

Efficacy of Health Self-Management App – Associations between App Using, the Frequency of Services Received and Blood Pressure Control



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oral session O4.1



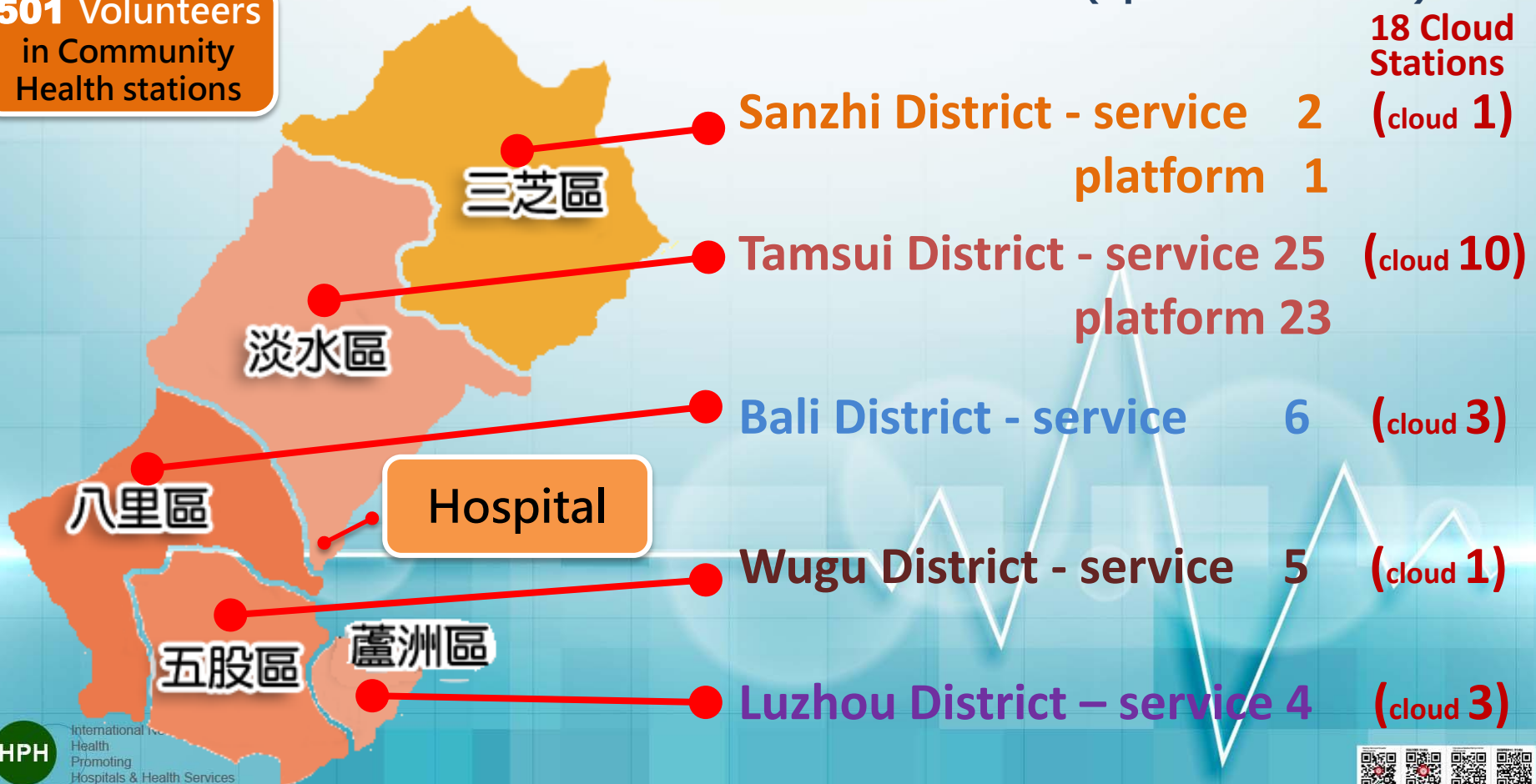
Introduction

Introduction

Distribution of health stations

66 stations in 5 districts (update until 2018)

