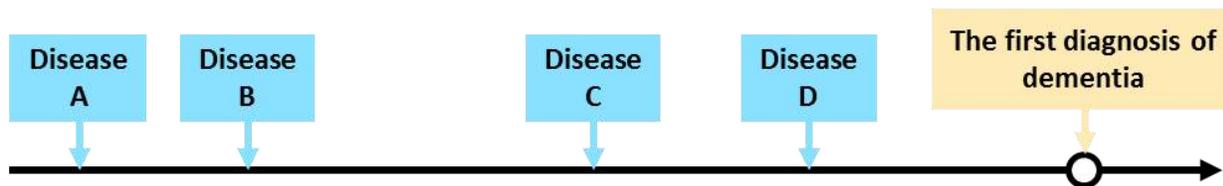
Identifying at-risk people based on sequential outpatient visits



This is Ruth,

Step 1: identify all of the incident disease diagnosed before dementia in each dementia patient in training data

For example

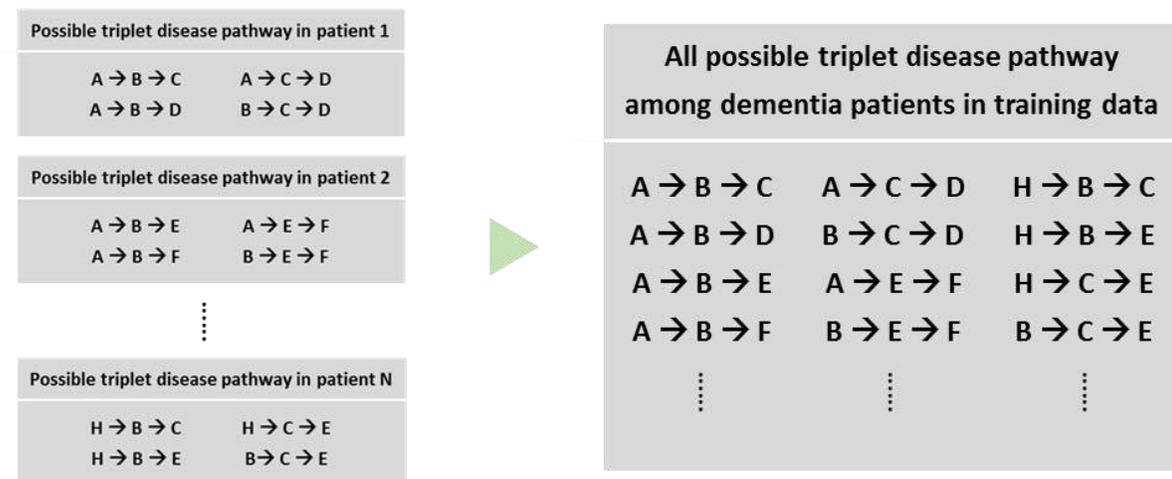


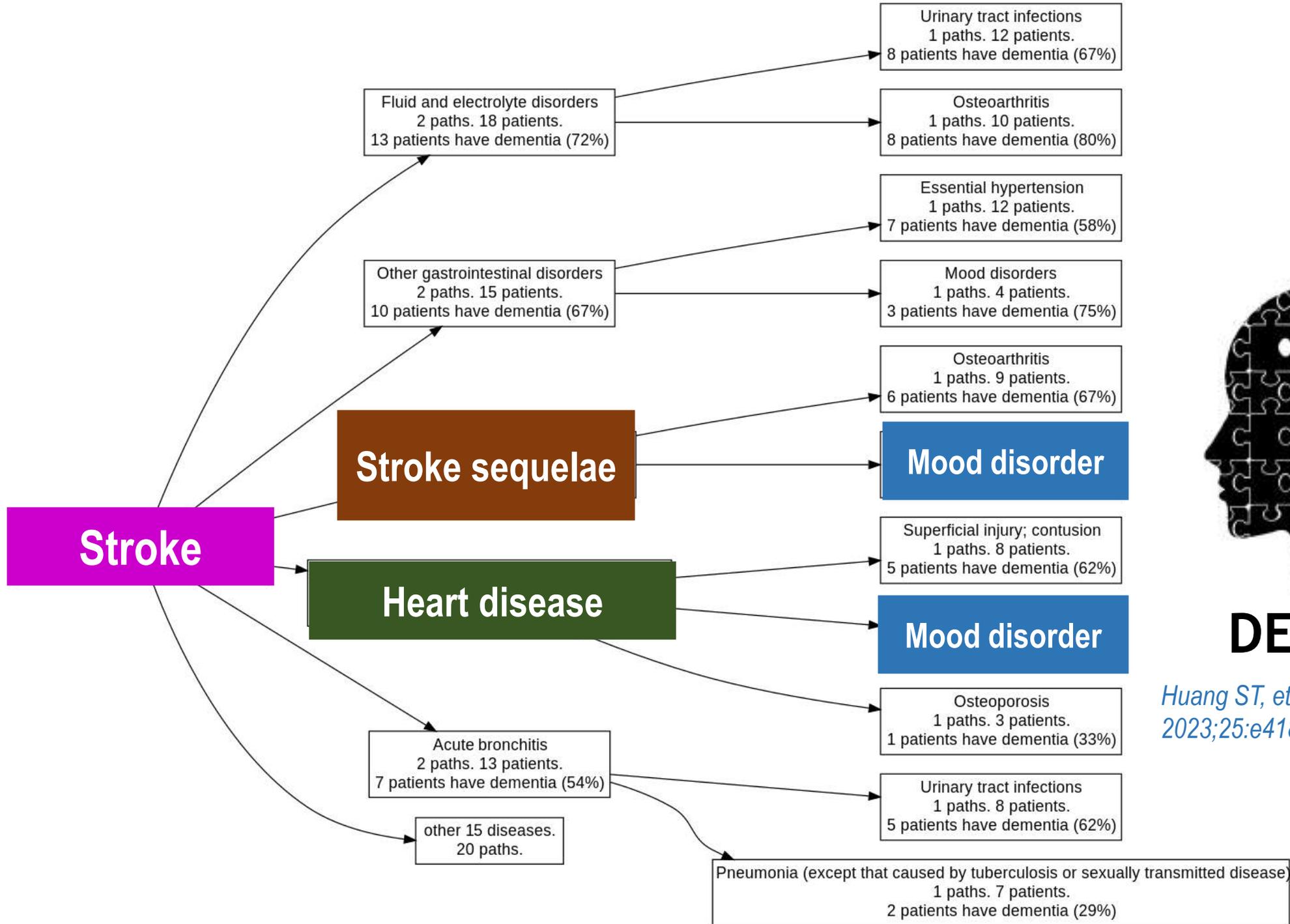
Step 2: constructing possible triplet disease pathway according to the diagnosis date (each pathway has three disease)

