



Hypertension –management-treatment

高血压-管理-治疗

Promotion and Evaluation of Key Technologies for the Prevention and Management of Non-Communicable Diseases (NCD) in Countries Involved in the Belt and Road Initiative

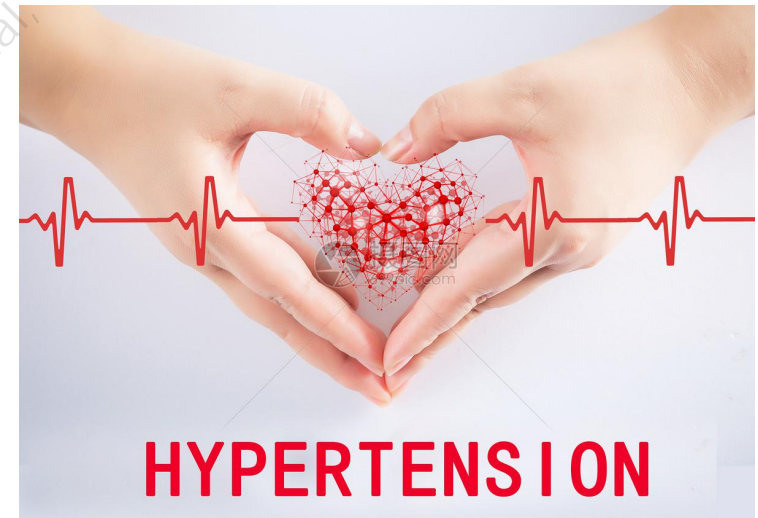
Fuwai Yunnan Cardiovascular Hospital

Duo Lin 11/11/2021



Outline

1. Hypertension 高血压
2. Cardiovascular hazard and social burden 高血压危害及社会负担
3. Hypertension management gap 高血压管理缺陷
4. AI and hypertension management 现代技术与高血压管理
5. Follow-up activities in the next three years 未来三年后续活动





Definition of Hypertension

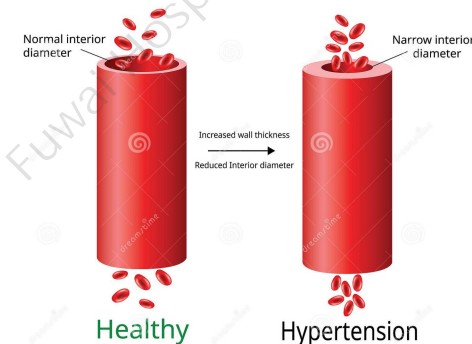
Table 1. Classification of Hypertension Based on Office Blood Pressure (BP) Measurement

Category	Systolic (mm Hg)		Diastolic (mm Hg)
Normal BP	<130	and	<85
High-normal BP	130–139	and/or	85–89
Grade 1 hypertension	140–159	and/or	90–99
Grade 2 hypertension	≥160	and/or	≥100

Table 2. Criteria for Hypertension Based on Office-, Ambulatory (ABPM)-, and Home Blood Pressure (HBPM) Measurement

	SBP/DBP, mm Hg
Office BP	≥140 and/or ≥90
ABPM	
24-h average	≥130 and/or ≥80
Day time (or awake) average	≥135 and/or ≥85
Night time (or asleep) average	≥120 and/or ≥70
HBPM	≥135 and/or ≥85

High blood pressure (hypertension)



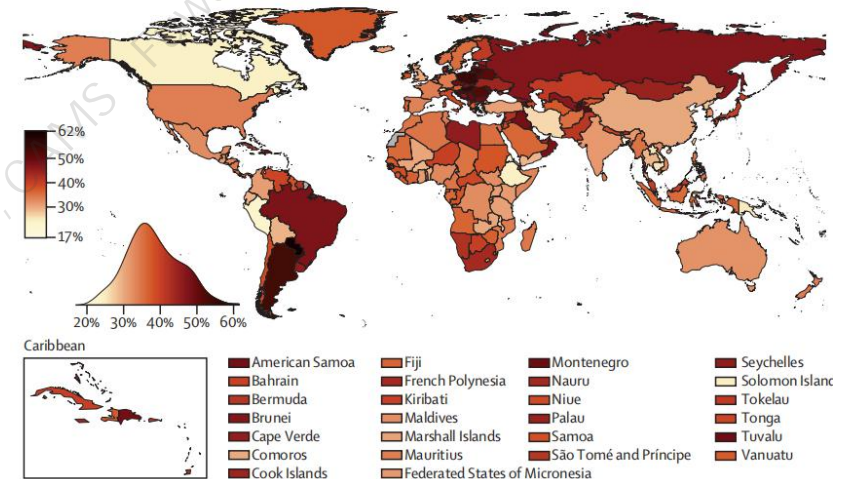


Global Hypertension

Hypertension, along with pre-hypertension and other hazardously high blood pressure, is responsible for 8.5 million deaths from stroke, ischaemic heart disease, other vascular diseases, and renal disease worldwide.

