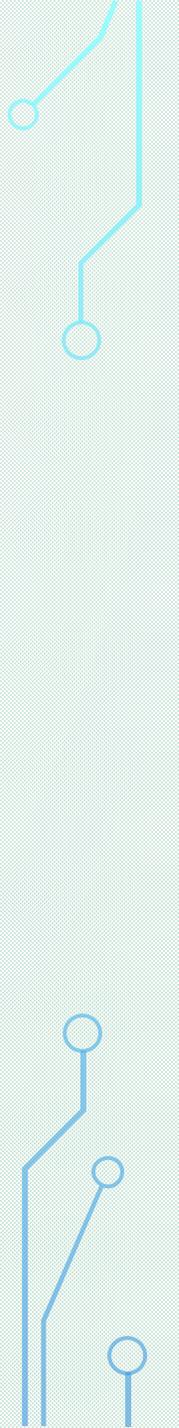# Application of Technology in Meeting Unmet Needs of Older People Living in The Community

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The issue

- Challenges of ageing population and meeting community needs by existing health and social service models

Epidemiology Research

Trends in activities of daily living disability in a large sample of community-dwelling Chinese older adults in Hong Kong: an age-period-cohort analysis

Ruby Yu[1], Moses Wong[1], Billy Chang[2], Xin Lai[2], C M Lum[3], T W Auyeung[1], Jenny Lee[1], Kelvin Tsoi[4], Ruby Lee[5], Jean Woo[1]

Author affiliations +

Trajectories of frailty among Chinese older people in Hong Kong between 2001 and 2012: an age-period-cohort analysis.

Yu R[1], Wong M[1], Chong KC[2], Chang B[2], Lum CM[3], Auyeung TW[1], Lee J[1], Lee R[4], Woo J[1].

Author information

We are living longer than before, but are we living healthier?

There is no doubt that people from countries all over of the world are living longer, but there is little evidence to suggest that older people today are living healthier lives than their parents did.

This is a major concern for many governments around the world because if the added years are marked by chronic disease and disability, this will have considerable social and financial impact on older people, their families and on care systems.

As with other Western countries, Hong Kong, a special administrative region of China situated on the Southern coast, faces a demographic challenge in the coming years. Latest statistics reveal an accelerated pace of ageing. In 2016, there were 1.2 million people aged over 65 years. By 2064, it will increase more than 2-fold to 2.6 million. Furthermore, Hong Kong people are living longer than ever. Compared to other countries, Hong Kong has topped the world charts for longevity, with men expected to live to 81.3 years, while women were expected to live to 87.3 years in 2016. This longevity is a great achievement but, will population ageing be accompanied by an extended period of good health or will it be associated with more morbidity and disability? Can our care systems cope with this demographic shift?

A better understanding of the trajectories of health is crucial to ensure that our care systems respond to population ageing. In 2017, our research team examined the trajectories of the frailty index among over 90,000 community-dwelling population older than 65 years, using 12 waves (2001-2012) of data on multiple birth cohorts (cohort 1901-1923, cohort 1924-1929, cohort 1930-1935, cohort 1936-1941, and cohort 1942-1947) from the Elderly Health Centres of the Department of Health in Hong Kong. The frailty index is a proxy measure of ageing and vulnerability to poor outcomes.

Our findings suggested that more recent cohorts had higher levels of frailty than did earlier cohorts at the same age. Differences were also observed in both men and women. We also found that the cohort effects are independent of age, period, gender, marital status, educational levels, socioeconomic status, lifestyle and social factors.

This trend raises the question, why are our older people today frailer? Unfortunately this study is not able to answer the question, but we speculated that the increase in chronic diseases and impaired physical and cognitive functioning, the higher proportion of sedentary occupations, the rising number of older people living alone and the associated adverse impacts on their social networks, may have contributed to the increased levels of frailty over time.