For example



Step 3: summarizing all possible triplet disease pathway among all of dementia patients in training data





DEMENTIA

Huang ST, et al. J Med Internet Res. 2023;25:e41858

智能化診斷代碼提醒

ICD-10 Coding Assisant

Medical Record

Subjective:

Progressive abd. fullness and hiccup, acid regurgitation with N/V were also noted, no fever

Objective:

Drug Allergy: NIL;

Examination: 檢驗查範例(僅供參考) v

Endo: GERD, LA Gr A ALT/AST=15/20, Total cholesterol=242, TG=221, HDL=50, LDL=158

Drug: 藥物範例(僅供參考) v

Plan:

Code Recommendation

Code	Confidence	Name	Info	Delete
E78.5	98.74	高血脂症		
K21.0	96.17	胃食道逆流性疾病併食道炎		

V	Examination	Result	ICD-10	Abnormal
<input type="checkbox"/>	藥物過敏	NIL		正常
<input checked="" type="checkbox"/>	消化系統	GERD, LA Gr A	K21.9	異常
<input type="checkbox"/>	肝功能	ALT/AST=15/20		正常
<input checked="" type="checkbox"/>	膽固醇	242	E78.5	異常
<input checked="" type="checkbox"/>	三酸甘油脂	221	E78.1	異常
<input type="checkbox"/>	高密度膽固醇	50		正常
<input checked="" type="checkbox"/>	低密度膽固醇	158	E78.5	異常