In 2019, the global age-standardised prevalence of hypertension in adults aged 30–79 years was 32% in women and 34% in men.

Over 1 billion people with hypertension (82% of all people with hypertension in the world) lived in low-income and middle-income regions.

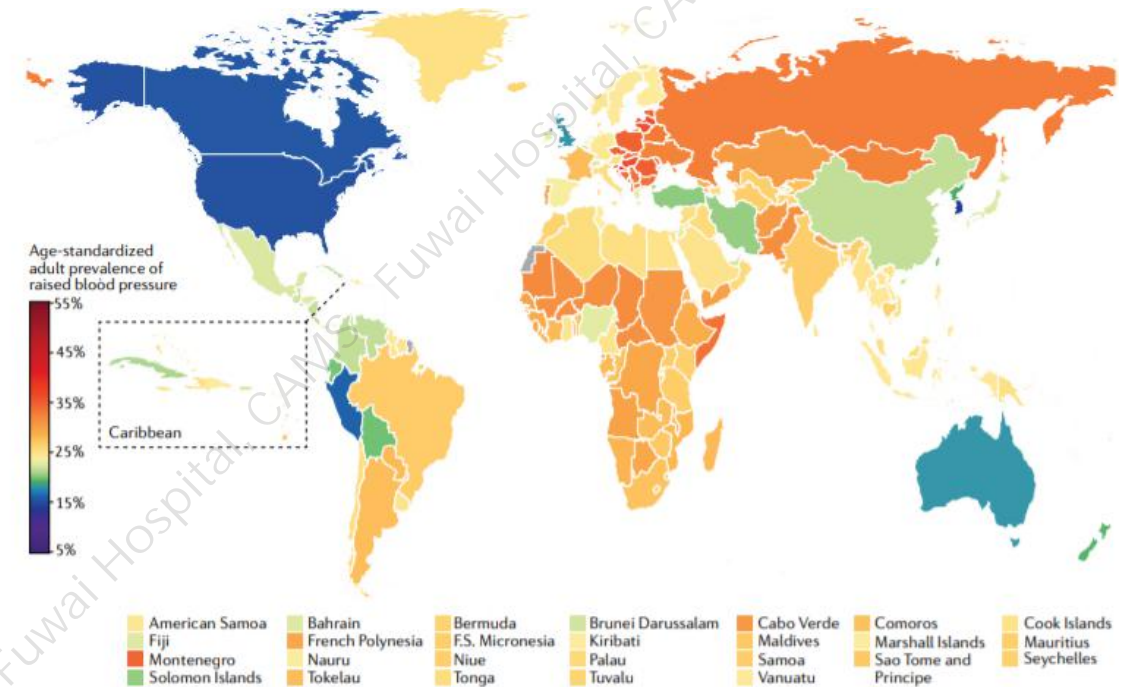
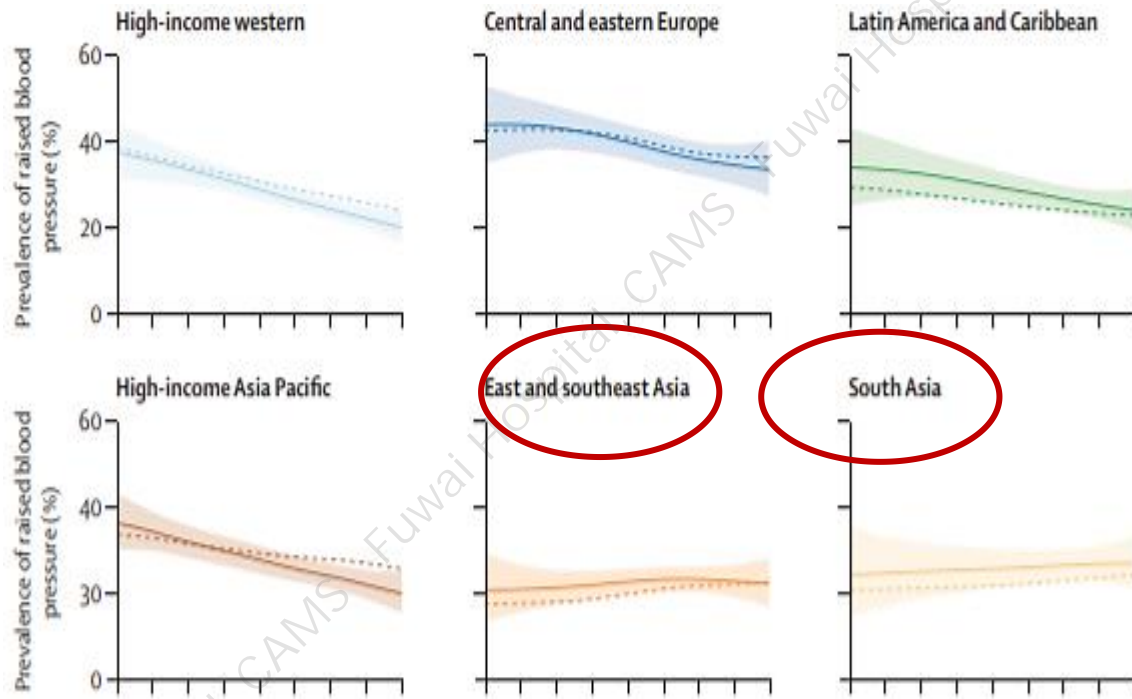


