



馬偕紀念醫院
MacKay Memorial Hospital

Building a data visualization management model for big health data at community health service stations by POWER BI

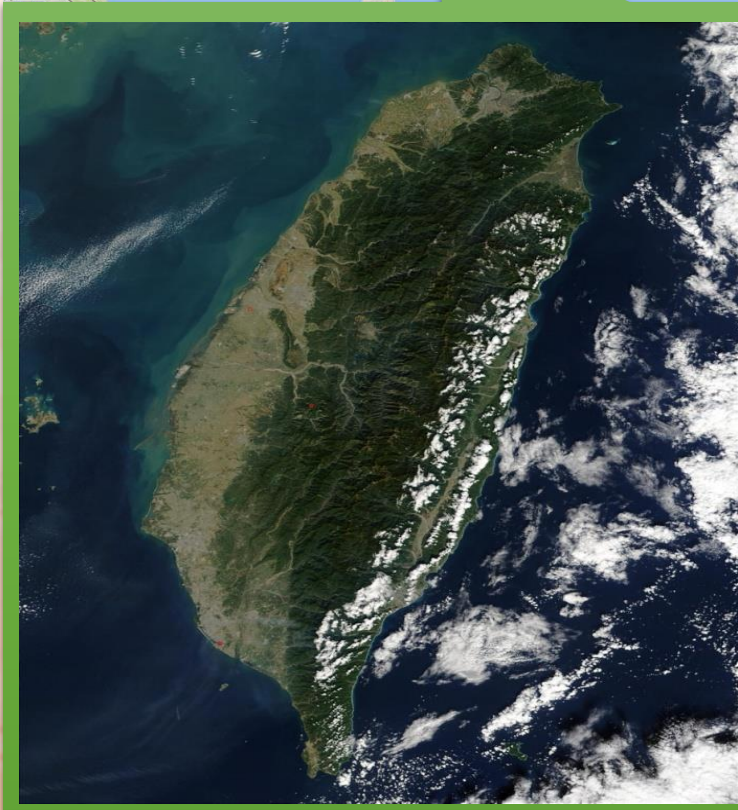
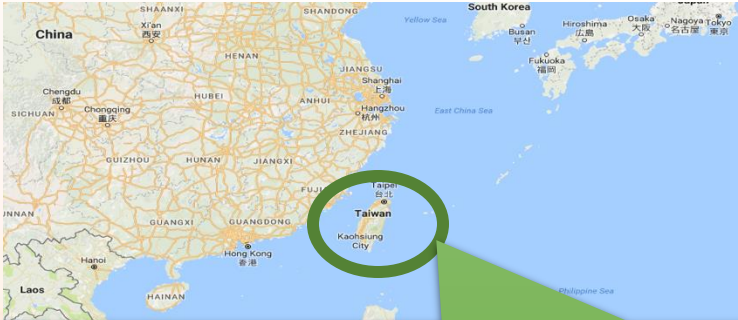
- Mei-Yu LEE R.N.
- MacKay Memorial Hospital
- 2024.11. 8

30TH INTERNATIONAL CONFERENCE ON HEALTH
PROMOTING HOSPITALS AND HEALTH SERVICES,
HIROSHIMA, JAPAN | NOVEMBER 6-8, 2024

 International Network of
Health Promoting Hospitals
& Health Services

TAIWAN

- Capital: Taipei 25°02'N 121°38'E
- Population: 2022 estimate 23.2 million
- GDP (PPP): 2021 estimate Total \$1.40 trillion, Per capita \$59,398
- GDP (nominal): 2021 estimate Total US\$ 775 billion, Per capita \$33,011
- Life expectancy: 77 years (men) 84 years (women)
- Area Total 36,193 km² (13,974 sq mi) (136th)