Our findings on trajectories of frailty carry a negative implication that the gains in life expectancy are associated with concurrent increases in levels of frailty, with the potential for greater associated costs for medical care, social services and long-term care. Our findings are consistent with those published by Andrew Kingston and colleagues in The Lancet. Kingston and colleagues' study compares two large British cohorts of older people, aged 65 years or older, interviewed in 1991 and 2011 and shows that while life expectancy rises, the number of years older people have spent with greater levels of dependency and substantial care needs also increases. Findings from our study, as well as from the Kingston study seem to substantiate the notion of the so-called "failure-of-success", which suggested that increased longevity would result in an absolute decline in health.

Having said that, we can combat the increasing rates of frailty through early detection and early intervention, (given that frailty is reversible). Our findings will help to inform the planning to create better care systems. If we could prepare our care systems well, the added years of people could offer new opportunities for our society.

The full study appears in the December 2017 issue of Age and Ageing and may be accessed here: https://academic.oup.com/ageing/advance-article-abstract/doi/10.1093/ageing/afx170/4637483

Ruby Yu and colleagues
Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Hong Kong SAR, China

Unmet needs and implications
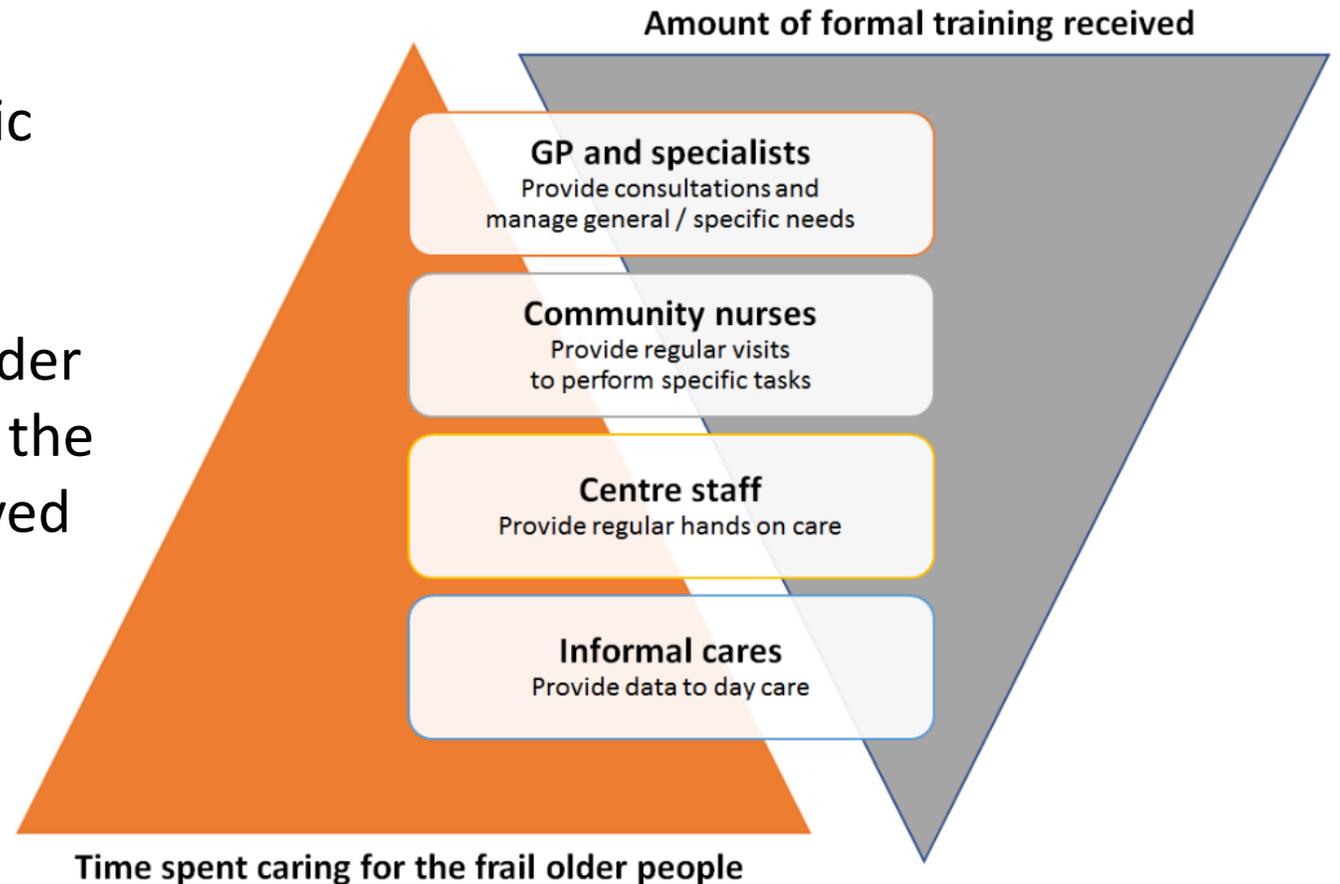
- Frailty
- Cognitive decline
- Limited mobility and dependency in instrumental activities of daily living
- Other problems encountered:
  - Poor oral health, problems with vision and hearing
  - Poor psychological well being
  - Problems with medication
  - Problems with finance