人因工程智慧照明顯著改善睡眠品質

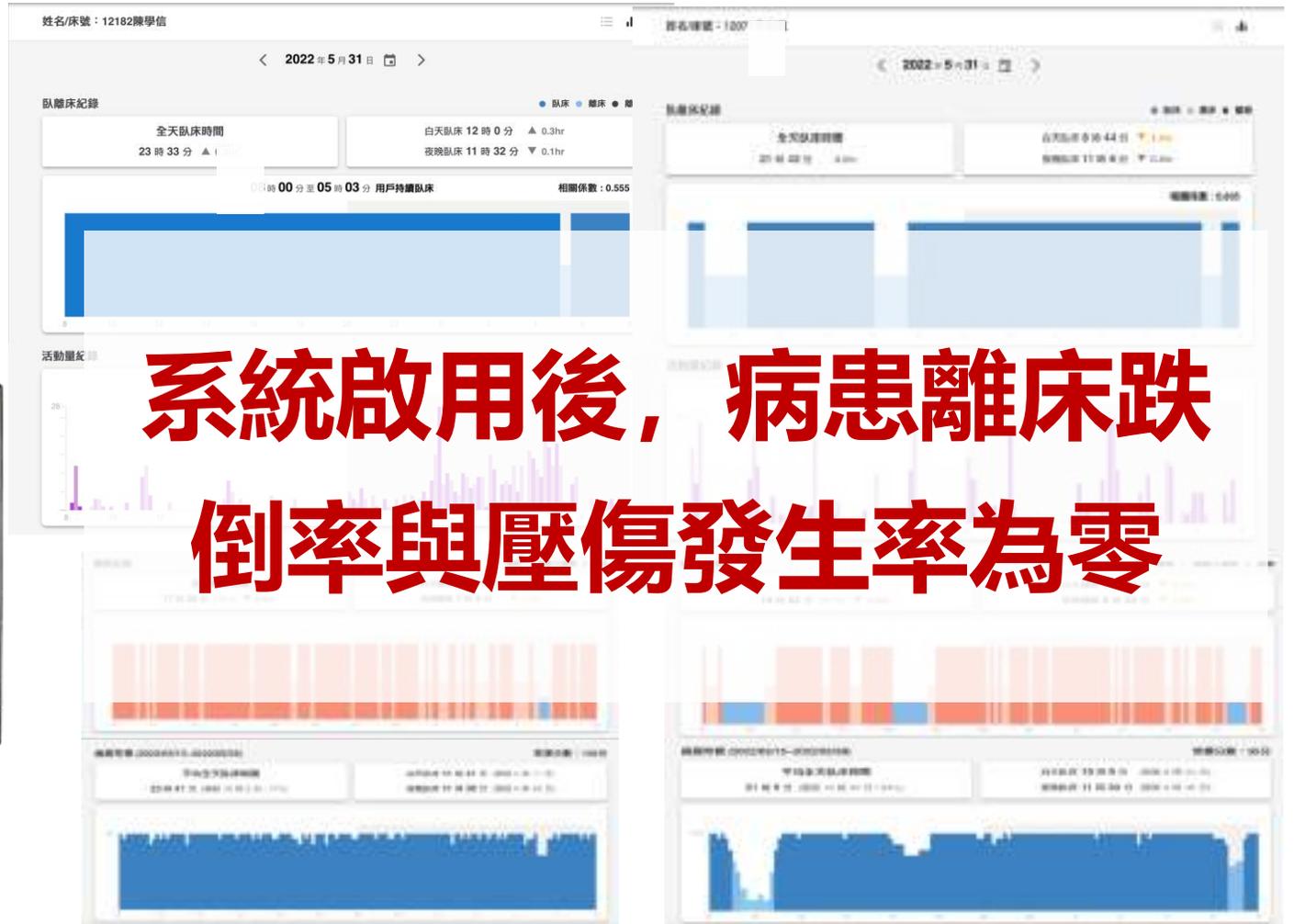


時間	活動	色溫	Melanopic Ratio
08:00-09:00	個別活動	4000K	0.588
09:00-09:50	早安體操 (坐姿)	4000K	0.588
09:50-10:50	分班課程 / 個別物理治療	5000K	1
11:00-11:30	健口瑜珈 (坐姿)	5000K	1
11:30-12:30	午餐	5500K	1
12:30-13:30	午休	3000K	0.445
13:30-14:00	健康體操 (坐姿)	4000K	0.588
14:00-15:00	分班課程 / 個別物理治療	4000K	0.588
15:00-15:30	休息與點心	4000K	0.588
15:30-16:30	個別活動	4000K	0.588
16:30-17:00	個別活動	3000K	0.445

護家住民睡眠改善 **52%**

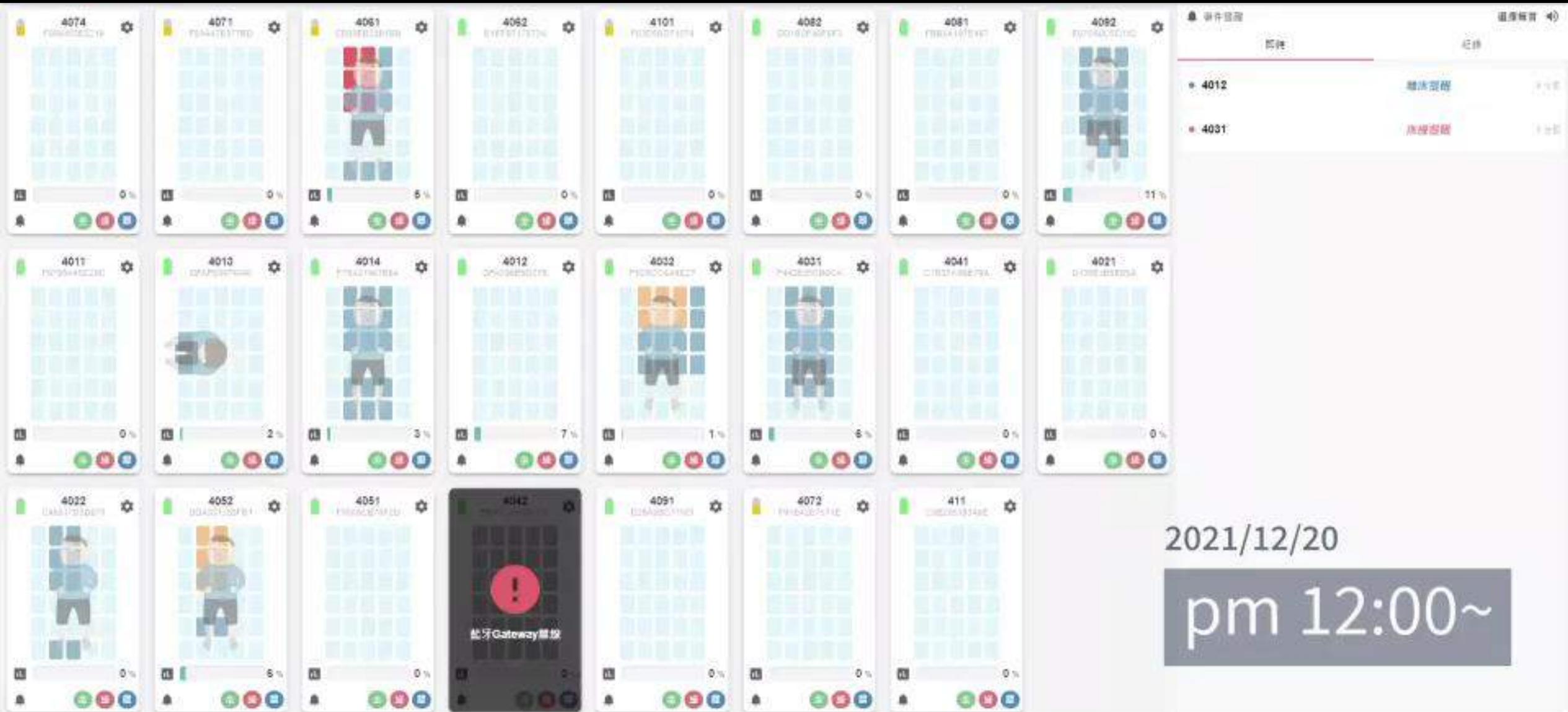
Lan CH, et al. Arch Gerontol Geriatr. 2023;115:105112.