MMH In Brief

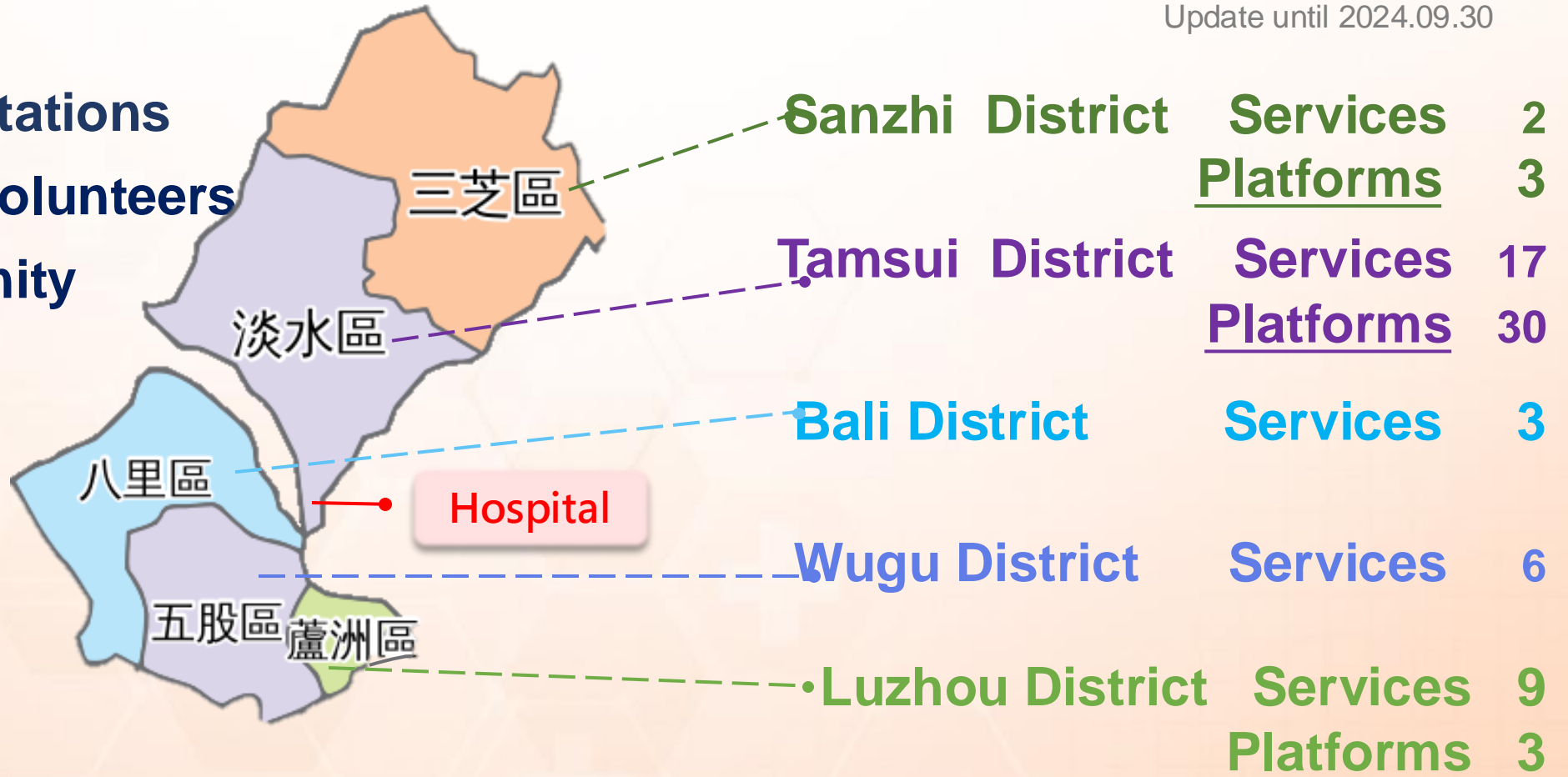
- Taipei and Danshui together qualify as a Medical Center with the longest history in Taiwan
- A health network through northern, western and eastern of Taiwan
- Intradepartmental cooperation to provide integrated, comprehensive care.
- Dedicated to conducting innovative research for practical clinical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



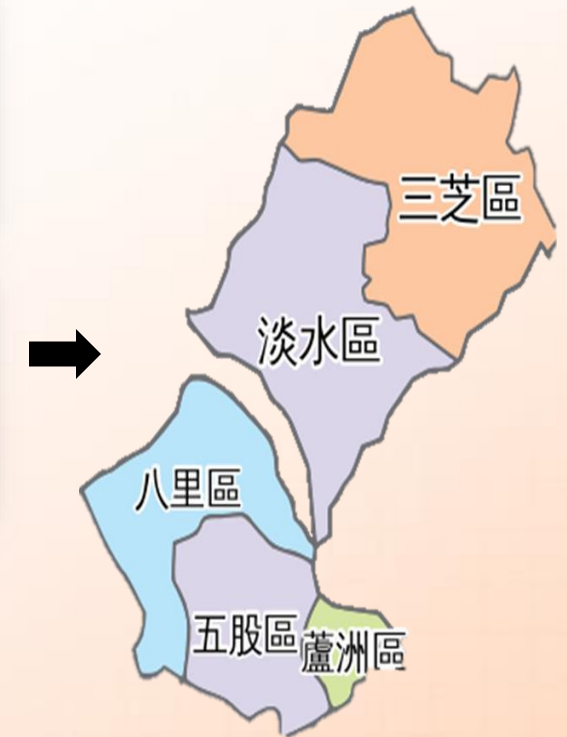
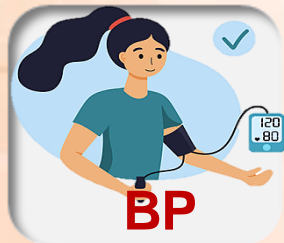
Background/Goals⁽¹⁾ - Distribution of Health Stations

