

Efficacy of Cloud Health Stations

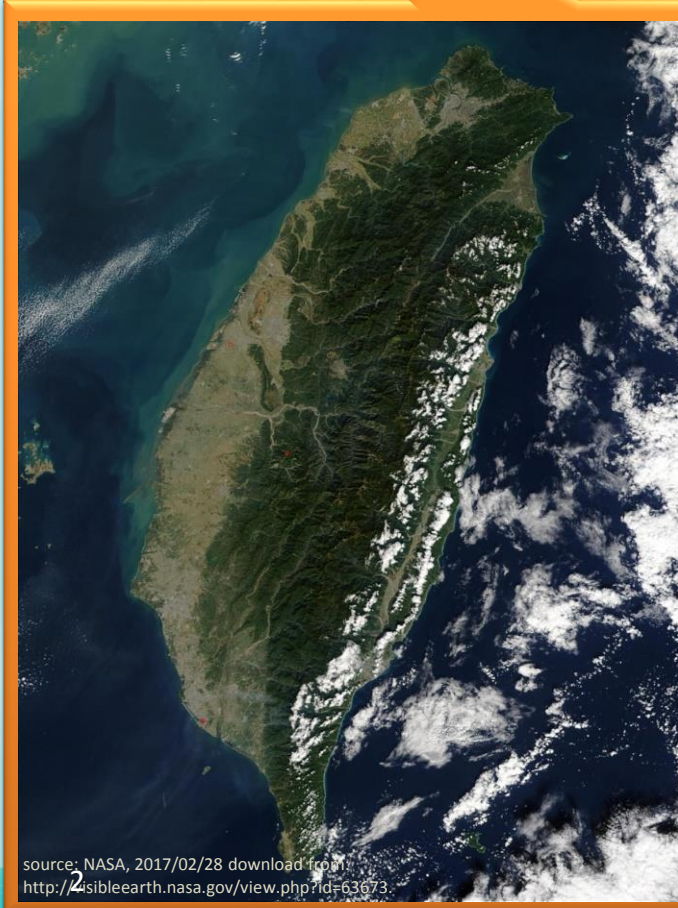
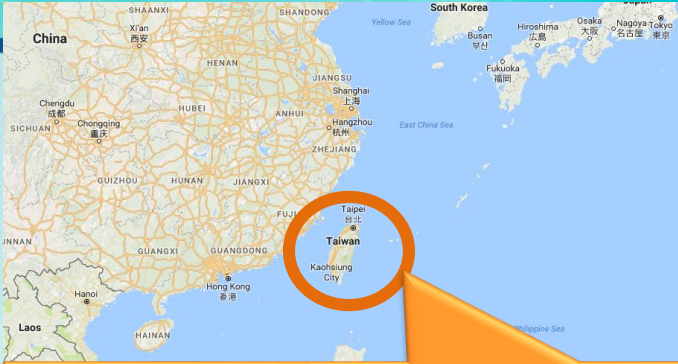
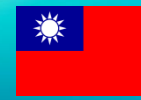
- Association between Services Received Frequency and Blood Pressure Control

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source: NASA, 2017/02/28 download from
<http://2.sibleearth.nasa.gov/view.php?id=63673>

- Capital: Taipei 25°02'N 121°38'E
- Population: 2016 estimate 23,519,518
- GDP (PPP): 2016 estimate Total \$1.147 trillion, Per capita \$48,703
- GDP (nominal): 2016 estimate Total \$588.334 billion, Per capita \$24,985
- HDI (2014) Increase 0.882, very high 25th
- Area Total 36,193 km² (13,974 sq mi) (136th)



- Taipei and Danshui together qualify as a Medical Center with the longest history in Taiwan
- A health network through northern, western and eastern of Taiwan
- Intradepartmental cooperation to provide integrated, comprehensive care.
- dedicated to conducting innovative research for practical clinical application
- upholds a mission to train future medical professionals.