全院導入抗菌防壓傷智慧床墊照護系統



系統啟用後，病患離床跌倒率與壓傷發生率為零

即時監測發展數位照護品質指標





數位生物指標

Active wearable device utilization improved physical performance and IGF-1 among community-dwelling middle-aged and older adults: a 12-month prospective cohort study

Wei-Ju Lee^{1,2}, Li-Ning Peng^{1,3}, Ming-Hsien Lin^{1,3}, Ching-Hui Loh^{1,4}, Liang-Kung Chen^{1,3,5}

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²Department of Family Medicine, Taipei Veterans General Hospital Yuan-shan Branch, Yilan County, Taiwan

³Center for Geriatrics and Gerontology, Taipei Veterans General Hospital, Taipei, Taiwan

⁴Center of Health and Aging, Hualien Tzu Chi Hospital Buddhist Tzu Chi Medical Foundation, Hualien County, Taiwan

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Keywords: walking speed, wearable device, average steps, community-dwelling older adults

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ABSTRACT

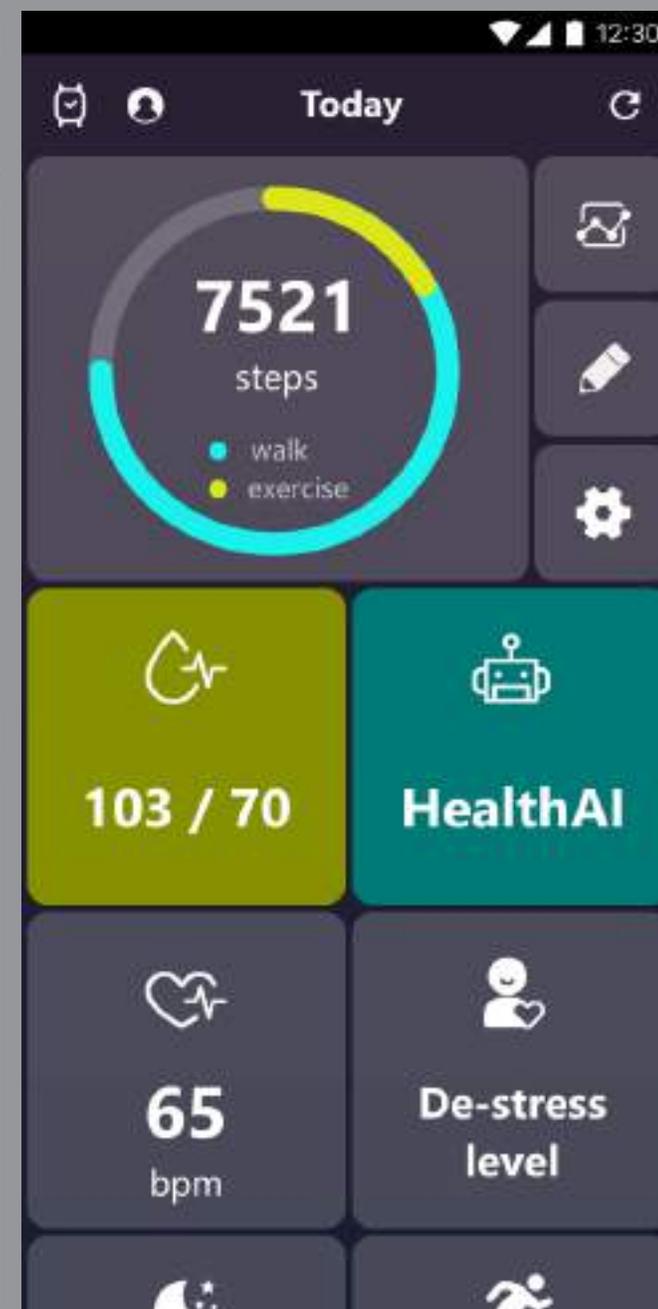
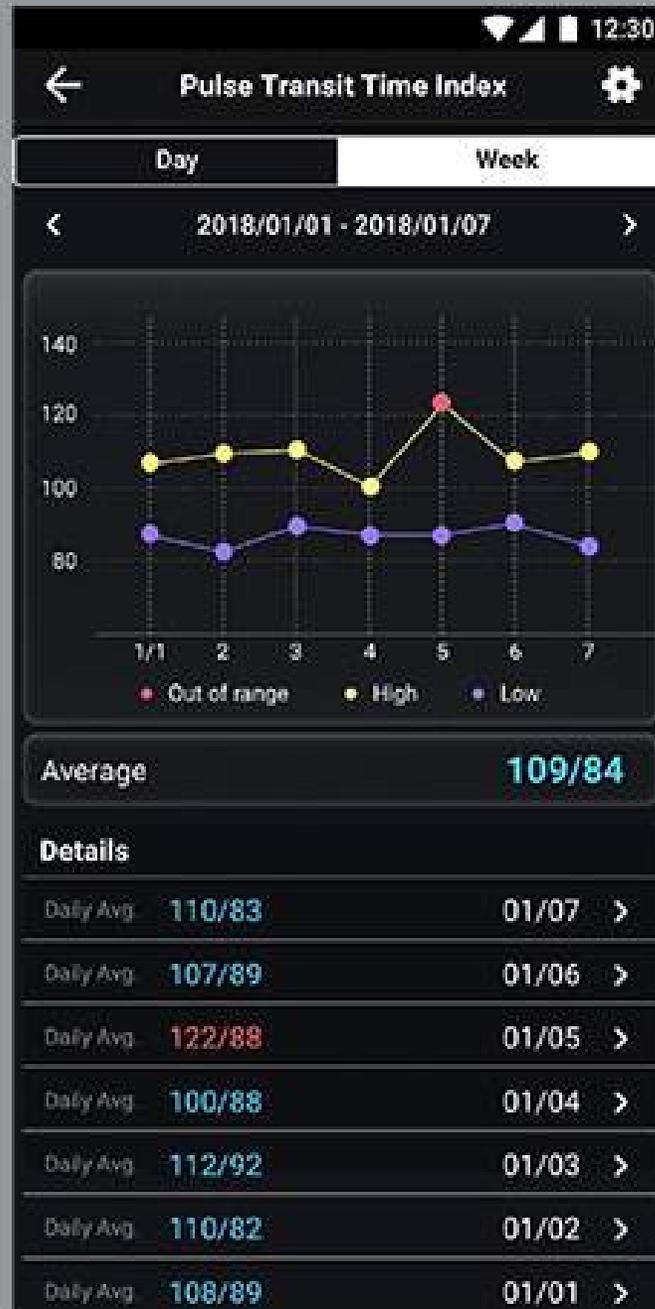
Wearable devices provide real-time and patient-powered data that enable the development of personalized health promotion and management programs. This study aimed to explore the clinical benefits of using the wearable device and to examine associated factors, utilization patterns on health status. 319 community-living adults aged 50-85 years were enrolled and clinically followed for 12 months. Participants were categorized into 3 groups based on the wearable device utilization patterns (active: >30 days of use, non-active: <3 days of use, usual: 3-30 days of use). 128 (40.1%) and 98 (30.7%) were active and usual wearable device users, and no significant differences in the baseline demographic characteristics and functional status were noted across groups. Higher cognitive performance was significantly associated with the wearable device use (OR: 1.3, 95%CI: 1.1-1.5, $p=0.005$). Multivariable linear regression showed that 0.16 m/s increase in walking speed among active users, which was significantly higher than non-active users ($p=0.034$). Compared to usual users, active users had higher average daily, weekday, and holiday step counts. The walking speed increased for 0.03 m/s when participants walked 1,000 more daily step counts ($p=0.020$). Active use of wearable devices substantially increased walking speed, which suggested better functional outcomes and survival benefits in the future.

