

About Heart Attack

Key Messages

- ※ Myocardial infarction, or heart attack, is major public health issue. In Hong Kong, acute myocardial infarction is a leading cause of mortality with 1 417 registered deaths in 2021.
- ※ An international study reported 90% of myocardial infarction worldwide are collectively attributed to nine potentially modifiable behavioural and biomedical risk factors, including cigarette smoking, unhealthy eating with inadequate consumption of fruit and vegetables, a lack of sufficient physical activities, excessive alcohol consumption, abdominal obesity, high blood pressure, diabetes, suboptimal blood lipid levels, and stress.
- ※ To prevent heart disease and reduce the risk of heart attack, members of the public are urged to lead a healthy lifestyle and regularly check for “triple H” (i.e. high blood pressure, high blood glucose and high blood lipids) as recommended by the relevant Reference Frameworks.
- ※ Heart attack is a medical emergency. Members of the public should get familiar with the heart attack warning signs and symptoms (including chest pain or discomfort; pain or discomfort in arm, neck, jaw, shoulder or back; lightheadedness and shortness of breath) and acts fast to get medical attention if indicated.
- ※ To promote heart health, the Department of Health will continue working in close partnership with other government bureau or departments as well as community partners to increase public awareness about the importance of healthy living, enhance personal health literacy as well as foster a health-enhancing environment.

About Heart Attack

Myocardial infarction, or heart attack, occurs when blood supply to the heart muscle becomes blocked. Due to a lack of blood flow and oxygen supply, heart muscle cells begin to die. Very often, the block is caused by a build-up of plaque inside the coronary artery (athero-sclerosis). When the plaque breaks, a blood clot can form. If the clot becomes large enough, it can completely block blood flow through a coronary artery to the heart muscle and cause heart attack.

As a major public health issue, myocardial infarction affects over 7 million individuals each year globally¹. In Hong Kong, acute myocardial infarction is a leading cause of illness and death. In 2020, the disease accounted for more than 7 700 in-patient discharges and deaths in public and private hospitals². Among 1 417 registered deaths attributed to acute myocardial infarction in 2021, 62.0% of them occurred in men; 20.7% happened in adults aged 64 and below (Table 1)³.

Risk Factors of Heart Attack

A number of risk factors can increase the risk of having a heart attack. While some of them are non-modifiable (such as advancing age and family history of coronary heart disease or heart attack), most are preventable or modifiable. An international study with over 29 000 participants from 52 countries reported that 90% of myocardial infarction worldwide were collectively attributed to nine potentially modifiable behavioural and biomedical risk factors, including cigarette smoking, unhealthy eating with a lack of daily consumption of fruit and vegetables, a lack of daily exercise, excessive alcohol consumption, abdominal obesity, high blood pressure, diabetes, suboptimal blood lipid levels, and stress⁴. Among young adults, studies also identified substance abuse (such as cannabis, cocaine, amphetamines, opioids, sedatives and anabolic androgenic steroids^{5, 6}) as a significant risk factor of myocardial infarction and cardiac arrest in addition to the traditional risk factors⁷.

Table 1: Number (Rate*) of registered deaths attributed to acute myocardial infarction by sex and age group, 2021[#]

Age group	Male	Female	Total
44 and below	23 (1.4)	3 (0.2)	26 (0.7)
45-64	225 (21.0)	42 (3.2)	267 (11.1)
65 and above	631 (92.5)	493 (64.1)	1 124 (77.4)
Overall	879 (26.0)	538 (13.3)	1 417 (19.1)

Notes: *Number of registered deaths per 100 000 population in the respective age group.

[#]Provisional figures.

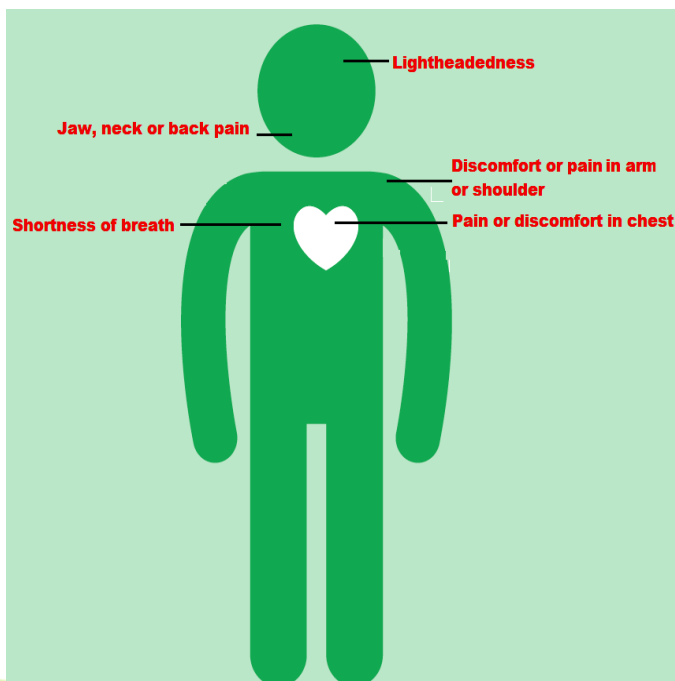
Sources: Department of Health and Census and Statistics Department.

