# HYPERTENSION

GEYS 4010 COLLEGE SENIOR SEMINAR
BUILDING A SUSTAINABLE AND HEALTHY SOCIETY

GROUP 5

# BACKGROUND

- Hypertension, a chronic state of high blood pressure, is known as a "SILENT KILLER"
  - Seldom causes symptoms until complications arise
  - Adult: **Systolic blood pressure (SBP) ≥ 140mmHg**, or **diastolic blood pressure (DBP) persistently ≥ 90mmHg**
  - Pre-hypertension: SBP 120-139 mmHg or DBP 80-89 mmHg
- Population Health Survey (PHS) 2020-22 conducted by the Department of Health:
  - Among individuals aged **15-84** in **Hong Kong**, the **prevalence of hypertension** cases ascertained through self-reporting or measurement during health checkups was **29.5%**, with higher rates observed in **males (33.2%)** compared to **females (26.2%)**
  - **The incidence** of hypertension cases **increased steadily with age** from 4.9% for individuals aged 15-24, escalating to 57.4% for those aged 65-84.

# HYPERTENSION

## PRIMARY

- 95% of hypertension cases
- When no specific cause can be identified
- Risk factors can predispose a person to developing HT
  - Mechanish: complex interactions between multiple genetic and environmental factors

## SECONDARY

- 5% of hypertension cases
- Result of complication of another disease
  - Primary aldosteronism
  - Renal artery stenosis
  - Drug or alcohol induced
  - Pheochromocytoma/paraganglioma
  - Cushing’s syndrome

# RISK FACTORS

| NON-MODIFIABLE | MODIFIABLE |
| --- | --- |
| Old age (M: >55, F >65) | Obesity |
| Family history of essential hypertension and premature cardiovascular disease (M<55, F<65) | Diabetes, Dyslipidaemia |
| | Alcohol intake |
| | Physical inactivity |
| | Smoking |
| | Unhealthy diet |

# WHY IS A SUSTAINABLE HELATHCARE SYSTEM IMPORTANT?

## RISING DEMAND

Chronic health condition in 20/21 = 31% of population, with 47% being 65 years old+

## RISING COST

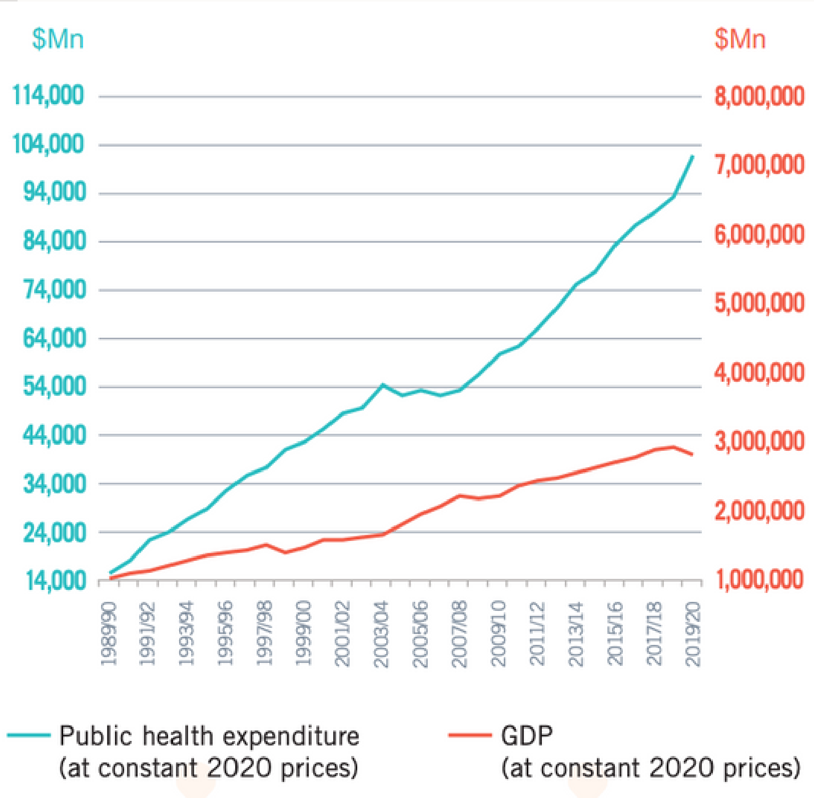
Only **17%** of total public expenditure is concentrated on **primary** healthcare (c.f. to secondary/ tertiary healthcare)