- 5 Districts
- 73 Health Stations
- 398 Local Volunteers
in Community

Update until 2024.09.30



Background/Goals₍₂₎ - Develop representative indicators and daily management indicators



- **Physiological measurement** (including BMI, abdominal waist and blood pressure).

Method⁽¹⁾

Followed by the steps below to **develop community health promotion indicators:**

1. To visualize the results of service volume, gender, age, BMI, waistline and blood pressure by **Power BI**.

Quarter	StationID	NO	SBP	DBP	Quarter	StationID	NO	SBP	DBP
2022Q4	1 00100002	142.75	90.5		2023Q4	1 00100002	146	76	
2022Q4	1 00100003	136.875	84.875		2023Q4	1 00100003	128	72	
2022Q4	1 00100013	133.5	76.5		2023Q4	1 00100052	137	76	
2022Q4	1 00100014	140.2727273	82.27272727		2023Q4	1 00100090	156.5	91	
2022Q4	1 00100040	154.125	75.25		2023Q4	1 00100093	123	68	
2022Q4	1 00100046	148.8333333	87.5		2023Q4	1 00100091	126	64	
2022Q4	1 00100054	192	104		2023Q4	1 00100094	155	92	
2022Q4	1 00100058	148.4	74.4		2023Q4	1 00100097	125	80	
2022Q4	1 00100062	130	75.6		2023Q4	1 00100098	158	82	
2022Q4	1 00100065	114.9	66.6		2023Q4	1 00100103	144	80	
2022Q4	1 00100066	137	82		2023Q4	1 00100108	135	67	
2022Q4	1 00100080	154.75	90.625		2023Q4	1 00100116	195	80	
2022Q4	1 00100083	129.9	64.1		2023Q4	1 00100122	122.3333333	72.83333333	
2022Q4	1 00100088	128.8571429	66.57142857		2023Q4	1 00100140	134	73.5	
2022Q4	1 00100091	125.8666667	67.66666667		2023Q4	1 00100155	137.5	74.5	
2022Q4	1 00100093	129	66		2023Q4	1 00100174	128	78	
2022Q4	1 00100094	139.7142857	84.71428571		2023Q4	1 00100177	127.5	70.5	
2022Q4	1 00100097	122.6666667	66.11111111		2023Q4	1 00100194	132	80	
2022Q4	1 00100098	126.5	73.5		2023Q4	1 00100203	155	73	
2022Q4	1 00100103	159	86		2023Q4	1 00100234	128	74	
2022Q4	1 00100116	124.9090909	75.09090909		2023Q4	1 00100265	134.6666667	71.33333333	
2022Q4	1 00100122	124.4375	73.75		2023Q4	1 00100299	146	68	
2022Q4	1 00100132	145	80		2023Q4	1 00100300	123	60.5	
2022Q4	1 00100140	115	74		2023Q4	3 00300005	121.7142857	74.42857143	
2022Q4	1 00100155	144	83.6		2023Q4	3 00300007	145	69.4	
2022Q4	1 00100160	124.75	75.75		2023Q4	3 00300009	123.5	53.41666667	
2022Q4	1 00100174	139.5	80.75		2023Q4	3 00300010	140.5	84.58333333	
2022Q4	1 00100177	139	86		2023Q4	3 00300016	125.8666667	64.8	
2022Q4	1 00100202	120	75		2023Q4	3 00300020	107.5833333	75	
2022Q4	1 00100203	146.5	65.4		2023Q4	3 00300021	140.6666667	64.88888889	
2022Q4	1 00100244	156	72		2023Q4	3 00300023	144.25	90.25	
2022Q4	1 00100248	127	67.1		2023Q4	3 00300025	134.5	85	
2022Q4	1 00100249	119.625	65.375		2023Q4	3 00300026	159	92	
2022Q4	1 00100265	125	73.5		2023Q4	3 00300042	123.8	62	