Prevalence of hypertension in 2019



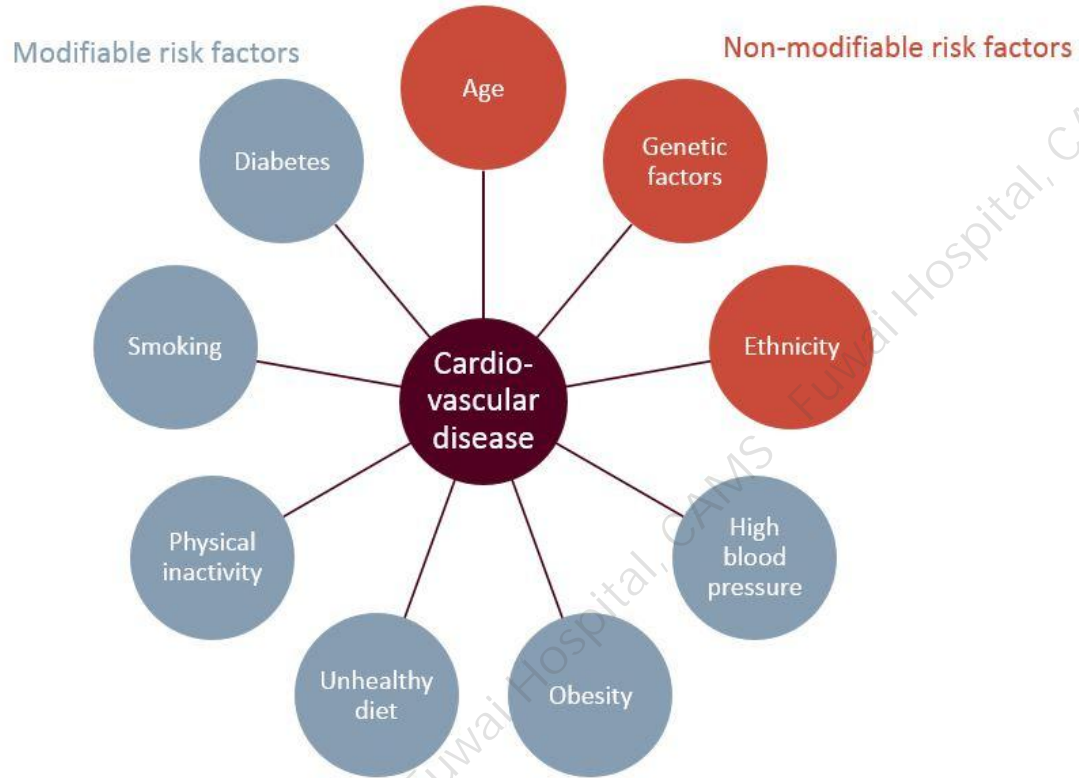
Hypertension in South and Southeast Asia

Similar to the trend worldwide, hypertension is also the single most attributable cause for mortality in South and Southeast Asia, the prevalence of hypertension continues to rise.