→ Frequent use of hospital services
→ Long hospital stays
→ Bed shortages in hospitals
→ Long waiting times in A&E

Shortages in health workforce

- Health professionals are often unprepared to deliver the holistic care that older people require

- The time spent caring for frail older people is inversely correlated to the amount of formal training received

Amount of formal training received

GP and specialists
Provide consultations and manage general / specific needs

Community nurses
Provide regular visits to perform specific tasks

Centre staff
Provide regular hands on care

Informal cares
Provide data to day care

Time spent caring for the frail older people

A new paradigm for elderly care

- A more prevention and empowerment approach is required instead of specialty dominated hospital care

- A consideration of not only the physical disease, but psychological, cultural, and socioeconomic factors that contribute to the illness

Hospital-based care

Treating diseases

Community-based care

Preventing diseases

Innovative primary care model

- Innovative primary care model integrating medico-social elements

  - To better meet rising demands for care in the community

  - To ensure that we have a spectrum of primary care providers in order to focus on prevention, as well as the promotion of a healthy lifestyle, instead of just curative services
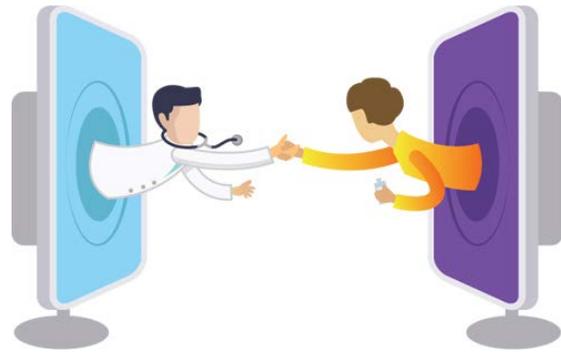
Design of an innovative primary care model

- Community **health and wellbeing screening** which can contribute to the basic step in unmet needs in the community for older people

- Building on widespread **existing network** with the **empowerment of the social sector**, as well as the public

- **eHealth platform** as key component, covering the full cycle of screening, analysis, action plan, and intervention

- Screening tool using eHealth system with **algorithm** that triggers further action

- **Outcome evaluation**: improvement in measured parameters (e.g. improving mobility); health service utilization

Phase 1 (Pilot): 2016 – 2019

Jockey Club Community eHealth Care Project

Jockey Club Community eHealth Care Project

- As of Jul 2019, over 10,000 elderly members of 80 elderly centres in 18 districts have participated in the JC eHealth Project