INTRODUCTION

Advanced development of internet telecommunication technologies (ICT) enables clinicians and healthcare professionals to collect real-time information through wearable biosensors that further change healthcare services and healthy lifestyles. The integration of electronic health records and wearable devices may overwhelmingly modify the disease diagnosis, treatment and care management of clinical conditions. The World Health Organization's Global Observatory recognized the roles of mobile devices in supporting medical and

public health practice to collect health data, to support diagnosis, to monitor progress, and to promote health promotion [1]. The advantage of real-time and patient-powered data from wearable devices promotes integration of daily lifestyle conditions in disease diagnosis, health promotion, and personalized care planning that echoes the concepts of precision medicine [2, 3].

Although a great variety of parameters have been developed to measure health, the usual walking speed is a well-established and widely-recognized biomarker to





FACE RECOGNITION IS UNDER WAY...

Chen LY, et al. Aging (Albany NY). 2022;14(3):1280-1291

Predicting neuropsychiatric symptoms of persons with dementia in a day care center using a facial expression recognition system

Liang-Yu Chen^{1,2,3,4}, Tsung-Hsien Tsai⁵, Andy Ho⁶, Chun-Hsien Li⁷, Li-Ju Ke⁸, Li-Ning Peng^{1,4}, Ming-Hsien Lin^{1,8}, Fei-Yuan Hsiao^{8,9}, Liang-Kung Chen^{1,4,9}

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Keywords: artificial intelligence, behavioral and psychological symptoms of dementia, dementia, facial expression recognition systems, machine learning

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ABSTRACT

Background: Behavioral and psychological symptoms of dementia (BPSD) affect 90% of persons with dementia (PwD), resulting in various adverse outcomes and aggravating care burdens among their caretakers. This study aimed to explore the potential of artificial intelligence-based facial expression recognition systems (FERS) in predicting BPSDs among PwD.

Methods: A hybrid of human labeling and a preconstructed deep learning model was used to differentiate basic facial expressions of individuals to predict the results of Neuropsychiatric Inventory (NPI) assessments by stepwise linear regression (LR), random forest (RF) with importance ranking, and ensemble method (EM) of equal importance, while the accuracy was determined by mean absolute error (MAE) and root-mean-square error (RMSE) methods.