**Treatment-oriented** healthcare induces higher healthcare **costs** and accelerates the increase of health

## LIMITED INCOME

Ageing population limits GDP growth and therefore, limits the budget for public health expenditure

Projection of population aged 65+ by 2039



# HOW DO WE MAINTAIN A SUSTAINABLE HEALTHCARE SYSTEM BY ENHANCING PRIMARY HEALTH CARE?

# THREE LEVEL PREVENTION MODEL

Tertiary Prevention

Management of chronic diseases, and rehabilitation support services to slow down the progression of diseases

Secondary Prevention

Health assessment and screening to facilitate early identification of chronic diseases

Primary Prevention

Health promotion, advisory and counselling services and educational programmes to drive lifestyle changes for the prevention of chronic diseases

# 01 PRIMARY PREVENTION

Aim:

**PREVENT** disease **before** it even occurs & **MINIMISE** exposure to **RISK FACTORS**

Raising **awareness** and **empowering** patients

## 1

### Legislation and enforcement

To ban or control the use of hazardous products e.g. cigarette, alcohol

## 2

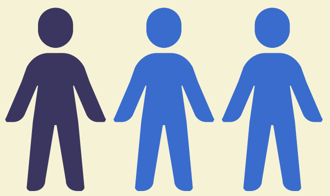
### Ongoing education

of causes, symptoms, and treatments of hypertension

# 02 SECONDARY PREVENTION

Aim:

**REDUCE** the impact of disease that has **already occurred**



One in three has developed complications

Service cost for complications are 2X times higher

## REGULAR EXAMS & SCREENING TESTS

To detect disease in its earliest stages

Current BP measurement in HK: at least once every 2 years for all individuals 18 years old or above

Encourage populations with risk factors to have regular check-ups for screening

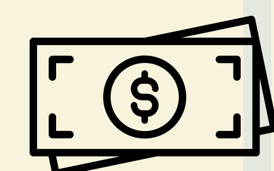
| Blood pressure classification | Initial BP (mmHg) | | Recommended minimum review period | Action |
|---|---|---|---|---|
| | Systolic | Diastolic | | |
| Optimal | <120 | <80 | Recheck in 2 years | Encourage to adopt healthy lifestyle |
| Normal | 120-129 | 80-84 | Recheck in 1 year | Lifestyle modification |
| High normal | 130-129 | 85-89 | Recheck in 6 months | Lifestyle modification |
| Grade 1 hypertension | 140-159 | 90-99 | Confirm within 2 months | Lifestyle modification |
| Grade 2 hypertension | 160-179 | 100-109 | Evaluate within 1 month | Treat within 1 month<br>Lifestyle modification |
| Grade 3 hypetension | >= 180 | >= 110 | Further evaluation within 1 week | If hypertension confirmed, commence drug treatment<br>Urgent referral if patient presents with features suggestive of malignant hypertension<br>Lifestyle modification |

# 02 SCREENING PROGRAMS

| Age | Risk assessment | Screening | Disease management |
|---|---|---|---|
| Antenatal | Monitor weight gain | **Watch out for pre-eclampsia** | Early antenatal care, BP and lipid control |
| Infancy | Monitor weight gain | | |
| Childhood | Monitor BMI | **Watch out for secondary hypertension** | Treat secondary hypertension/ Monitor growth and development/ Carer education and support |
| Adulthood | Monitor BMI, abdominal circumference and family history of diabetes | **Measure BP for all individuals aged ≥ 18 every 2 years<br>More frequent BP measurement for iindividuals with moderate or high risk of vascular disease<br>Opportunistic measurement of BP at all clinic visits** | Blood pressure and lipid control/ Monitor the adverse effect of drug treatment/ Self-care |
| Elderly | Monitor BMI, monitor abdominal circumference, diabetes | **Measure blood pressure as abovementioned** | Blood pressure and lipid control / Beware of increased risk of hypotension in elderly / Monitor the adverse effect of drug treatment / Self-care / Carer education |