Health management technology

Community care

賽馬會「e健樂」電子健康管理計劃
Jockey Club Community eHealth Care Project

Older persons

Elderly Centres

Professional support

Health and social care system
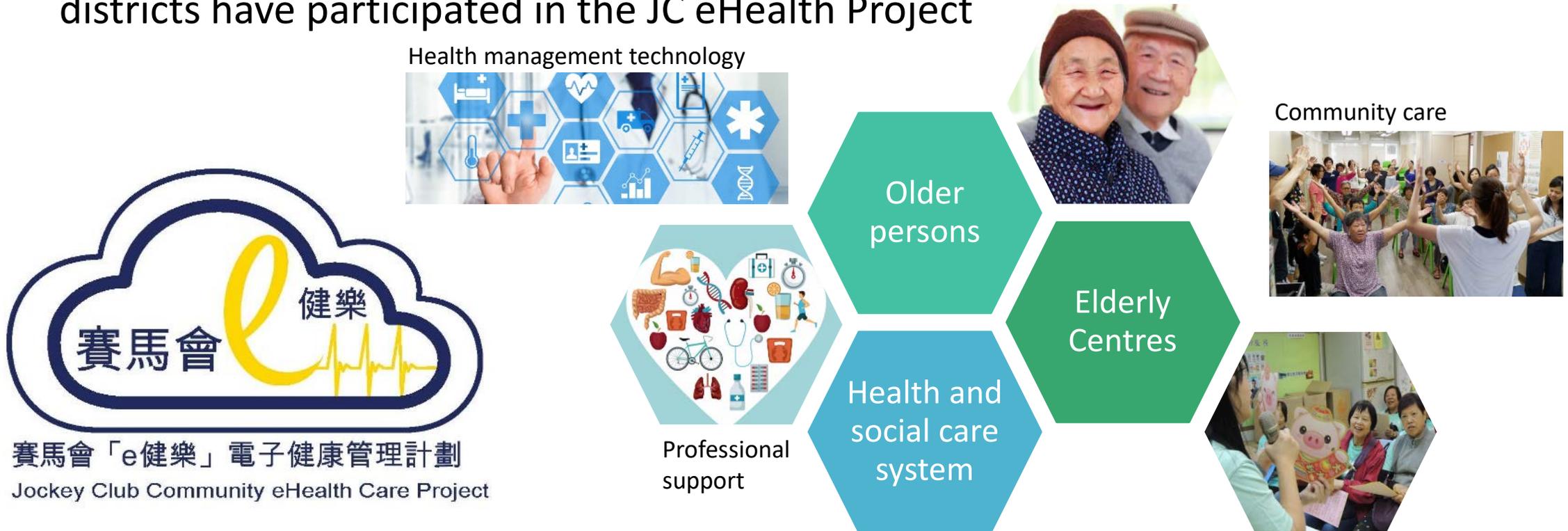
Project objectives

- To apply eHealth solutions to empower individuals in health management

- To promote elderly centres as the first point of contact for detecting and addressing the health and social needs of the elderly

- To foster the development of a primary care model in the community, integrating health and social components

Project components – Geriatric screening

Well-being survey

- Information covered apart from blood pressure, blood glucose, BMI

  - Oral health

  - Vision and hearing

  - Physical and cognitive frailty, falls and urinary incontinence, self-rated physical and psychological health

  - Ability to manage instrumental activities of daily living

  - Use of health and social services, medication, and financial security

Project components – Intervention

Individual intervention

To undertake in-depth assessment and provide personalized health advice

Manual for community centres with a list of first response/action to the different patterns of alert