Cardiovascular Risk Factors



<p>High Blood Pressure</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Lack Of Exercise</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Obesity</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>High Blood Cholesterol</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Poor Diet & Alcohol</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet.</p> <p>Learn more</p> <p>.....</p>
<p>Genetics</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Age</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Mental Health Problems</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Socioeconomic Disadvantage</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet principes at. Cum no movi lorem ipsum dolor sit.</p> <p>.....</p>	<p>Air Pollution</p> <p>Lorem ipsum dolor sit dim amet, mea regione diamet.</p> <p>Learn more</p> <p>.....</p>

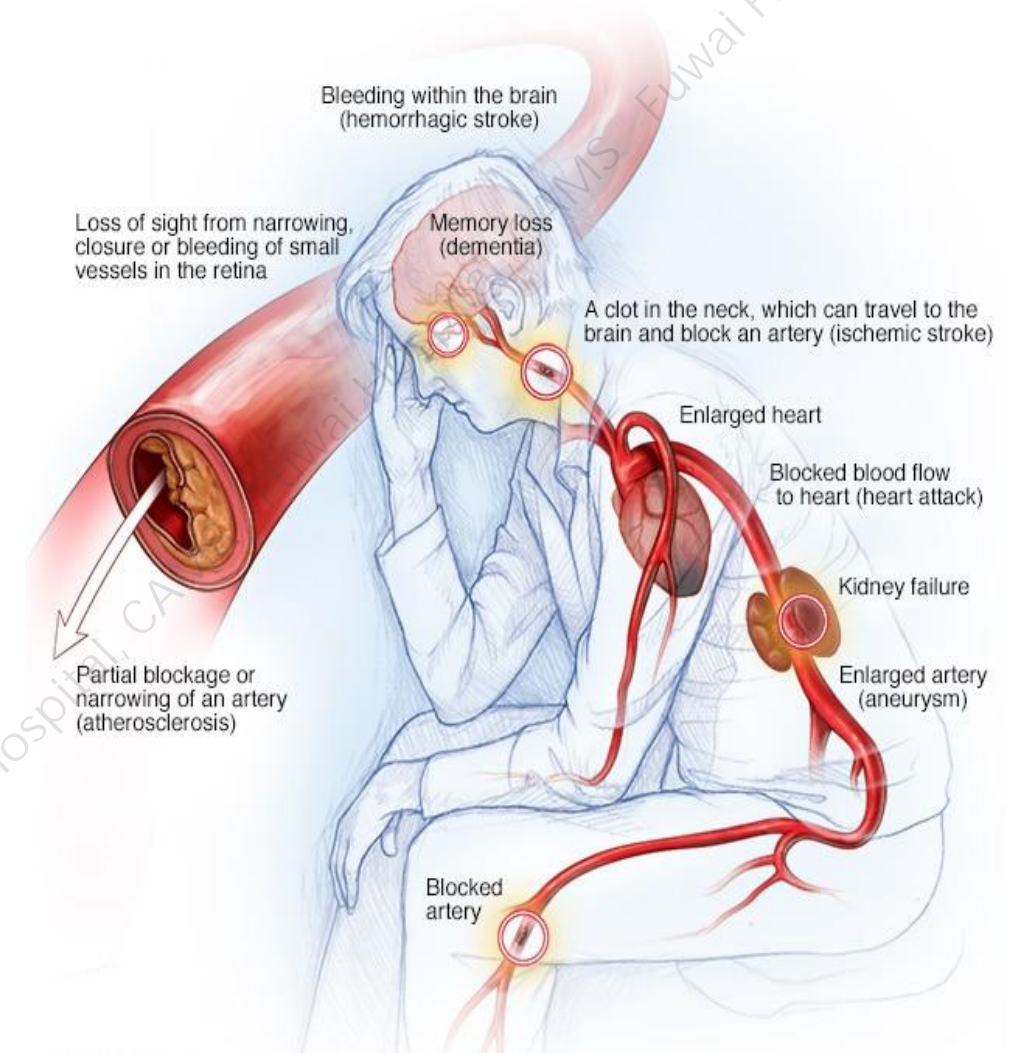


Cardiovascular Risk Factors

Table 6. Simplified Classification of Hypertension Risk according to additional Risk Factors, Hypertension-Mediated Organ Damage (HMOD), and Previous Disease*

Other Risk Factors, HMOD, or Disease	High-Normal SBP 130–139 DBP 85–89	Grade 1 SBP 140–159 DBP 90–99	Grade 2 SBP ≥160 DBP ≥100	
No other risk factors	Low	Low	Moderate	High
1 or 2 risk factors	Low	Moderate	High	
≥3 risk factors	Low	Moderate	High	High
HMOD, CKD grade 3, diabetes mellitus, CVD	High	High	High	

*Example based on a 60 year old male patient. Categories of risk will vary according to age and sex.