Introduction (1)

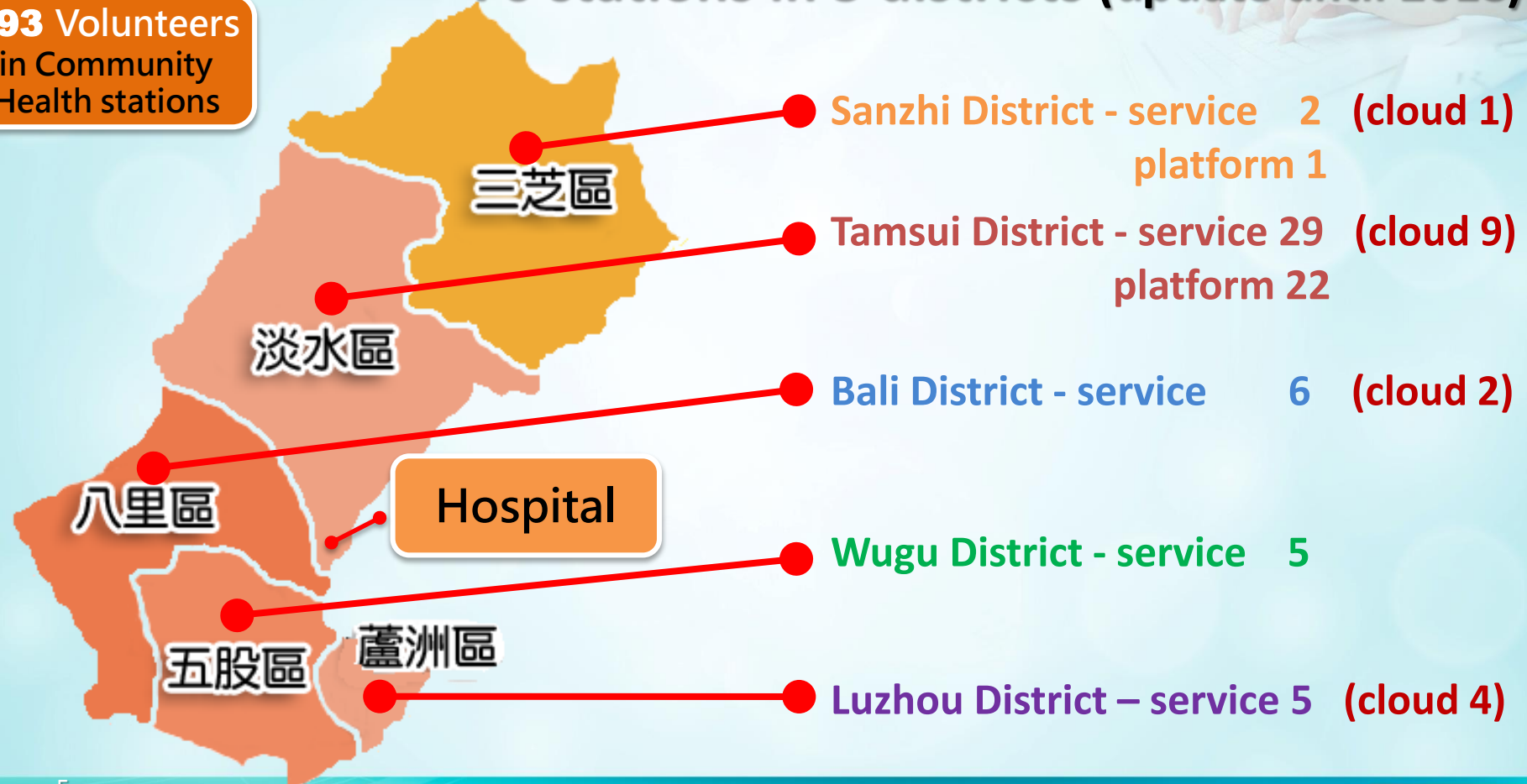
- **Tamsui district in the New Taipei City is the first place to acquire certification of AFHC (Alliance of Healthy Cities) of WHO in Western Pacific Region in 2008.**
- **MacKay Memorial Hospital cooperated with Tamsui district office to establish 40 Health stations in 2009.**
- **Settling for screening metabolic syndrome.**
- **There are 70 stations & 500 volunteers in 2018, including Cloud type, Normal type and Platform type.**



Introduction (2)_Distribution of Health stations

70 stations in 5 districts (update until 2018)