In-depth assessment

Group programmes

To improve health and well-being

Examples of group programmes

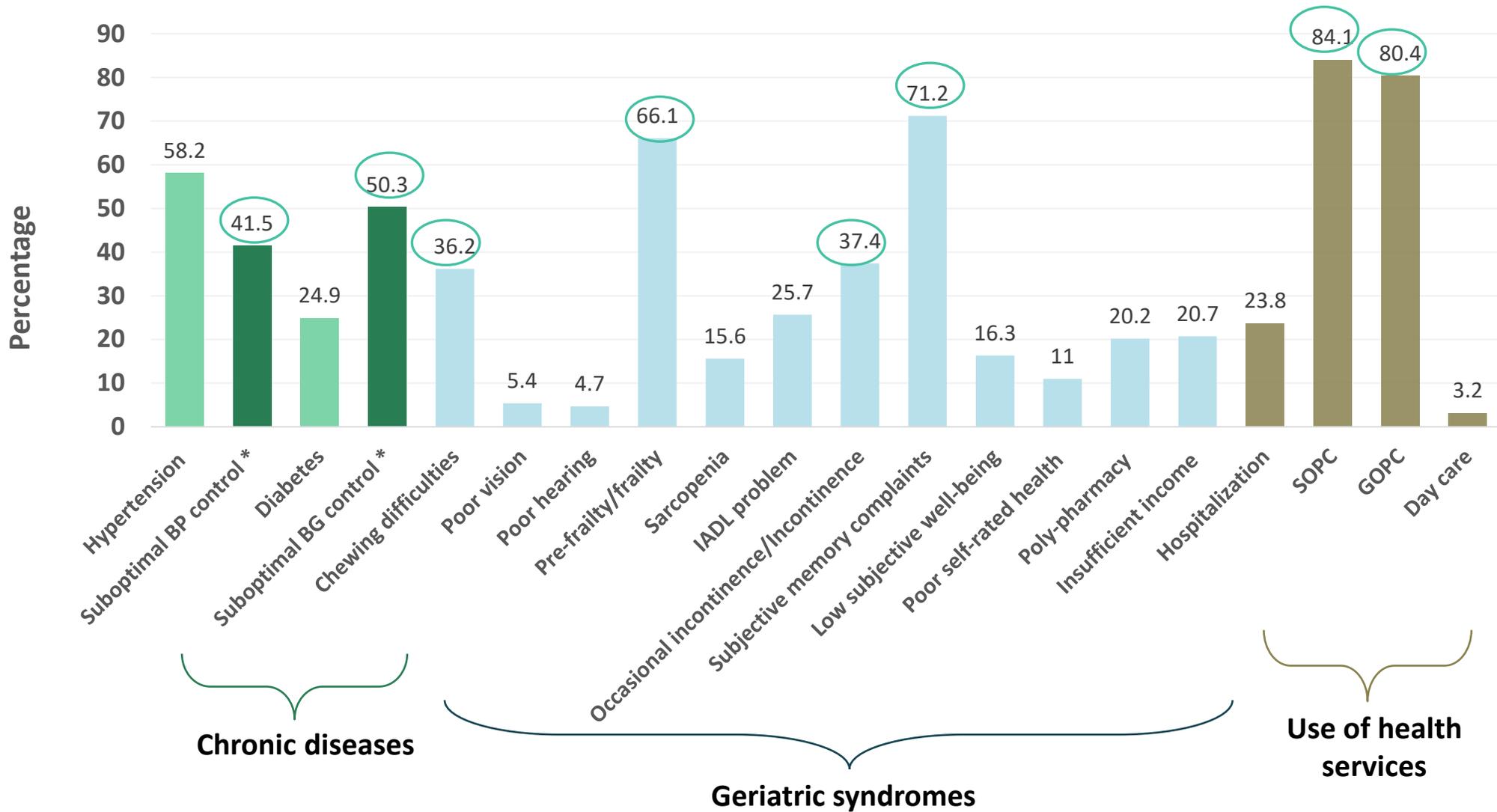## Tele-care prgramme

To empower self-management

Nursing caring call

eHealth stations for regular health measurement of blood pressure, blood glucose and weight

eHealth pilot data shows extensive unmet needs (18 Districts)

Category	Percentage
Hypertension	58.2
Suboptimal BP control *	41.5
Diabetes	24.9
Suboptimal BG control *	50.3
Chewing difficulties	36.2
Poor vision	5.4
Poor hearing	4.7
Pre-frailty/frailty	66.1
Sarcopenia	15.6
IADL problem	25.7
Occasional incontinence/Incontinence	37.4
Subjective memory complaints	71.2
Low subjective well-being	16.3
Poor self-rated health	11
Poly-pharmacy	20.2
Insufficient income	20.7
Hospitalization	23.8
SOPC	84.1
GOPC	80.4
Day care	3.2

Chronic diseases

Geriatric syndromes

Use of health services

13

The individual intervention has been effective in improving participants' frailty status and reducing their memory complaints

After 12 months

1.6 times more likely to have **improved frailty status**

Among those who were pre-frail / frail

After 12 months

1.5 times more likely to have **reduced memory complaints**

Among those who had memory complaints

The centre-based group programmes have been effective in improving participants' well-being, self-rated health, reducing poly-pharmacy & promoting health behaviour