# 02 AVAILABLE RESOURCES

Encourage **active** seeking of medical attention at an **early** stage for disease detection and **matching** with appropriate services

Current challenges:  vs


**Lower medical costs**

**Shorten waiting time through utilization of resources from private sector**

# 02 PRIMARY HEALTHCARE BLUEPRINT

## Develop a community-based system

- Enhance the roles of **family doctors** → 1) **early detection** 2) **reallocation** of HA GOPC services for **socially disadvantaged groups** (low-income and poor elderly)

## Consolidate resources

- Adopt **co-payment principle** (government subsidizing citizens for private health services) to **divert** chronic patients to the private sector → lower govt expenditure
- Encourage **market competition** in the private sector → more transparent schemes/ lower costs → lower healthcare costs + increase choices for patients

## Reinforce primary healthcare manpower

- **Empower** Chinese medicine practitioners, pharmacists and other professionals in delivering health care services → reduce burden on medical doctors

## Improve connectivity 醫健通 ehealth

- Integrate medical data → 1) **accurate diagnosis** 2) **big data** → predication + prompt policy

# 03 TERTIARY PREVENTION

Aim:

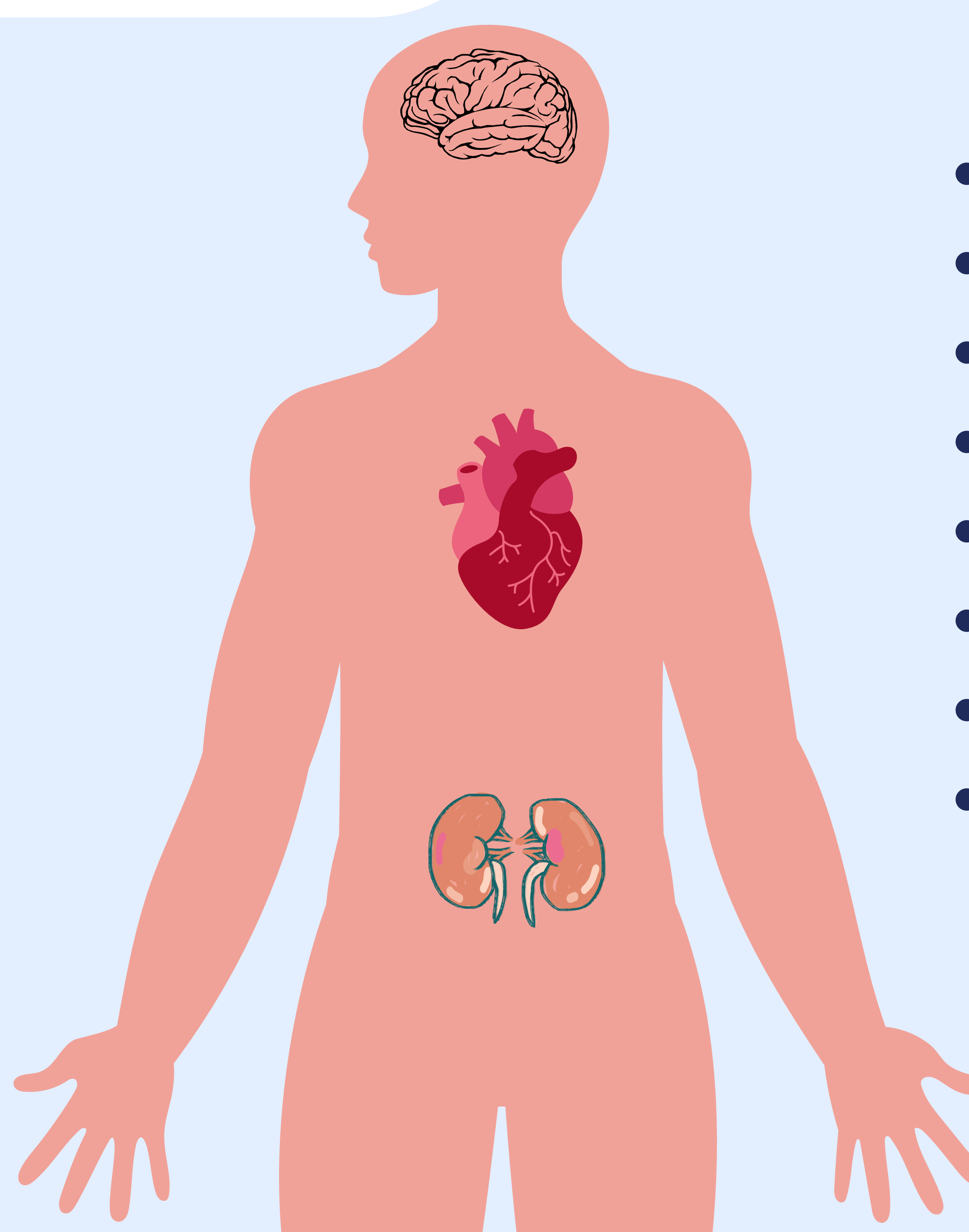
**SOFTEN** the blow of the impact of a known condition that could produce **lasting effects**