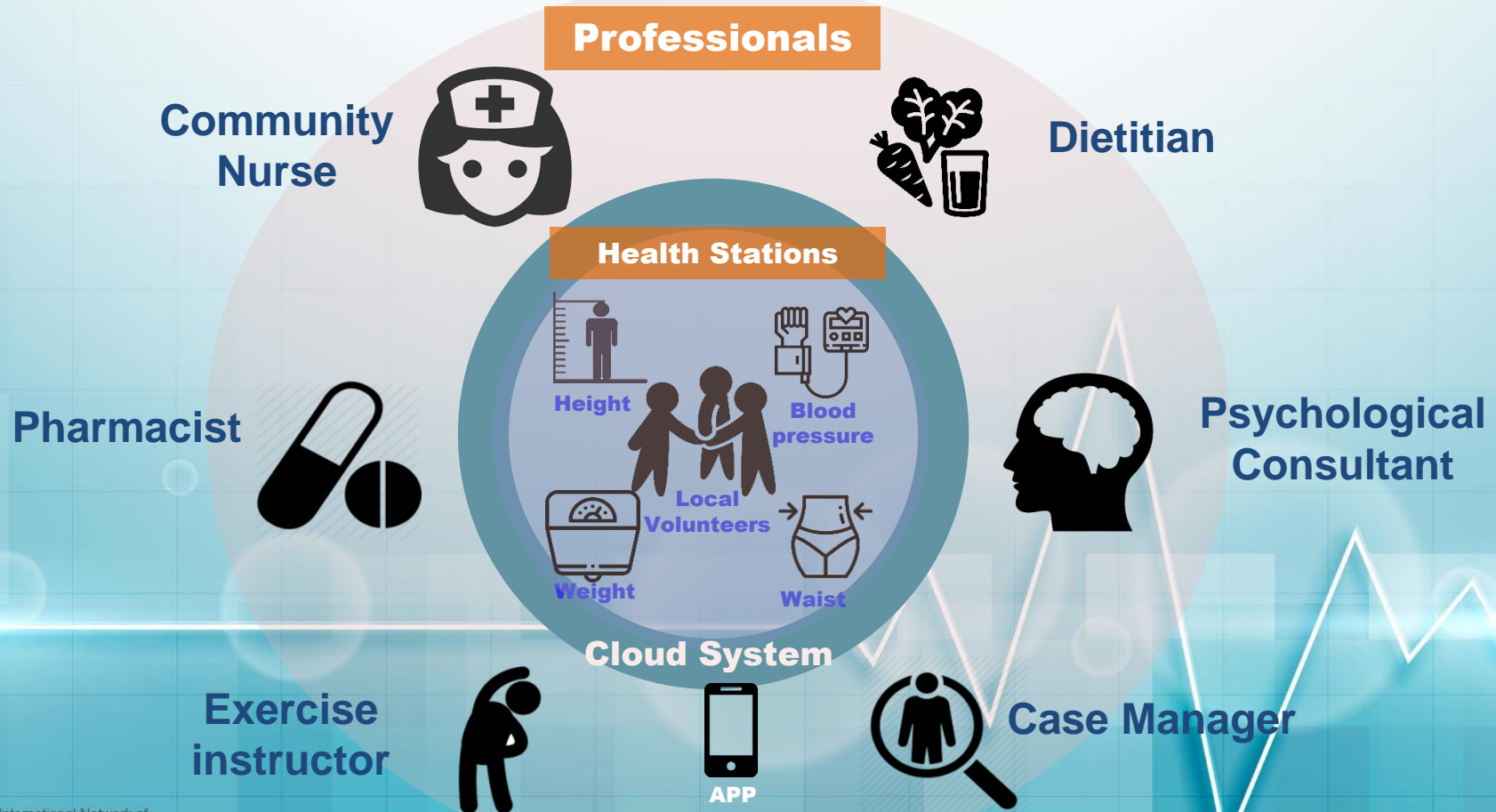
501 Volunteers
in Community
Health stations



Introduction

Introduction

Multi-services of health stations-1



Introduction

Multi-services of health stations-2



- **【Volunteers of Health stations】**
(1) Physiological measurement , including blood pressure, BMI, abdominal waist.
(2) Delivering information of health promotion.