493 Volunteers
in Community
Health stations

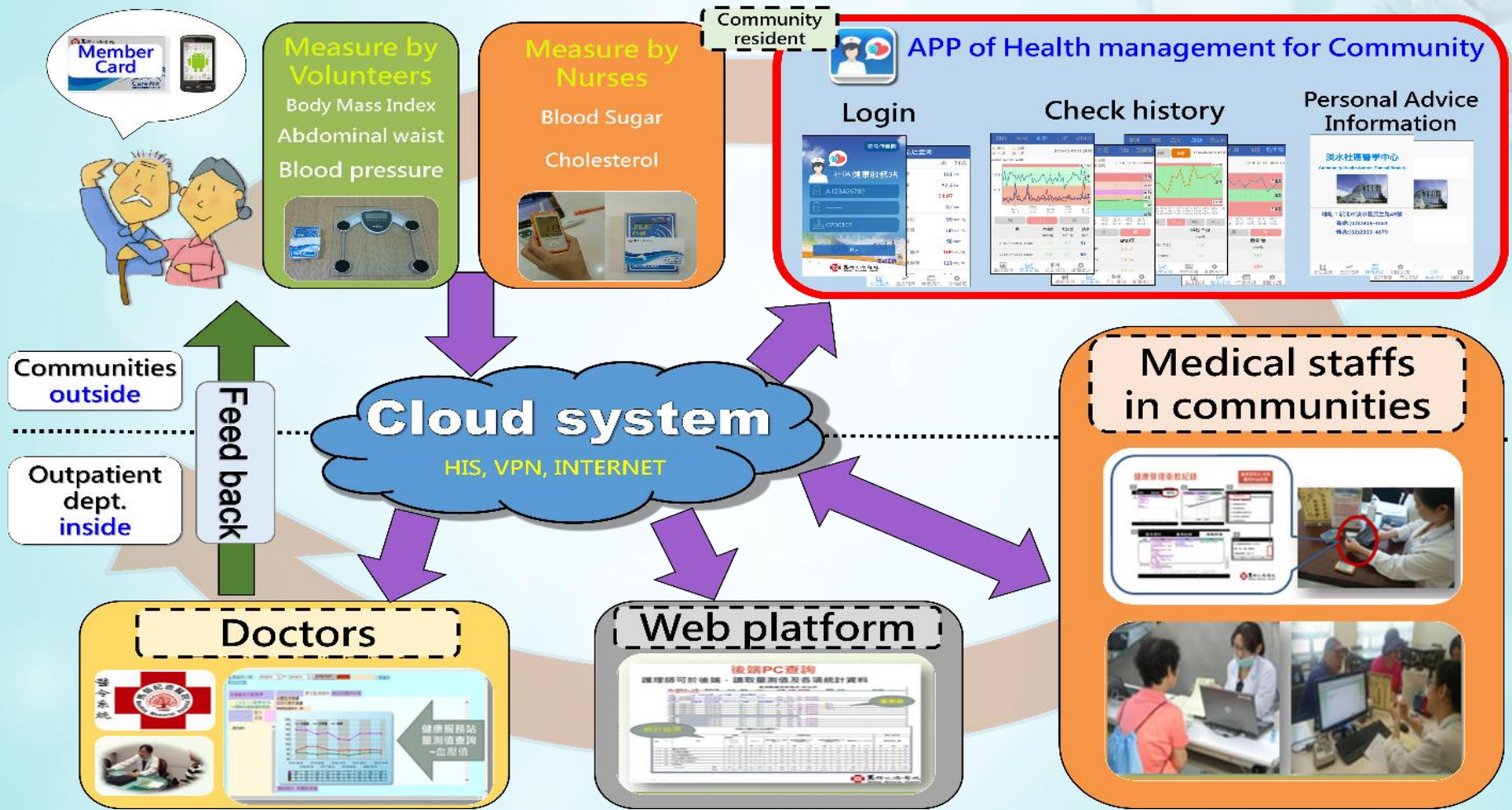


Introduction (3)

- **There are 16 Cloud Health Stations in 2018.**
- **In Cloud Health Stations Volunteers provide services measuring body mass index, blood pressure (BP), abdominal circumference; Community nurse provides service of checking blood sugar and cholesterol.**
- **All Data can be uploaded to Cloud system.**
- **Medical staff could check measured record in Hospital Information System (HIS).**
- **Community members could review their measured record in Personal APP.**