Among local general population, surveys show that risk factors of myocardial infarction are prevalent. The Thematic Household Survey conducted by the Census and Statistics Department in 2021 reported that 9.5% of persons aged 15 and above were daily conventional cigarette smokers at the time of enumeration⁸. The Health Behaviour Survey 2018/19 conducted by the Department of Health (DH) observed that 95.6% of persons aged 15 and above had inadequate fruit and vegetables consumption (i.e. consuming less than 5 servings of fruit and vegetables a day); 8.8% drank regularly (i.e. drank at least once a week) and 2.9% reported binge drinking (i.e. having 5 drinks or more on a single occasion) at least monthly. Among persons aged 18 and above, 16.8% had insufficient physical activity (i.e. not having at least 150 minutes of moderate-intensity aerobic physical activity or at least 75 minutes of vigorous-intensity aerobic physical activity or an equivalent combination of moderate- and vigorous-intensity physical activity throughout the week)⁹. Furthermore, the Population Health Survey 2014/15 found that 32.9% of the population aged 15–84 had central obesity (with a waist circumference greater than 90 cm for Chinese men or greater than 80 cm for Chinese women); 27.7% had hypertension; 8.4% had diabetes; and 49.5% had hypercholesterolaemia¹⁰.

Identifying a Heart Attack

Heart attack is a medical emergency. When it occurs, the earlier the person takes heed of the heart attack warning signs and symptoms (Box 1) and acts fast to get medical attention, the better result it would be. Delay in seeking appropriate medical treatment contributes to increased mortality risk, and such delay could be due to patients (family, friends or co-workers) not recognising the heart attack symptoms^{11, 12}. A systematic review and meta-analysis from 35 different countries or regions (including Hong Kong SAR) reported that most people recognised chest pain or discomfort as the predominant symptom of heart attack, but there was limited knowledge about other typical symptoms (such as pain in jaw, neck or back). Overall, only slightly more than half (57%) of the population were aware of all typical myocardial infarction symptoms¹².

Box 1: Common heart attack warning signs and symptoms



It is noteworthy that not all heart attacks present with sudden and crushing pain as often seen on television dramas or in the movie where victims clutch their chests in pain and fall over. In fact, symptoms of heart attack vary from person to person. While many patients experience warning symptoms hours, days, or weeks before a heart attack, ‘silent’ heart attacks are not uncommon among elders and diabetics. Anyhow, any pain or discomfort over the chest should be checked out by a doctor as soon as possible.

Preventing Heart Diseases and Reducing Heart Attack Risk

The development of heart diseases is largely linked to the way people live, and thus adoption of a healthy lifestyle is the most effective way to prevent having a heart attack:

- **Do no smoke.** Smokers and members of the public can call the Quitline 1833 183 or visit www.livetobaccofree.hk for information on quitting and smoking cessation services;
- **Eat a balanced diet.** Apart from limiting consumption of fats (especially saturated fats and trans fats), salt and sugar, adults should eat at least 2 servings of fruits and at least 3 servings of vegetables per day;
- **Be physically active.** For substantial health benefits, adults should engage in at least 150–300 minutes of moderate-intensity aerobic physical activity or at least 75–150 minutes of vigorous-intensity aerobic physical activity or an equivalent amount of physical activity throughout the week;
- **Refrain from alcohol consumption.** While evidence on possible heart benefit of alcohol remains controversial, the International Agency for Research on Cancer of the World Health Organization has classified alcohol as a Group 1 carcinogen (cancer-causing to humans, the same grouping as tobacco smoke, asbestos and ionizing radiation)¹³. For more information about alcohol and health, members of the public can visit www.change4health.gov.hk;
- **Maintain an optimal body weight and waist circumference.** Chinese adults in Hong Kong should aim to maintain a body mass index (BMI) between 18.5 and 22.9. Men should keep their waist circumference below 90 cm (about 36 inches), while women should keep theirs below 80 cm (about 32 inches);
- **Monitor and control “Triple H”** (i.e. high blood pressure, high blood glucose and high blood lipids). Members of the public should follow the recommendations from the Expert Panel on Reference Framework regarding screening for hypertension, type 2 diabetes and hyperlipidaemia (Box 2), as well as keep blood pressure, blood glucose levels and blood lipid levels in the respective optimal range¹⁴⁻¹⁶;
- **Reduce stress.** While physical activity can help lower overall stress level, members of the public can also try other healthy coping strategies, such as practising deep breathing and meditation.