- **【 Community Nurse 】**
(1) Checking blood sugar, cholesterol,
(2) Health consulting,
(3) Medical referral.



- **【 Pharmacist 】**
Medication consulting.



Introduction

Multi-services of health stations-3



- **【 Dietitian 】**
Dietary guidance.



- **【 Case Manager 】**
Cancer screening registration, Medical examination bus arrangement.



- **【 Psychological Consultant 】**
Dementia screening interview.



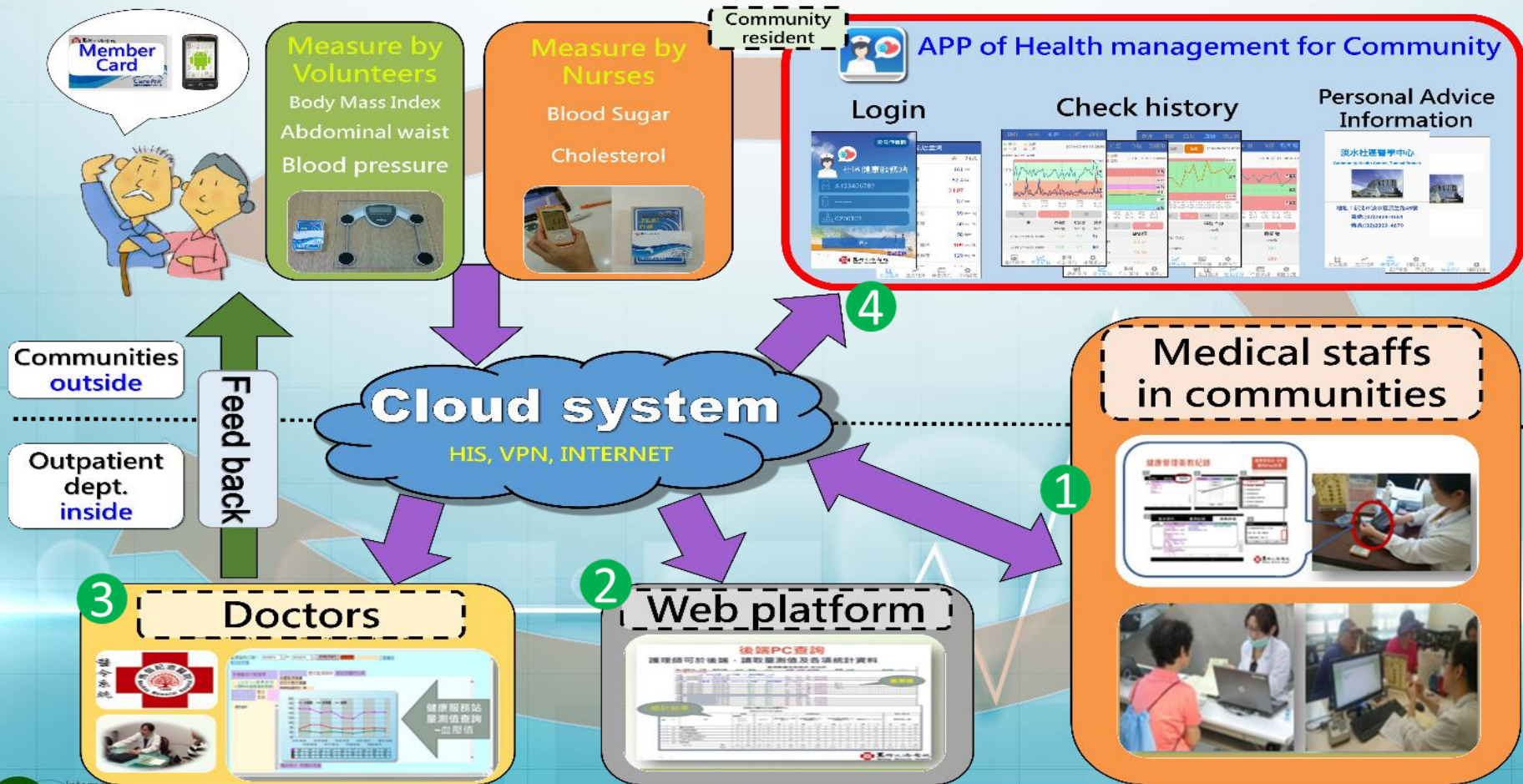
- **【 Exercise Instructor 】**
Guiding elderly to exercise for combating sarcopenia.