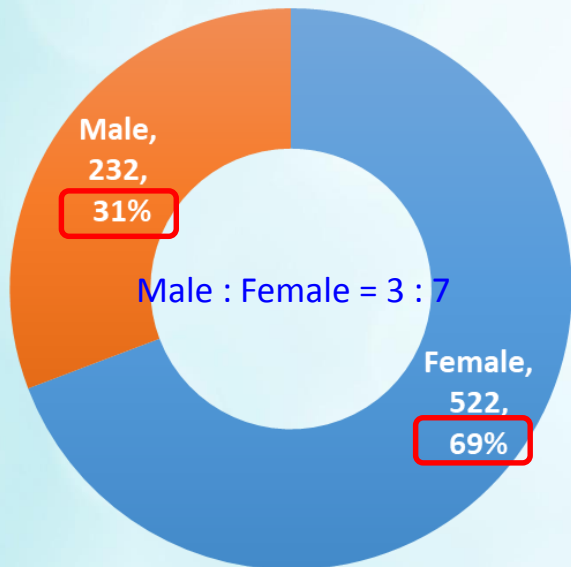


Introduction (4)_ Cloud system of Health stations

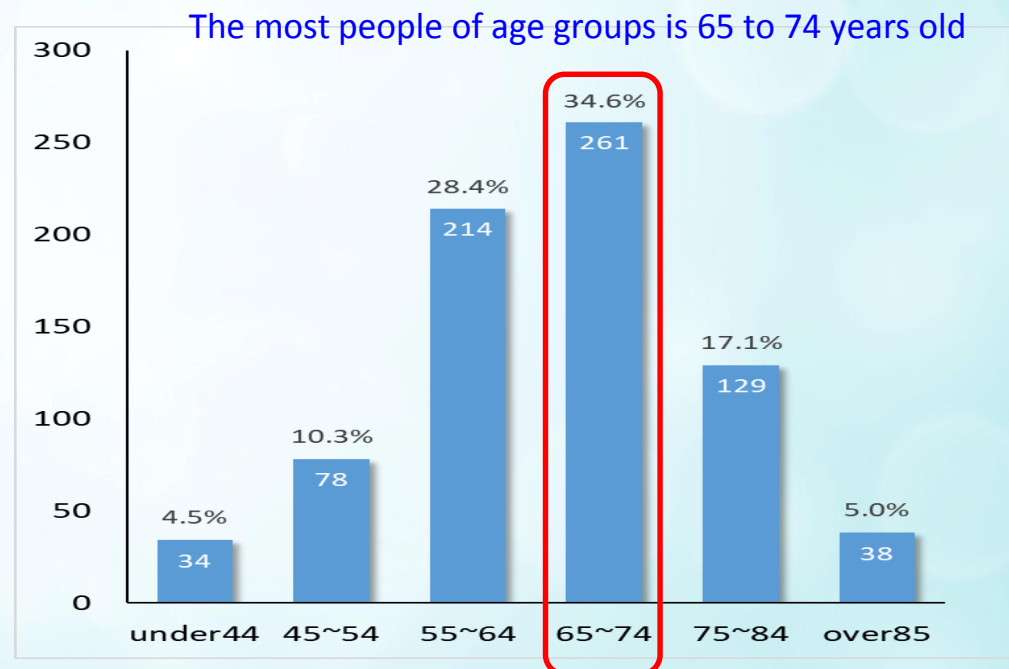


Method/Material (1)

- To collect database of Cloud stations from 2016 to 2017.
- There are 754 community members (average age 65.7) and the distribution of gender and age as below.



Gender



Age group



Method/Material (2)

- **Researching relation between services received number and blood pressure control rate.**
- **Independent variable**
 - ◆ **Services received number Group**
 - High frequency group (≥ 52 times/2years)
 - low frequency group (< 52 times/2years)
 - ◆ **Services received number**
- **Dependent variable / outcome**
 - ◆ **BP Control Rate**
 - $$\frac{\text{the frequency of normal BP (SBP}<140 \text{ and DBP}<90)}{\text{total services received number}}$$



Result (1)

■ Services received number Groups

◆ High frequency group vs low frequency group

Group	member	Average age	Services received number	Average services received number	Average blood pressure
high frequency group (≥ 52 times/2years)	208	66.4	25,013	120.3/2years	123.8/71.8
low frequency group (< 52 times/2years)	546	65.5	10,732	19.7/2years	125.2/72.6
total	754	65.7	35,754	47.4/2years	124.2/72.0



Result (2)