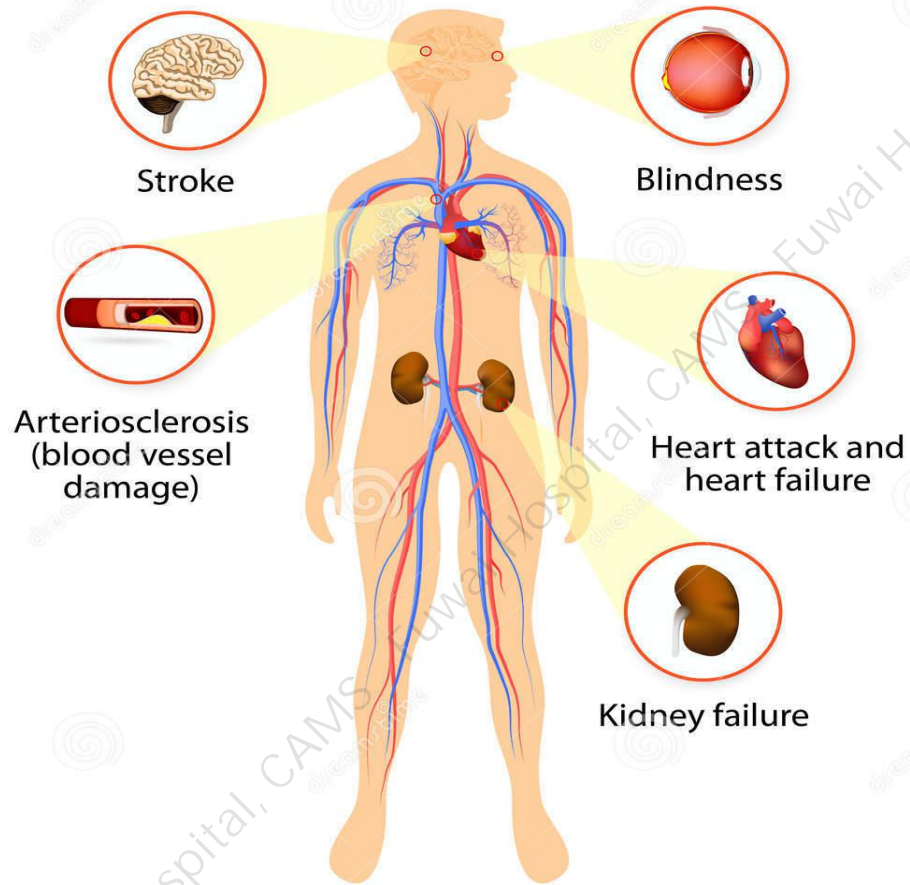


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Hypertension-Mediated Organ Damage (HMOD)

Hypertension



Symptoms of High Blood Pressure (Hypertension)