Introduction

Introduction

Cloud system of health stations-1



Introduction

Cloud system of health stations-2

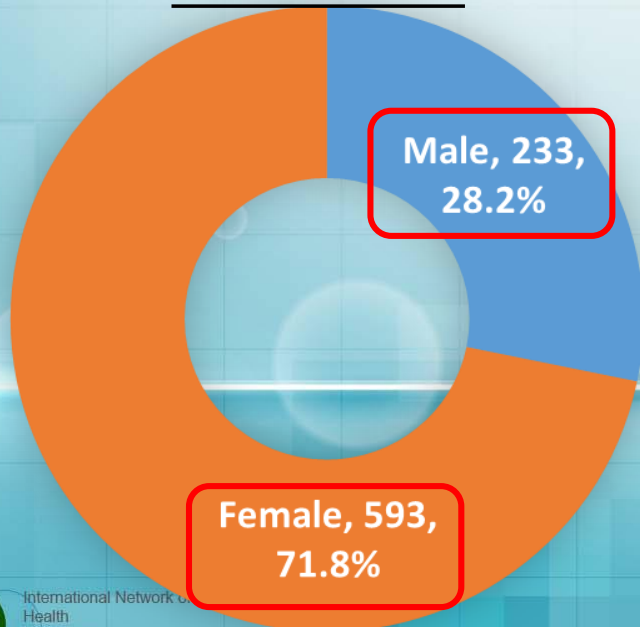
- 1 【 Medical staff at cloud health stations 】**
(1) To verify identity and to upload data of blood sugar and blood cholesterol by near-field communication(NFC).
(2) Recording consulting data on Health system WEB
- 2 【 Doctor in outpatient department 】**
To check measured data of community residents by hospital information system(HIS) at OPD.
- 3 【 Web platform for data analysis 】**
To check and to analyze measuring data on Web platform
- 4 【 Community residents 】**
To check measured self data and health consulting content by APP.