■ T test

- ◆ The average blood pressure well control rate is 82% in high frequency group and 77% in low frequency group.
- ◆ T test showed the significant **difference of BP control rate between high and low frequency groups** ($p= 0.02$)



Result (3)

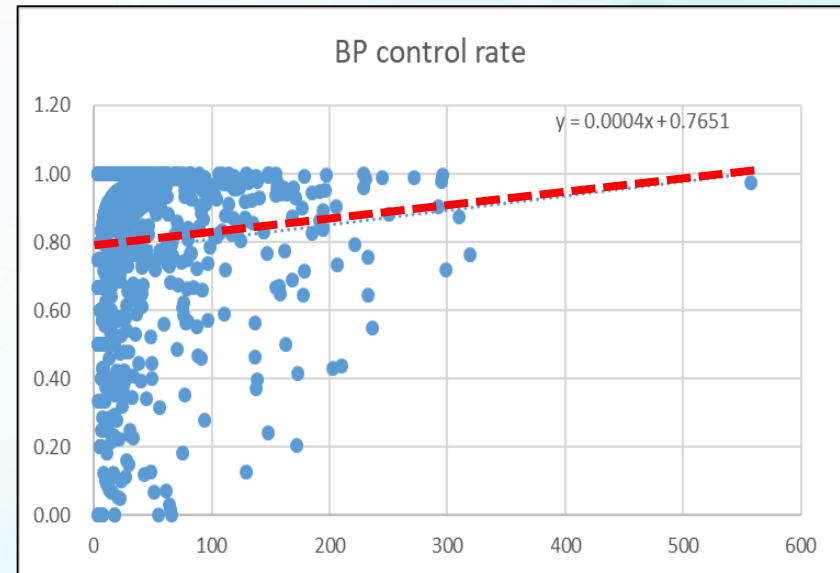
■ Simple regression

- ◆ simple linear regression model was

$$Y = 0.7651 + 0.0004X \quad (p < 0.05)$$

(Y: BP control rate, X: service received number)

- ◆ It means the blood pressure control rate will **increase by 0.04%** for each additional service received number.



Discussion (1)



1. Community nurse could review measured data immediately by tablet PC and educate member to improve **health literacy**.

2. Our hospital arranges periodically medical staff such as dietitian, pharmacist etc. to provide health education at health stations.

3. The medical staffs appropriately make referral when it is necessary after consulting.



Community Nurse



Pharmacist



Dietitian



Psychological Consultant



Case Manager



Discussion (2)



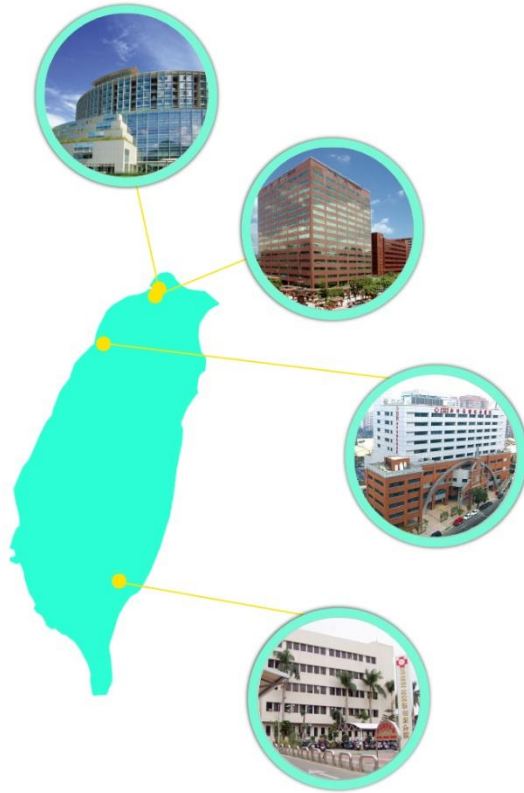
4. Providing personal **electrical health education leaflet** by APP after consulting.
5. Health APP is a individualized record tool for managing **self health care** and providing family to concern their elderly member.



Conclusion

- 1. MacKay Memorial Hospital established communities Health stations to provide multiple services by local volunteers and medical staffs.**
- 2. The Health stations develop Cloud services for giving individualized care APP and connecting their families.**
- 3. The community members who have higher services received number can improve blood pressure control rate.**
- 4. The network of Health stations could link national long-term care system to achieve great performance.**





Thank you for your attention