negative effects of diseases

disease-related complications

higest possible functions

# 03 COMPLICATIONS OF HT



- Heart attack or stroke
- Aneurysm
- Heart failure
- Kidney problems
- Eye problems
- Metabolic syndrome
- Changes with memory or understanding
- Dementia

# 03 TERTIARY PREVENTION

Pharmacological

Patient education& lifestyle modification

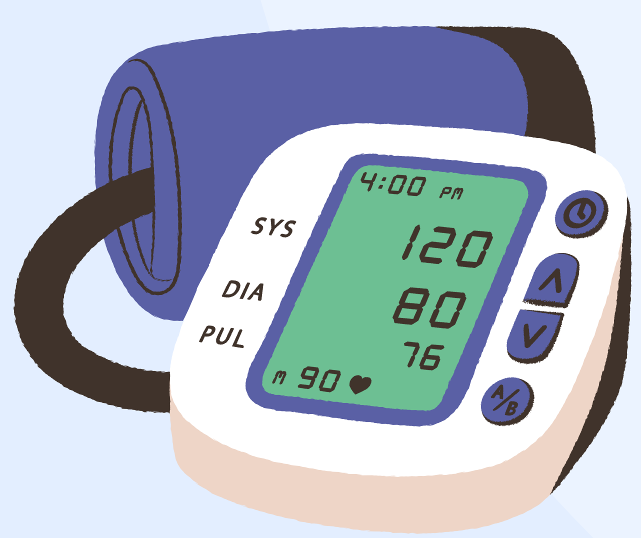
Invasive procedures: bypass, stenting surgery

Rehabilitation programs: cardiac/ stroke, chronic disease managment programs for HT, HL, DM

# 03 TERTIARY PREVENTION

**Support groups:** sharing of strategies + mental support

**Vocational rehalbiliation program:** encourage inclusiveness + incentivize to recovery + attention to health




Teach patients to use blood pressure monitor: **self-regulation** + **empowerment**