Results: Twenty-three PwD from an adult day care center were enrolled with ≥ 11,500 FERS data series and 38 comparative NPI scores. The overall accuracy was 86% on facial expression recognition. Negative facial expressions and variance in emotional switches were important features of BPSDs. A strong positive correlation was identified in each model (EM: $r = 0.834$, LR: $r = 0.821$, RF: $r = 0.798$ by the pairwise method; EM: $r = 0.891$, LR: $r = 0.870$, RF: $r = 0.886$ by the Minimpv method), and EM exhibited the lowest MAE and RMSE.

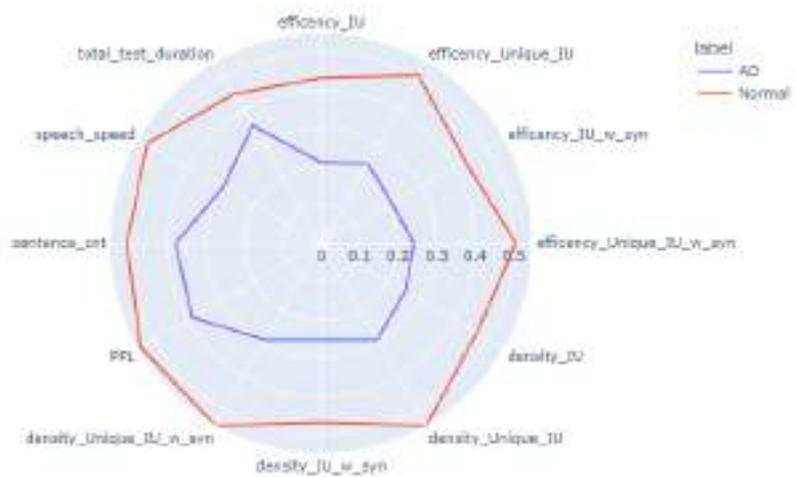
Conclusions: FERS successfully predicted the BPSD of PwD by negative emotions and the variance in emotional switches. This finding enables early detection and management of BPSDs, thus improving the quality of dementia care.

INTRODUCTION

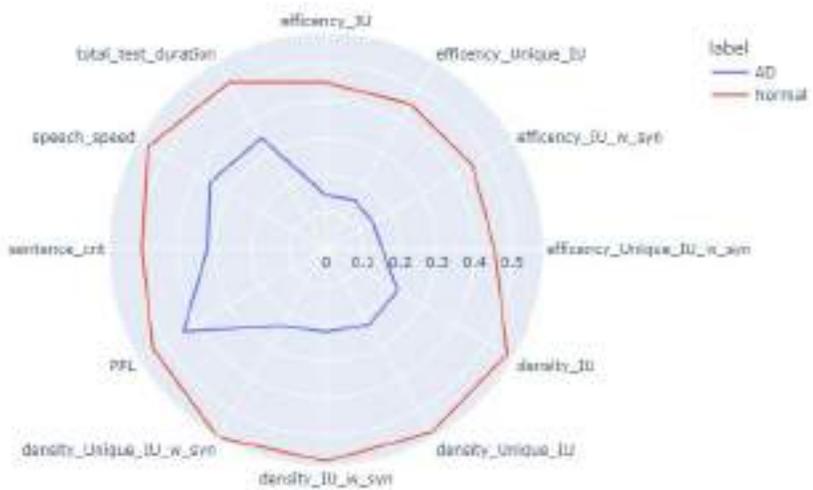
Behavioral and psychological symptoms of dementia (BPSDs), or neuropsychiatric symptoms, affect 90% of

persons with dementia (PwD) over the course of their illness and are associated with greater morbidity, mortality, and distress between caretakers and their family members [1, 2]. BPSDs may present in 50–60%