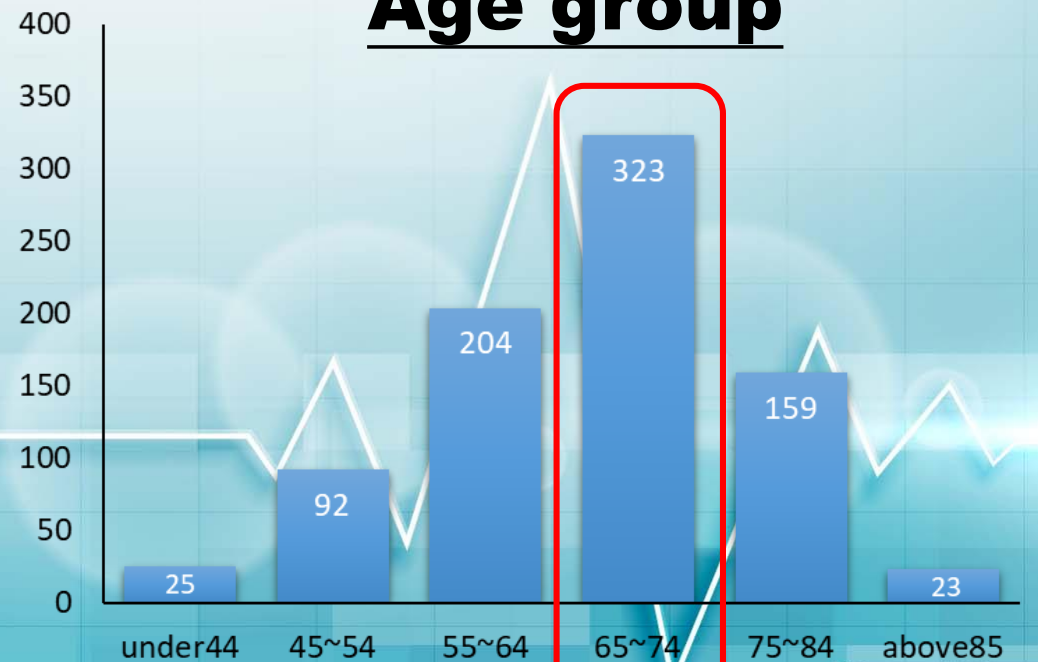
Method(1)

- To collect database of cloud stations from 2017 to 2018
- There are **826 community members**.
- The proportion of women is 71.8%, male is 28.2%.
- Main age group is around 65-74. (**average age is 66.1**)

Gender



Age group



Method(2)

- Researching relationship between APP using, **the frequency of services received** and **blood pressure under-control rate**
- Independent variable
 - ◆ using / not-using App
 - ◆ the service frequency-related Group
 - High service frequency group (≥ 52 times/2years)
 - Low service frequency group (< 52 times/2years)
- **BP Under-control Rate**
 - ◆ the frequency of measured BP (SBP <140 and DBP <90)
total services received number



Method(3)

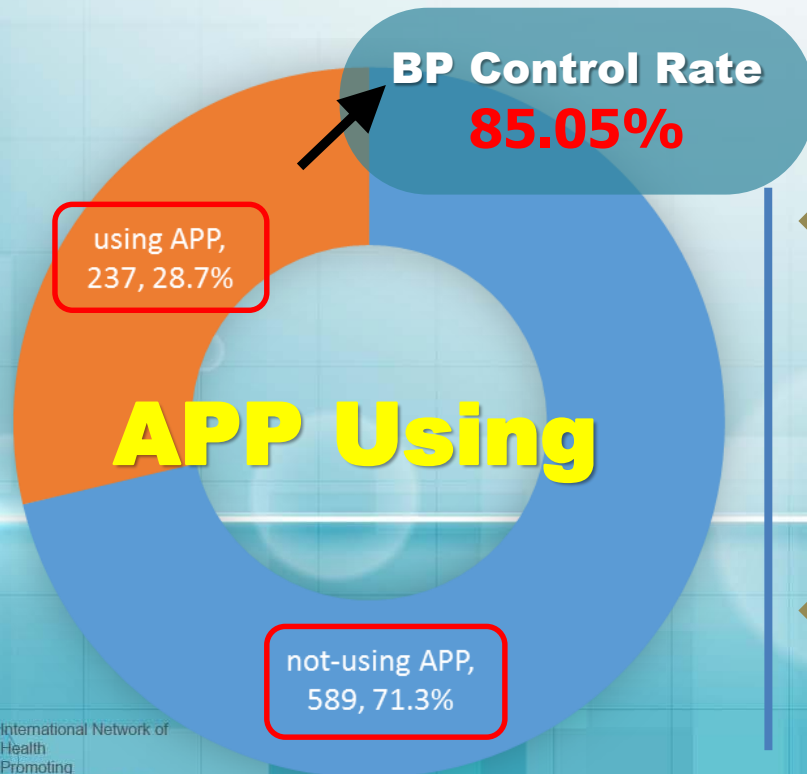
- At health stations, the volunteers guide community members to download APP for **health management**.
- The function of APP
 - ◆ Login for personal data
 - BMI, BP, Abdominal Waist, Blood sugar, Blood Cholesterol
 - ◆ Smart design
 - The Elderly friendly trend chart
 - Abnormal data warning
 - Measurement reminder
 - Electrical health education leaflet
 - ◆ Other
 - Health promotion activities Information
 - Health stations' map