Severe Headache



Vision Problems



Difficulty breathing



Fatigue



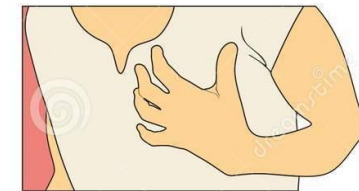
Chest Pain



Pounding in your Chest, Neck, or Ears



Blood in the Urine



Irregular Heartbeat

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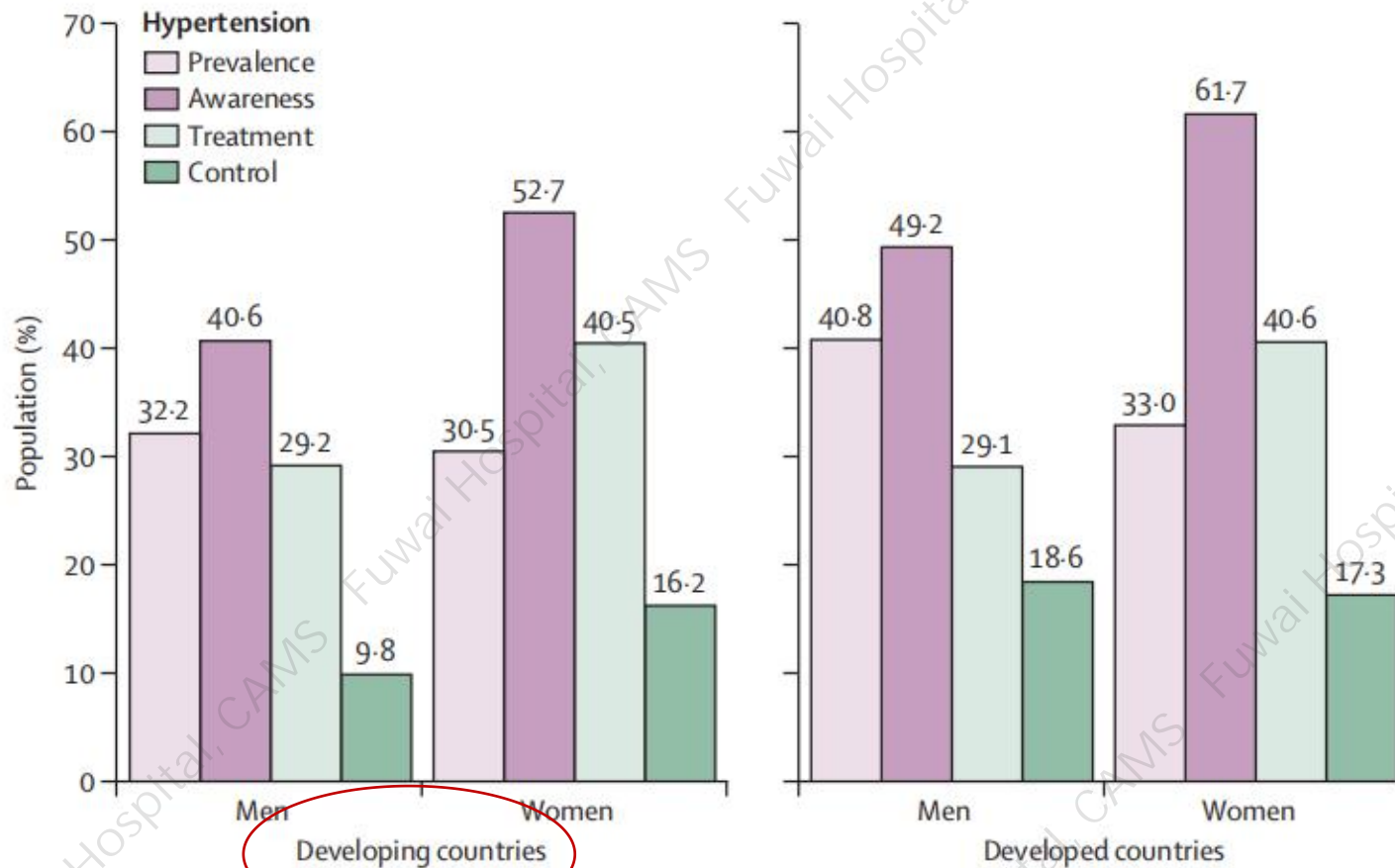
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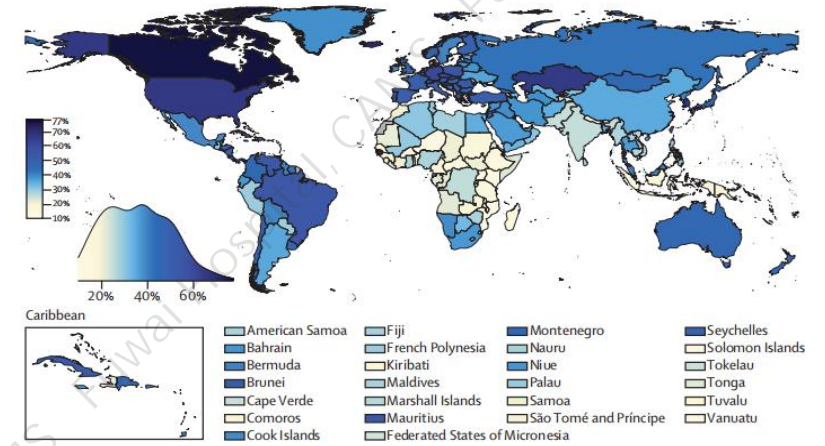
Treatment, control of Hypertension

Almost three-quarters of people with hypertension (639 million people) live in **developing countries** with limited health resources and where people have a very low awareness of hypertension and poor blood pressure control.