After 12 months

Mental well-being
↑ 38%

Self-rated health
↑ 18%

Poly-pharmacy issues
↓ 6%

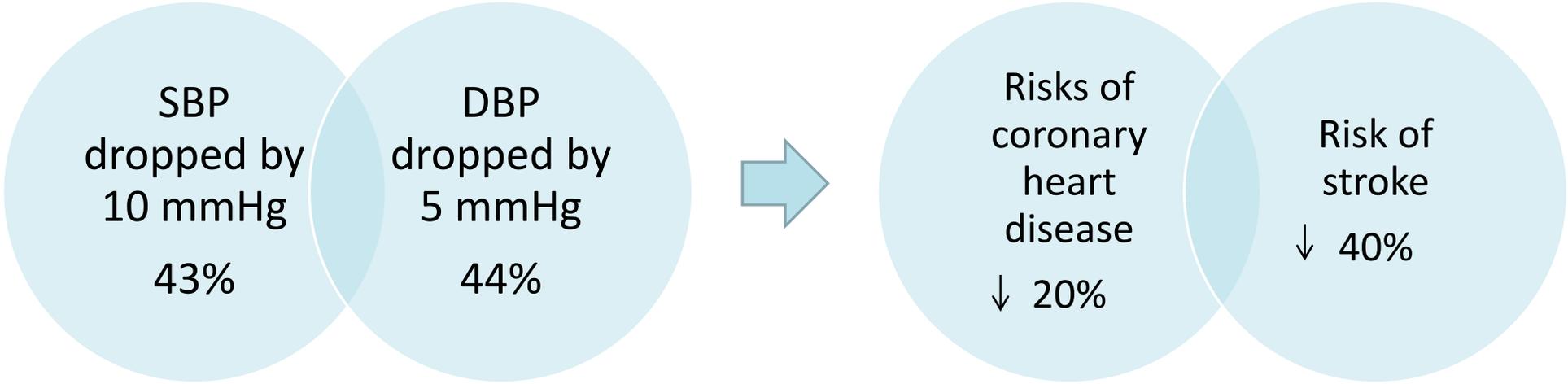Willingness to attend exercise classes
↑ 43%

Willingness to attend health-related workshops
↑ 40%

Among those in the intervention group

The tele-care programme has been effective in reducing the risk of cardiovascular disease

After 12 months

SBP dropped by 10 mmHg

43%

DBP dropped by 5 mmHg

44%

Risks of coronary heart disease

↓ 20%

Risk of stroke

↓ 40%

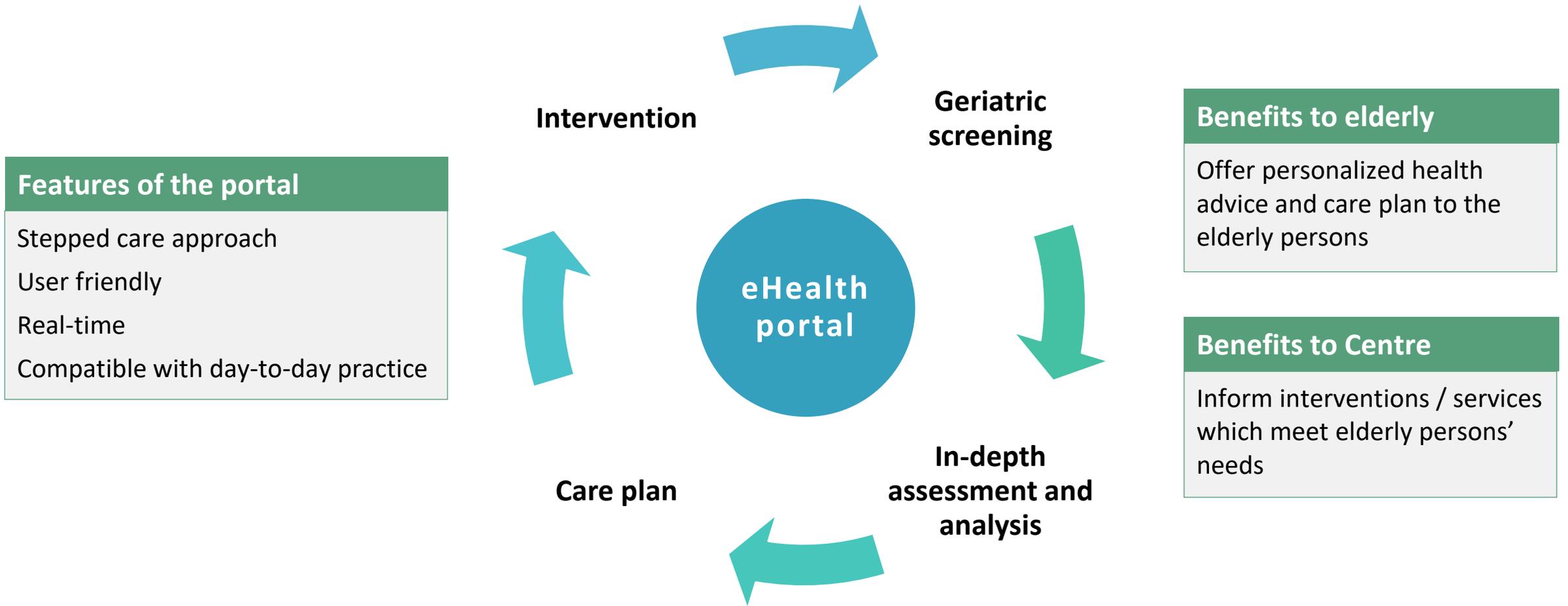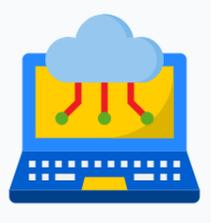# Phase 2: 2020 – 2022