馬偕紀念醫院
MacKay Memorial Hospital

淡水院區
社區醫學中心

annual

- 2019
- 2020
- 2021
- 2022
- 2023
- 2024

administrative district

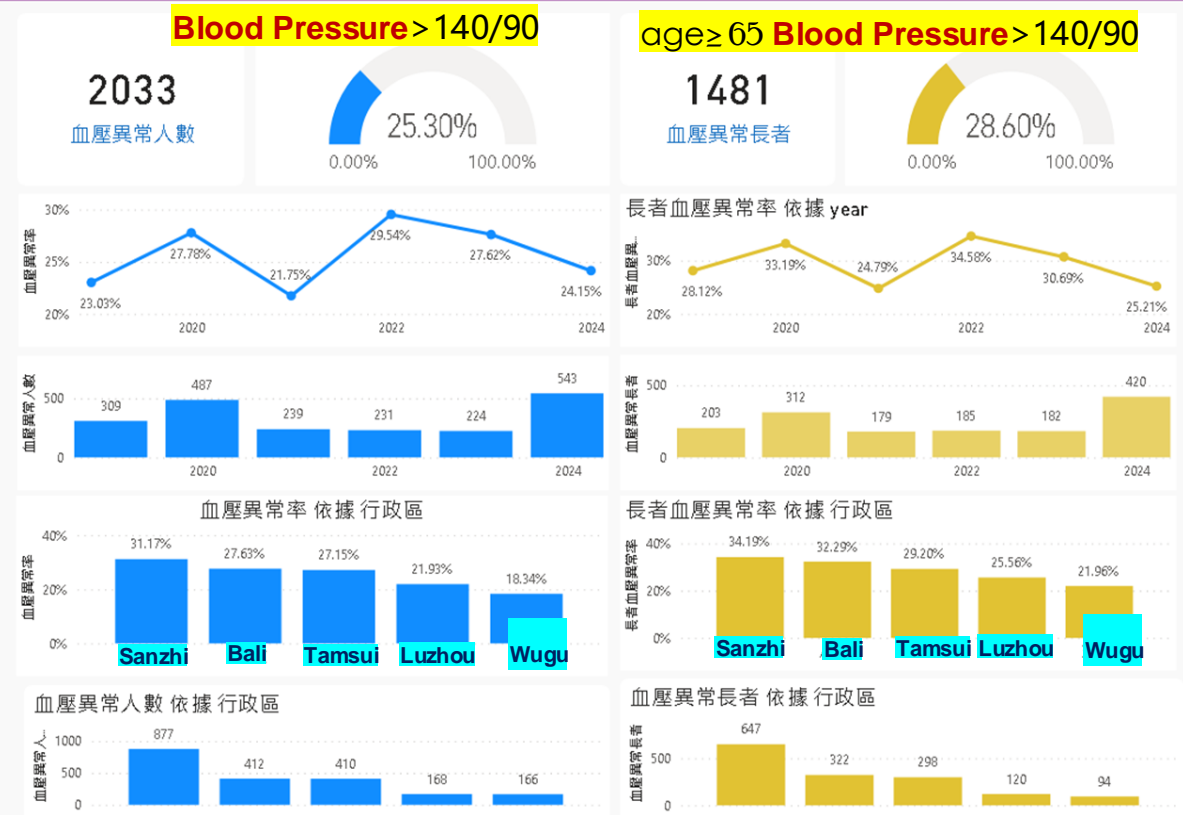
- 八里區
- 三芝區
- 五股區
- 淡水區
- 蘆洲區

age

- < 65歲
- ≥ 65歲

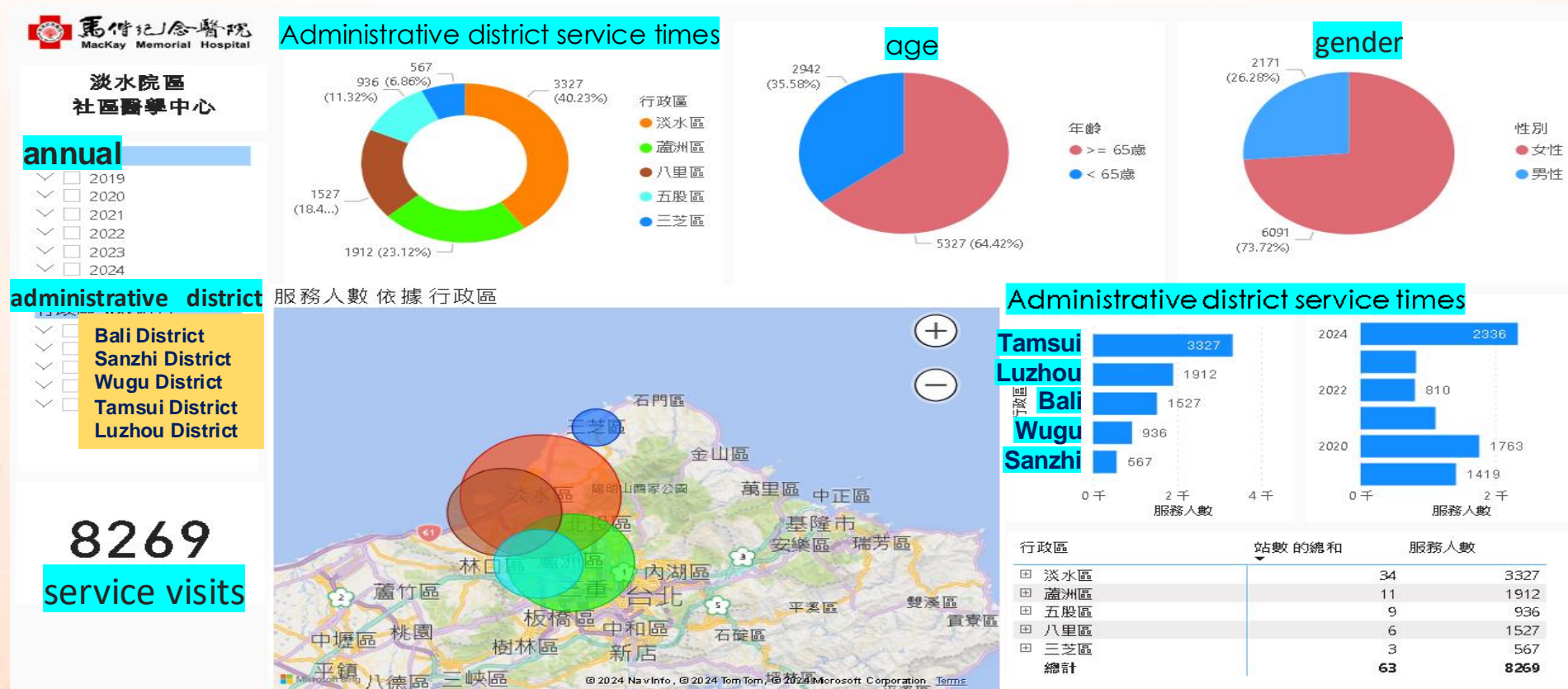
gender

- 女性
- 男性



Method⁽²⁾

2. Develop daily management indicators: Recording the **service volumes** in the community.

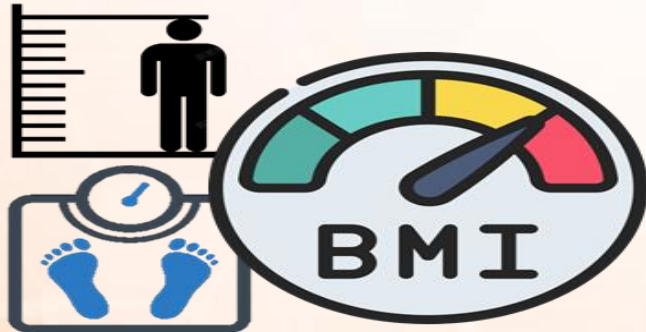


Method ⁽³⁾

3. Establish health promotion indicators for community residents:

a. Outcome indicators:

The average improvement rates of people's BMI, blood pressure, and waistline increased by both 30%, and 40%.