Results

Result(1)

- The proportion of **using APP group is 28.7% (237 members), not-using APP group is 71.3% (589 members) .**



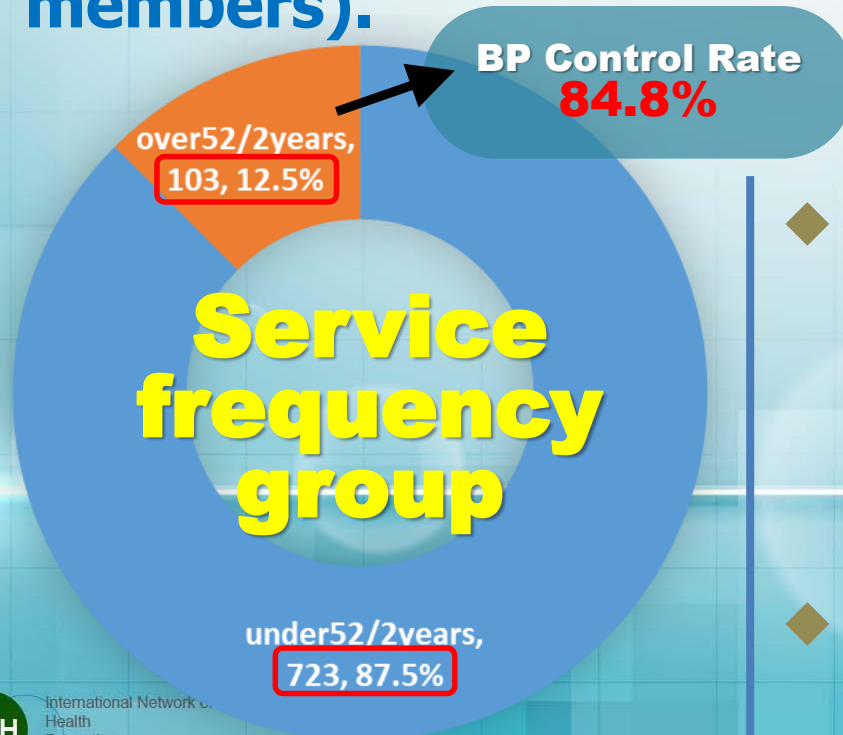
- ◆ The BP undercontrol rate is **85.05%** (mean SBP/DBP is 120.9 / 73.1) in using APP and **77.59%** (mean SBP/DBP is 126.4 / 72.2) in not-using APP group.
- ◆ The **T test** showed the significant different $p = 0.0001 (<0.001)$



Results

Result(2)

- The proportion of **high service frequency group is 12.5% (103 members)**, low service frequency group is **87.5% (723 members)**.



- ◆ The BP undercontrol rate is **84.8%** (mean SBP/DBP is 123.1 / 71.9) in high service frequency group and **79.01%** (mean SBP/DBP is 125.4 / 72.6) in low service frequency group.
- ◆ The **T test** showed the significant different $p=0.03$ (<0.05)



Results

Result(3)

- The table of groups by APP using and service frequency-related group

APP Using	Service Frequency Related Group	Member	%	Average age	Services received number	Average services received number	Average SBP/DBP	Average BP under-control Rate
1 using APP	high frequency	51	6.2	63.6	3991	78.3	122.2/72.3	85.74%
2	low frequency	186	22.5	59.6	4250	22.8	120.6/73.3	84.86%
3 Not-using APP	high frequency	52	6.3	70.9	4177	80.3	123.9/71.5	83.87%
4	low frequency	537	65.0	68.1	9168	17.1	127.1/72.3	76.99%
Total / Average		826	100	66.1	21586	26.1	125.1/72.5	79.73%