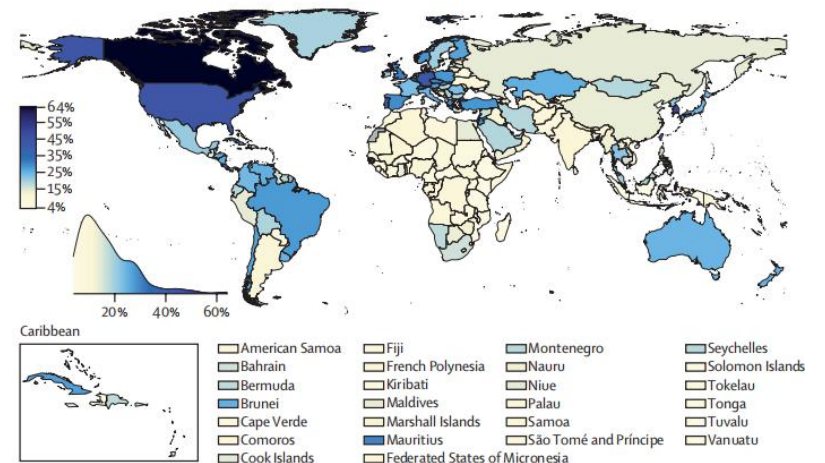


Hypertension in developing countries, Lancet

B Treatment rate in 2019 (men)



D Control rate in 2019 (men)



The current state of hypertension management facing challenging

- ◆ Low awareness of hypertension, with the majority of patients in the community being diagnosed due to complications and hospital for treatment.
- ◆ Risk factors for hypertension vary from country to country, with only limited or outdated data available, and countries face challenges in hypertension prevention and management strategies
- ◆ Health education, health promotion, interventions are single and ineffective. However, limited action

- ◆ Hypertension prevention and control, poor adherence to treatment
- ◆ Community residents not connected to health services for hypertension management, treatment history, etc. (disconnect between prevention and control)
- ◆ Low and middle income countries, challenges to effective prevention and control

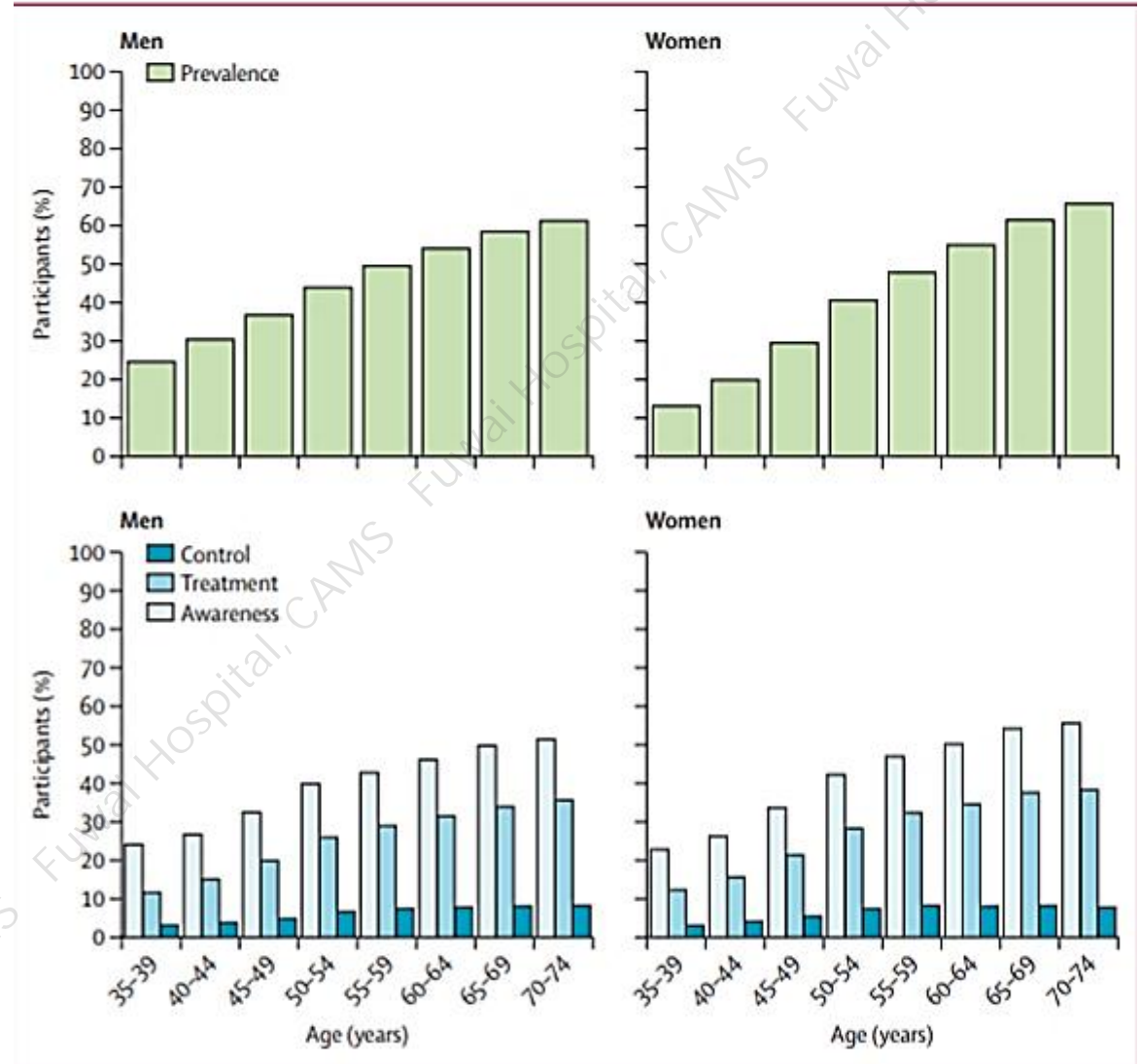
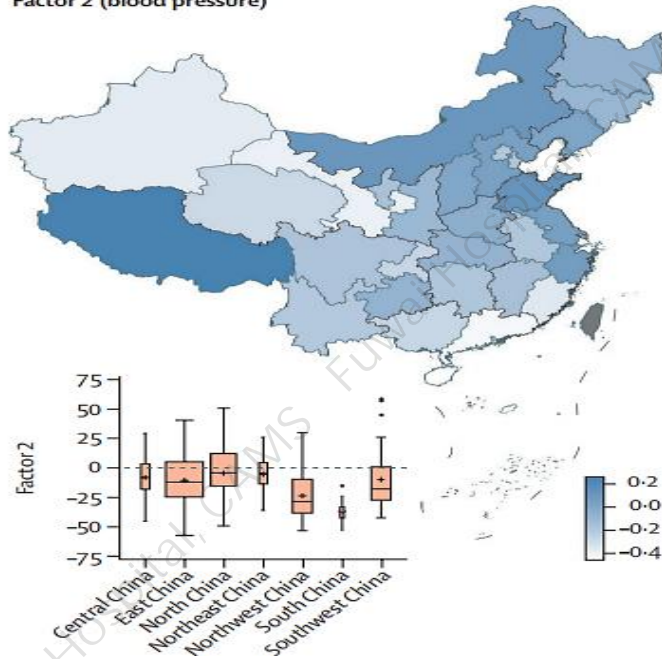