BMI

30%



Blood Pressure

30%



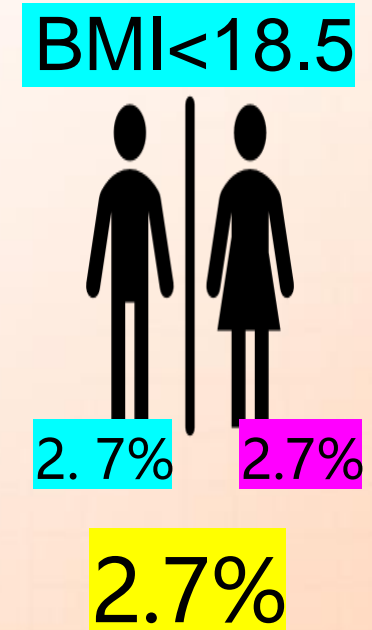
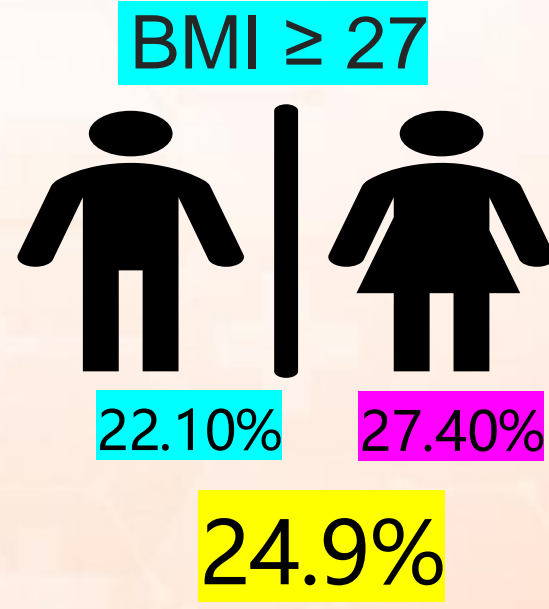
Waist

40%

Method ⁽⁴⁾ :

b. Indicators for peer comparison:

- I. The proportion of people over 65 years old with a **BMI ≥ 27** is less than or equal to **24.9%**.
- II. The proportion of people over 65 years old with a **BMI < 18.5** is less than or equal to **2.7%**