Results

Result(4)

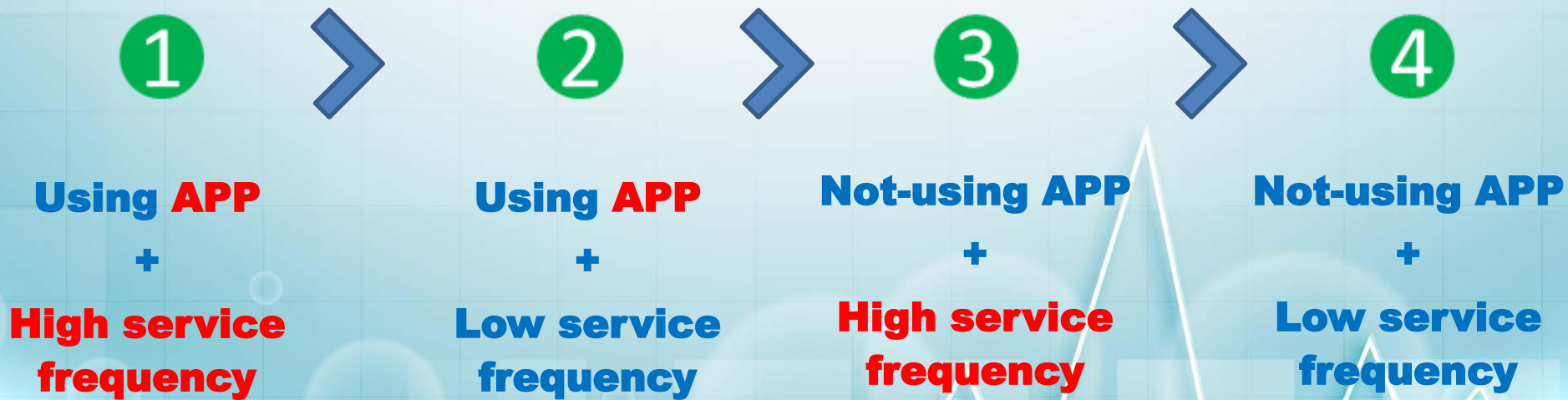
- According to the variables of APP using and service frequency, we classify these to four groups as ① ② ③ ④
- There is highest BP under-control rate **85.74%** in the group of using **APP and high service frequency**.
mean SBP/ DBP 122.2 / 72.3
- The second one is **84.86%** in the group of using **APP and low service frequency**.
mean SBP/ DBP 120.6/73.3
- The third one is **83.87%** in the group of not-using APP and **high service frequency**.
mean SBP/ DBP 123.9/71.5
- The last one is **76.99%** in the group of not-using APP and **low service frequency**.
mean SBP/ DBP 127.1/72.3



Results

Result(5)

Average BP Under-control Rate



Discussion

Discussion(1)

APP using related

- The volunteers of health stations promote **APP** to the community residents for **health management**.
- After consulting at health stations, medical staff provide **health education paper** leaflet or personal electrical leaflet by **APP**.
- The elderly can **review consultation** result by themselves.
- **APP** is a **individualized record tool** for managing self health care and also give their **family to concern** the elderly member.



Discussion

Discussion(2)

Frequency related

- MacKay Memorial Hospital established communities **health stations** to provide **multiple services** by local volunteers and medical staffs.
- We arrange periodically **medical staff** such as community nurse, dietitian, pharmacist and exercise instructor to **provide health education** at health stations.
- Community nurses could **review measured data through cloud system** and educate community residents to **improve health literacy**.



Conclusion

Conclusion

- The community members who have been **using APP** for health management can improve BP under-control rate.
- The **frequency of members being serviced** at health stations affects BP under-control rate.
- Even if being serviced with low frequency at health stations, the community residents who have been **using APP** for health management still have higher BP under-control rate.





Thank you for your attention