Jockey Club Community eHealth Care Project

What is added to Phase 2

- To scale up to **100 centres**, benefiting more elderly

- To develop an **integrated eHealth system (eHealth portal)** to link up the project components, supporting the implementation of screening, assessments, health programs and corresponding support

- To ensure that participating centres are aligned, actively engaged and coordinated in implementing the **health-related programs**

- To perform **research** and **big data analysis** to trace progress on the project, informing future primary care model with eHealth application

An integrated eHealth system (portal)

Intervention

Geriatric screening

eHealth portal

Care plan

In-depth assessment and analysis

Features of the portal

Stepped care approach

User friendly

Real-time

Compatible with day-to-day practice

Benefits to elderly

Offer personalized health advice and care plan to the elderly persons

Benefits to Centre

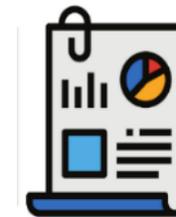Inform interventions / services which meet elderly persons' needs
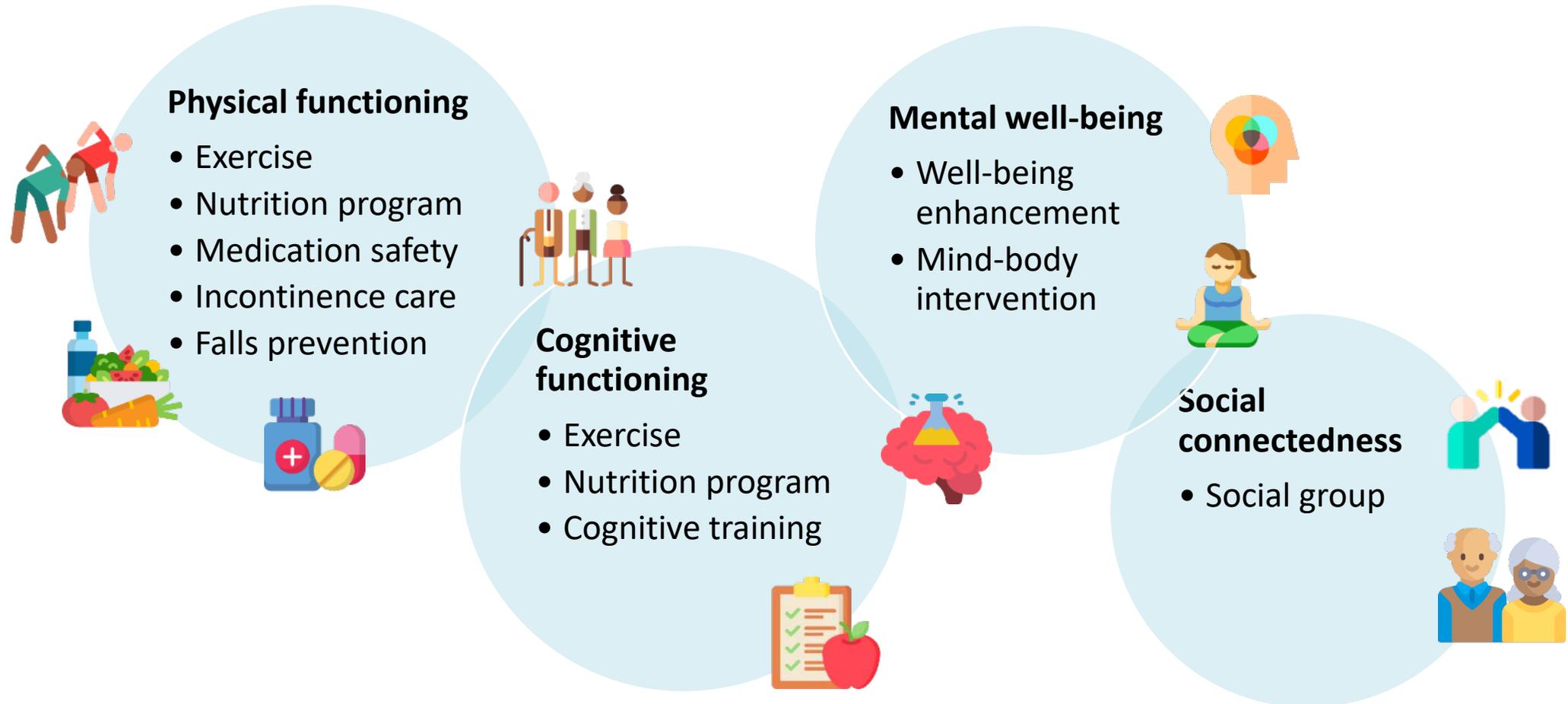
Support for operating the eHealth portal