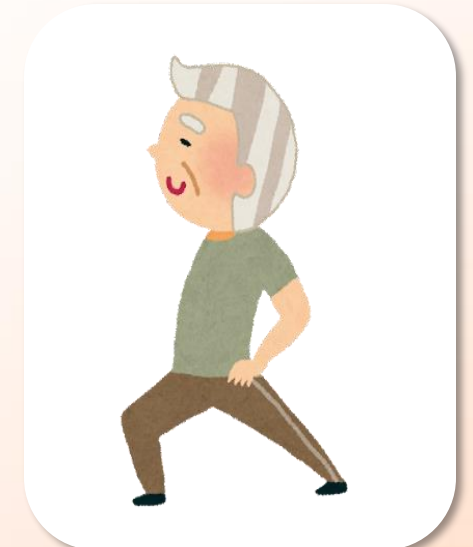
Result⁽¹⁾



**Nursing counseling
and health check**



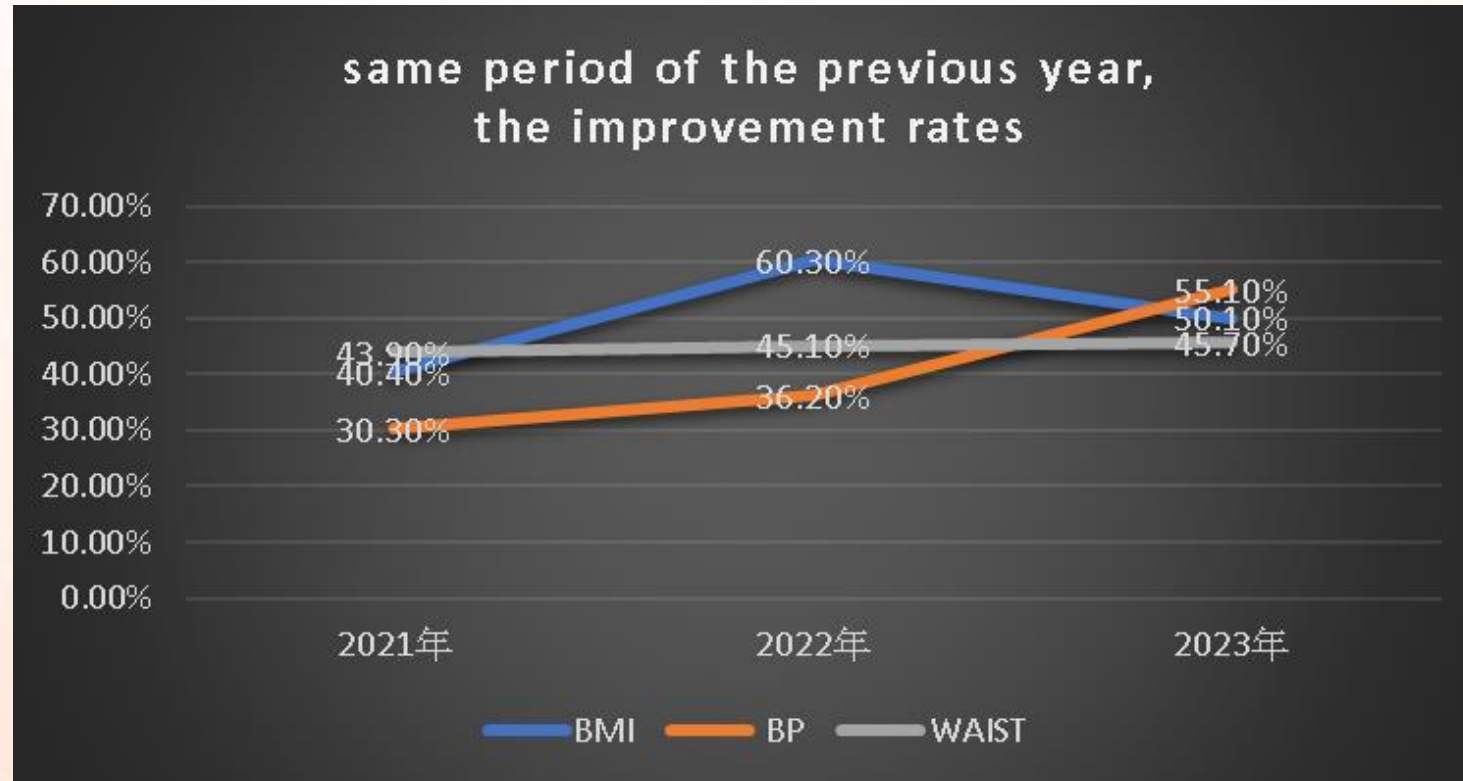