讀報測試



命名測試



ASUS



國立陽明交通大學
NATIONAL YANG MING CHIAO TUNG UNIVERSITY



臺北市立關渡醫院
委託臺北榮民總醫院經營



iHARP

Healthy Aging & Rejuvenation Platform

intelligent

innovative

individual

Healthy Aging & Rejuvenation Platform

ASUS Personal Healthcare

- Unleash your potential for a vibrant life with our empowering health app!-

1

Track health data with personalized assessments

2

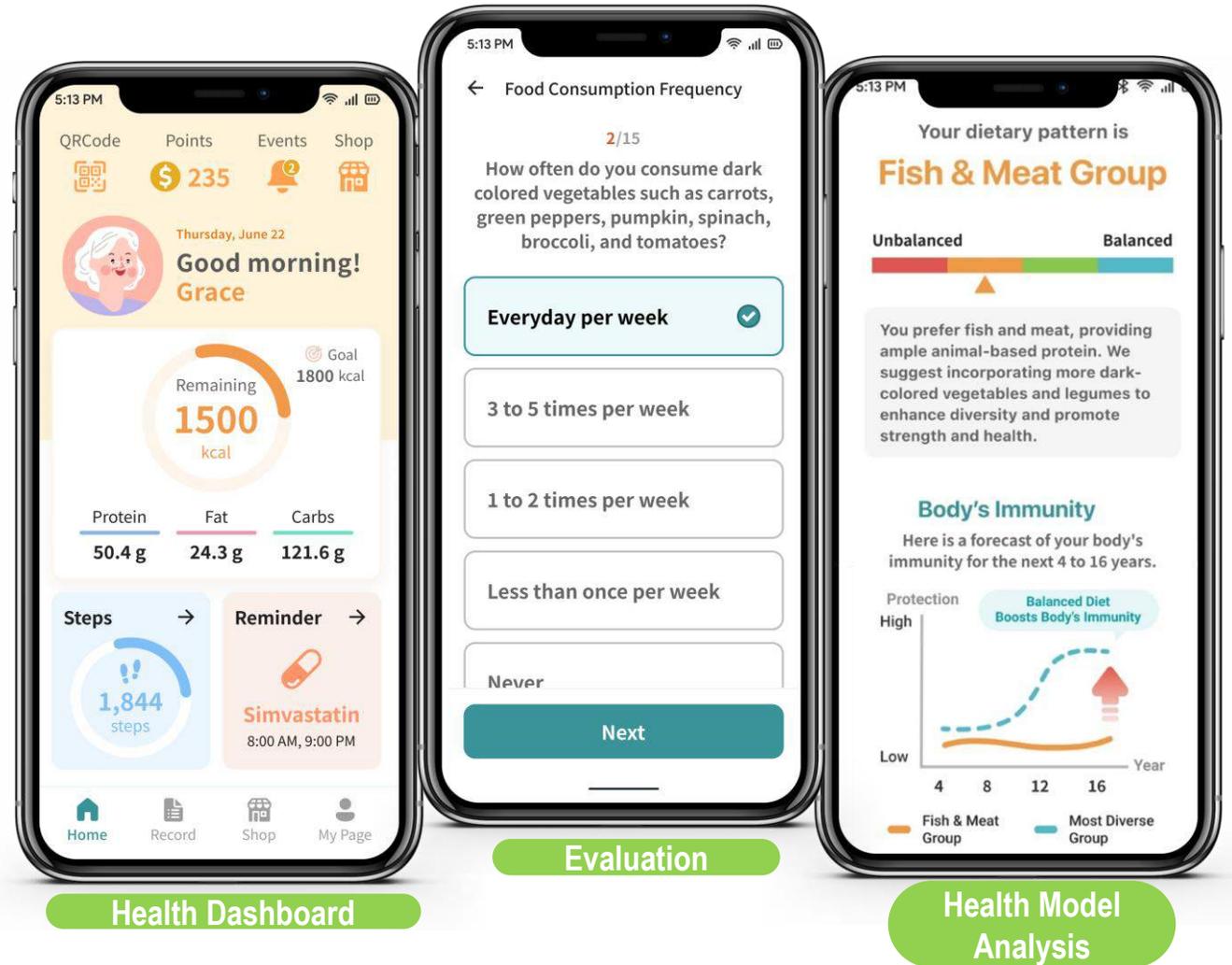
AI recommendations for specified health concerns

3

Convenient access to daily shopping needs

4

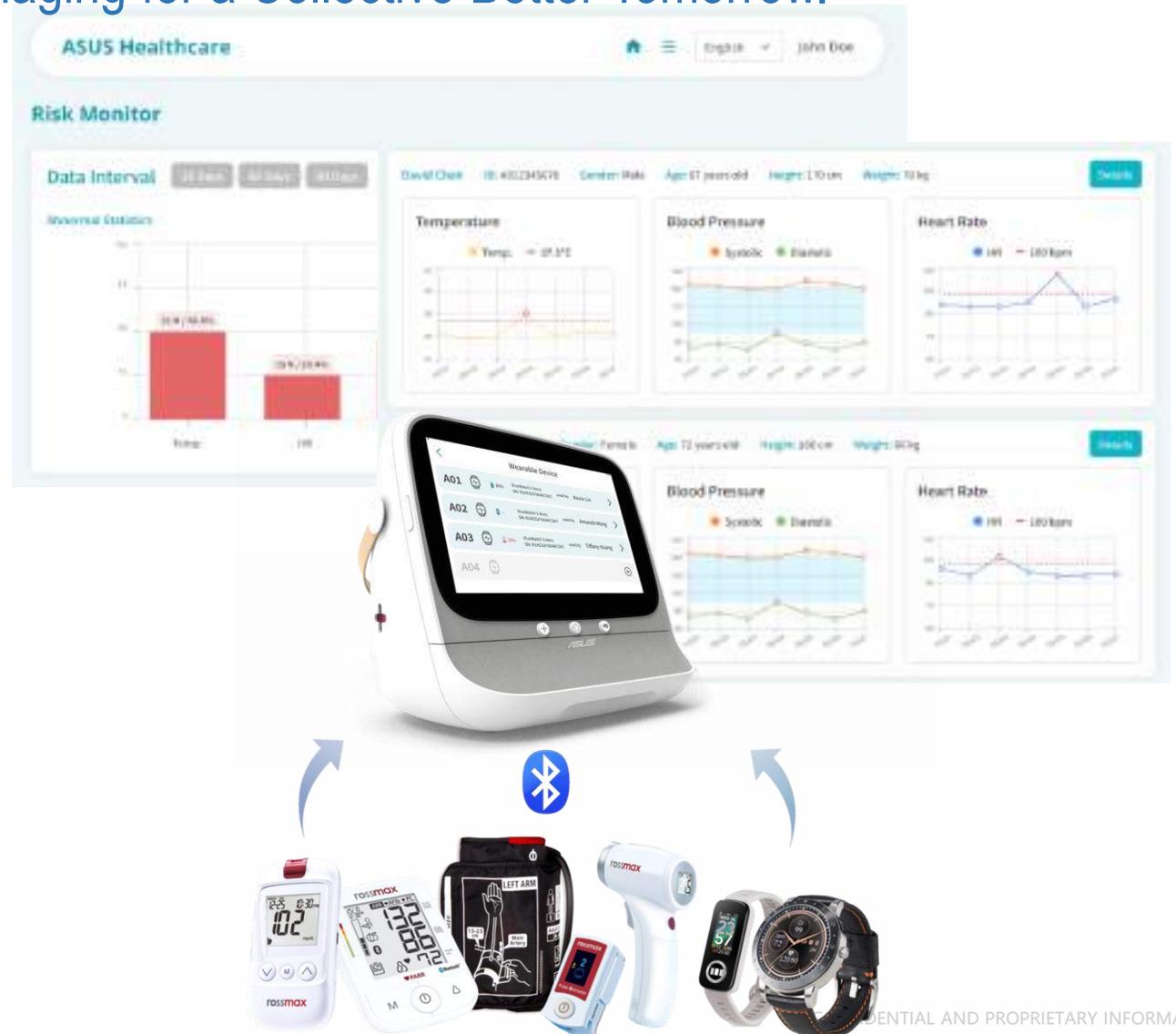
Seamless integration with community healthcare system