Overview of geriatric syndromes

Operationalization of the online screening form

Results interpretation and recommendations

Health-related programs

Physical functioning

- Exercise
- Nutrition program
- Medication safety
- Incontinence care
- Falls prevention

Cognitive functioning

- Exercise
- Nutrition program
- Cognitive training

Mental well-being

- Well-being enhancement
- Mind-body intervention

Social connectedness

- Social group

Support for participating centres to implement health-related programs

Capacity building programs for centre staffs

Frailty prevention exercise

Nutritional education

Geriatric care on medication safety, incontinence and falls

Health promotion programs for elderly persons

Well-being enhancement lectures

Mind-body exercise

Horticultural therapy

Social groups

Evaluation framework of the eHealth project Outcome indicators

Elderly' capability in health management	Staff capacity in addressing the health and social needs of the elderly	Organizational capability in the development of a medical social integrated model
• **Knowledge and awareness** towards health management • **Self-management habit** including regular exercise, better diet control, etc. • **Health conditions**: BP, BG, BMI, and domains from WBS including frailty, memory, self-rated health, subjective well-being etc.	• **Knowledge** in health related programme design and implementation • **Willingness** to organize health related programmes • **Confidence** in organizing health related programmes • **Usage of knowledge** gained to plan / implement health related programmes	• **Resources allocated to healthy ageing programmes** (include time, human, service and monetary resources) • Health related or district resources **network**

ICOPE — Integrated Care for Older People

賽馬會「e健樂」電子健康管理計劃
Jockey Club Community eHealth Care Project

ICOPE	Jockey Club Community eHealth Care Project
Rapid case finding for declines in intrinsic capacity	Geriatric screening (Well-being survey)
Comprehensive assessment	In-depth assessment
Care plan	Personalized advice
Community-based services	Centre-based group programmes & Tele-care programme

Project objectives

- To empower individuals in health management

- To promote elderly centres as the first point of contact for detecting and addressing the health and social needs of the elderly

- To foster the development of a primary care model in the community, integrating health and social components

Towards achieving
Sustainable Development Goals -
category 3 (Good health and well-being)

SUSTAINABLE DEVELOPMENT GOALS

3 GOOD HEALTH AND WELL-BEING
ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

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NGO centres

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Thank you