Regular follow-up: evaluate objective numbers + **ADL** to assess the severity

# ANALYSIS: OUR BIGGEST CHALLENGE

**Primary prevention** should be prioritised to minimise prevalence of hypertension

- **Affecting increasing proportion of the population**
  - About **55% of deaths** in 2020 are due to chronic diseases such as HT, heart disease, DM, and chronic respiratory problems
  - Number of HA patients with chronic disease is projected to reach **3 million** by 2039
- **Heavy healthcare burden**
  - **82%** of non-cancer chronic disease patients under HA's out-patient treatment have HT/DM
- **Huge financial burden**
  - Annual average HA service cost for HT/DM patients with related CVD/CKD complications was almost **2 times higher** than HT/DM patients without complications in 2019/20
  - **60%** of patients in top decile of annual average HA service cost had HT/DM in 2019/20
- It is **unsustainable** to keep increasing public health expenditure to cope with increasing healthcare demand caused by HT esp. with limited resources allocated to **primary healthcare -- 17% only**

⇒ Primary prevention, **i.e. reducing the incidence of HT, should be of utmost priority**

# ANALYSIS: CONT'D

Patients' **lack of incentive and delay** in seeking medical care also aggravate the situation

- Need to tackle major determinants of delaying seeking medical attention

1. **Appraisal delay** – appreciation of symptoms as signs of disease → primary prevention
2. **Illness delay** – determining that the symptoms are severe enough to seek medical care → secondary prevention
3. **Utilisation delay** – utilization of specific and appropriate services → secondary and tertiary prevention

# GENERAL SOLUTION -1

## Multi-disciplinary team

- Patients normally have co-morbidities
- Involve cooperation between **hypertension physicians, nurses, diabetes specialist nurses, clinical pharmacists, public nutritionists, psychological counselors**
- Encourages **involvement** of the patient in the discussion of care→ better knowledge of own situation and strive for self-improvement
- Can provide patients with comprehensive health care service → **improve patient compliance**
- All-rounded knowledge of the situation due to involvement of different expertise→ enhance **productivity** and save time
- **Reduction** of communication and care **errors** → better treatment outcome

# GENERAL SOLUTION -2

## Patient Empowerment

- Healthcare professionals should establish a **working alliance** with their patients to support and enhance their ability to take care of themselves
- Patients need to comprehend the nature of hypertension, the i**mportance of long-term medication,** and the significance of **maintaining a healthy lifestyle**
- They should also be aware of the **consequences** of poor blood pressure control and informed about **treatment options**
- Healthcare professionals should educate patients about the possible **side effects of medication** and advise them to seek medical attention if necessary
- If available, **written information such as pamphlets** on healthy eating and techniques for taking blood pressure should be provided to patients

# Q&A

**What are some other primary care focused solutions to tackle hypertension?**

- Subsidisation of at-home blood pressure monitors, especially for the elderly, to promote regular self checks
- Increase incentives for the elderly to visit general outpatient clinics for periodic checkups, shifting healthcare seeking behaviour from “only when complications arise” to understanding that diseases can coexist with an asymptomatic state
- Standardise a national hypertension protocol to achieve BP control, therefore reducing clinical variability among management of care by general practitioners.

# REFERENCES

“Primary, Secondary and Tertiary Prevention.” Institute for Work & Health, https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention.

Hypertension, Elderly Health Service, Department of Health, 3 May 2023, https://www.elderly.gov.hk/english/health_information/hypertension_heart_disease/hypertension.html#:~:text=Hypertension%20is%20common%20in%20Hong,for%20people%20aged%2065%2D84. Accessed 3 May, 2023

Centre for Health Protection, Department of Health, "Hypertension.", 26 April 2023. https://www.chp.gov.hk/en/healthtopics/content/25/35390.html

Health Bureau, *Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings Revised Edition 2021,* 2021, https://www.healthbureau.gov.hk/pho/rfs/src/pdfviewer/web/pdf/hypertensioncareforadults/en/13_en_RF_HT_full.pdf

Health Bureau, *Primary Healthcare Blueprint,* January 2023. https://www.primaryhealthcare.gov.hk/en/

Safer, Martin A., et al. "Determinants of three stages of delay in seeking care at a medical clinic." Medical care 17.1 (1979): 11-29.

Parul Saini, Webmedy Team. “Importance of Multidisciplinary Care.” 23 Jan. 2022, https://webmedy.com/blog/importance-of-multidisciplinary-care/.

# Thank you