Hypertension in China

Hypertension is one of the most prevalent chronic diseases in China, currently affecting over 270 million people.

Nearly half of Chinese adults aged 35-75 have hypertension, less than a third are receiving treatment and less than one in twelve have their blood pressure under control.

Factor 2 (blood pressure)





New technologies → Hypertension management

- Establishing a hypertension follow-up network.
- Create a standardized technical platform.
- Through standardization of hypertension diagnosis and treatment practices, eventually realize Artificial Intelligent (AI) hypertension management on an information-based platform.



Mobile phone based remote patient monitoring system for management of hypertension in diabetic patients.
<https://millionhearts.hhs.gov/tools-protocols/tools/health-IT.html>



New technologies → Hypertension management

The use of mobile phones in developing countries is increasing greatly. In parallel, messages sent to mobile phones are becoming a new means to control diabetes, hypertension, and heart failure.

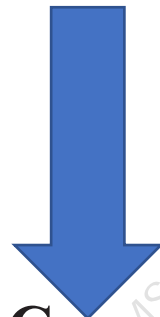
A RCT aimed to leverage the potential of wireless and mobile technology and introduce financial incentives to improve the effectiveness of home blood pressure monitoring.





Hypertension management gap

- Prevention, otherwise more and more people with hypertension need being treated
- Community epidemiological surveys for targeted interventions, feedback of survey results to survey respondents, link to local hospital system (prevention and treatment combined)
- Application of modern technology, health education, health promotion, interventions
- Establishment of a medical history and medication administration record file to optimise medication administration programmes
- Large differences between countries, each with its own strengths, tailoring health promotion activities to local conditions



The next three years

Can new technologies help us?



Hypertension management

- The combination of hypertension prevention and treatment is extremely important.
- In the next three years, building on the collaborative work of the three previous countries, we hope that we will join hands to continue to carry out community surveys on hypertension and related risk factors.
- Community health education and health promotion will be carried out according to national conditions and making full use of new modern technologies (AI).



Thank you!