ASUS Home & Community Healthcare

Tracking, Detecting, and Managing for a Collective Better Tomorrow.

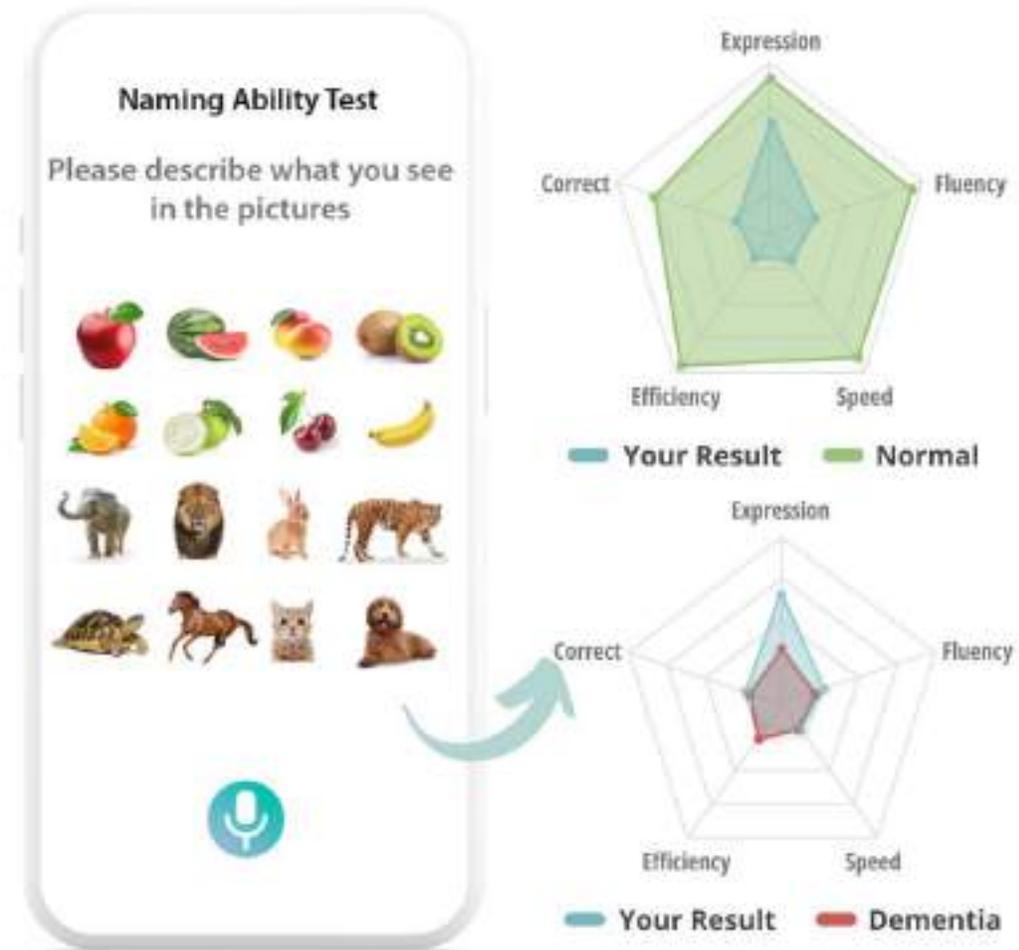
- 1 Rapid synchronization of measurement instrument data.
- 2 In addition to vital signs, activity records captured by the wristband also included
- 3 The data backend enables quick filtering of elderly with anomalies.



AI Digital Biomarker Assessment

- Early Detection for Cognitive Well-being with AI-

- 1 Identify subtle differences and detect early signs of cognitive decline.
- 2 Multifactorial numerical results for easy tracking and comparison.



Interactive Social Robot – Zenbo Jr

- Connecting Personal Life to Healthy Longevity-



Continuous Health Management



Vital Sign Measurements



Health Questionnaires



Health Education

Zenbo Junior



健康長壽
關渡
宜居社區