**Health and Nutrition
lectures**



**Physical fitness
courses**

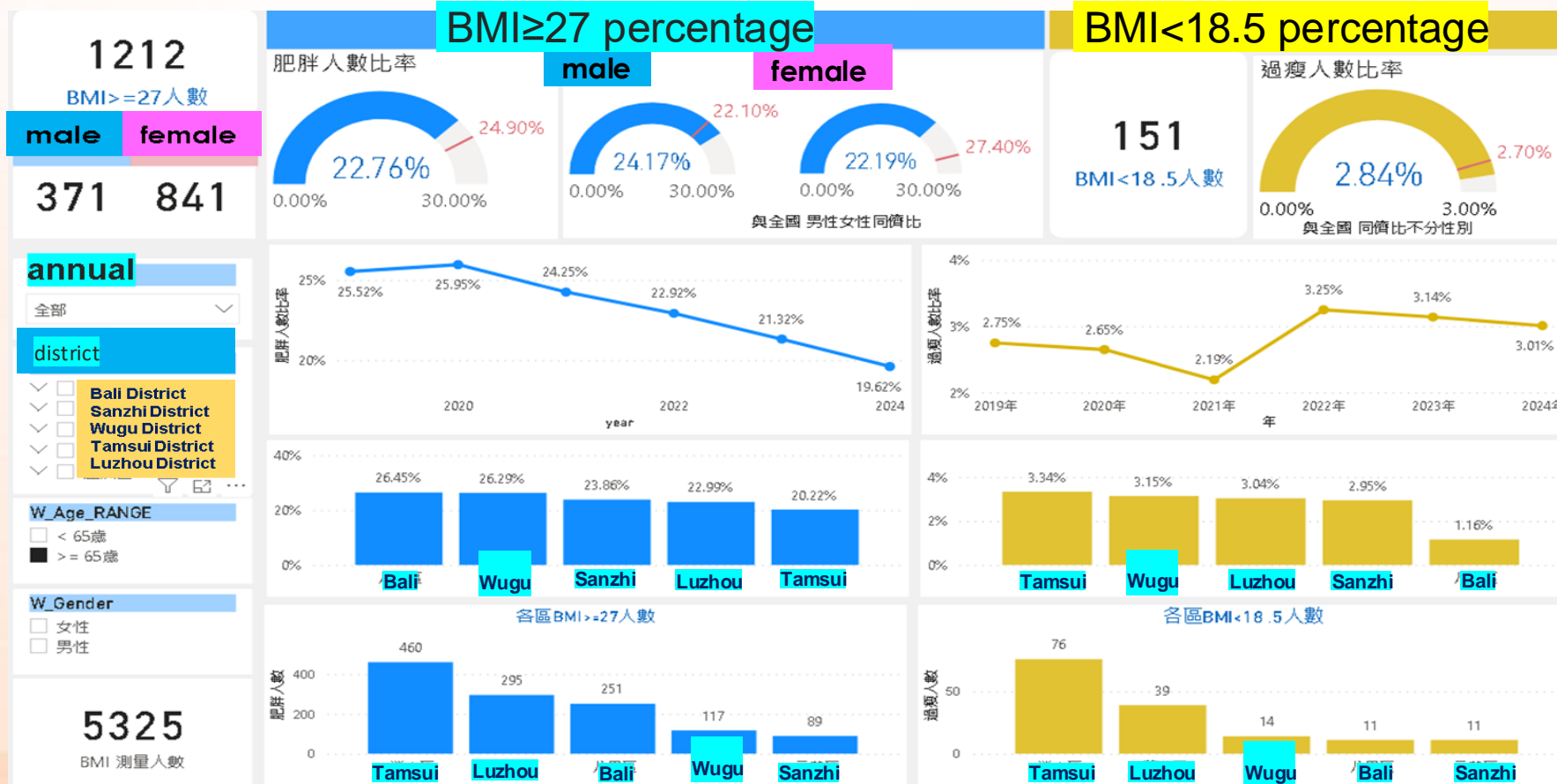
Result⁽²⁾ a. Outcome indicators:

Compared with the same period of the previous year, BMI, blood pressure, and waistline
Each of the **improvement rates** are 60.3%, 36.2%, and 45.1% in 2022, and 50.1%, 55.1%, and 45.7% in 2023.



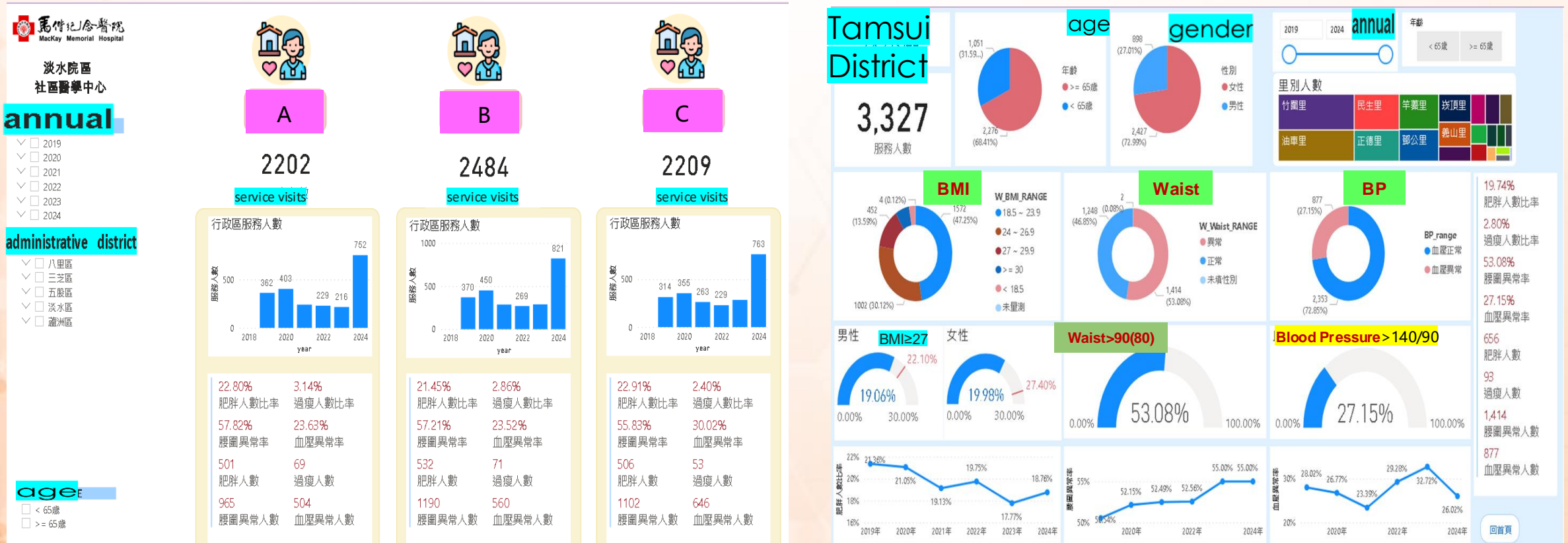
Result⁽³⁾ b. Peer comparison indicators:

- I. The proportion of people over 65 years old with BMI ≥ 27 , **24.25%** in 2021, **22.92%** in 2022, **21.32%** in 2023.
- II. The proportion of people over 65 years old with a BMI < 18.5 , **2.19%** in 2021, **3.15%** in 2022, and **3.14%** in 2023.



Conclusion

Daily management indicators can be used as a reference of service volume for allocating nursing staff ; Health promotion effectiveness indicators are used as the outcome of team service.



**Thank you for
your attention**