Box 2: Recommendations on screening for hypertension, type 2 diabetes and hyperlipidaemia

- ◇ Adults aged 18 years or above are recommended to have their blood pressure checked at least once every two years. For older adults aged 75 years or above, annual screening is recommended^{14, 15}.
- ◇ Periodic screening of diabetes is recommended for individuals starting from age 45 years. Screen for diabetes every three years if previous results are normal, and more frequent testing (e.g. every 12 months) is recommended when risk factors (such as overweight, obesity, family history of diabetes etc.) are present^{15, 16}.
- ◇ Periodic screening of hyperlipidaemia is recommended for older adults aged 50 to 75 years. Screen for hyperlipidaemia every three years if previous results are within normal range, and more frequent testing (e.g. every 12 months) is recommended when risk factors of cardiovascular diseases (such as smoking, obesity, diabetes, hypertension, etc.) are present¹⁵.

To promote heart health, DH will continue working in close partnership with other government bureaux or departments as well as community partners to increase public awareness about the importance of healthy living, enhance personal health literacy (i.e. the ability of individuals to find, understand, appraise and use information and services which promote and maintain good health) as well as foster a health-enhancing environment.

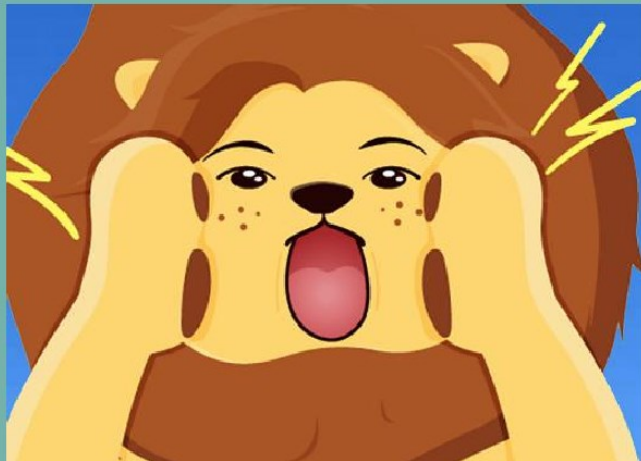
References

1. Reed GW, Rossi JE, Cannon CP. Acute myocardial infarction. *Lancet* 2017;389(10065):197-210.
2. Tables on Health Status and Health Services 2020. Hong Kong SAR: Department of Health and Census and Statistics Department.
3. Mortality Statistics 2021 (provisional). Hong Kong SAR: Department of Health and Census and Statistics Department.
4. Yusuf S, Hawken S, Ounpuu S, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004; 364(9438):937-952.
5. Torrisi M, Pennisi G, Russo I, et al. Sudden cardiac death in anabolic-androgenic steroid users: A literature review. *Medicina* 2020;56(11).
6. Yandrapalli S, Nabors C, Goyal A, et al. Modifiable risk factors in young adults with first myocardial infarction. *Journal of the American College of Cardiology* 2019; 73(5):573-584.
7. Rizk T, Blankstein R. Not all heart attacks are created equal: thinking differently about acute myocardial infarction in the young. *Methodist DeBakey Cardio-vascular Journal* 2021;17(4):60-67.
8. Thematic Household Survey Report No. 75: Pattern of Smoking. Hong Kong SAR: Census and Statistics Department.
9. Health Behaviour Survey 2018/19. Hong Kong SAR: Department of Health.
10. Population Health Survey 2014/15. Hong Kong SAR: Department of Health.
11. Chau PH, Moe G, Lee SY, et al. Low level of knowledge of heart attack symptoms and inappropriate anticipated treatment-seeking behaviour among older Chinese: a cross-sectional survey. *Journal of Epidemiology and Community Health* 2018;72(7):645-652.
12. Sharma A, Vidusha K, Suresh H, et al. Global awareness of myocardial infarction symptoms in general population: a systematic review and meta-analysis. *Korean Circulation Journal* 2021;51(12):983-996.
13. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Volume 100E: Personal Habits and Indoor Combustion. Lyon, France: International Agency for Research on Cancer, 2012.
14. Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings (Revised Edition July 2022). Hong Kong SAR: Task Force on Conceptual Model and Preventive Protocols of the Working Group on Primary Care, Food and Health Bureau.
15. Hong Kong Reference Framework for Preventive Care for Older Adults in Primary Care Settings (Revised Edition 2021). Hong Kong SAR: Task Force on Conceptual Model and Preventive Protocols of the Working Group on Primary Care, Food and Health Bureau.
16. Hong Kong Reference Framework for Diabetes Care for Adults in Primary Care Settings [Patient Version] (Revised Edition July 2022). Hong Kong SAR: Task Force on Conceptual Model and Preventive Protocols of the Working Group on Primary Care, Food and Health Bureau.






World Heart Day

29 September

Created by the World Heart Federation, World Heart Day informs people around the globe that cardiovascular disease (CVD), including heart disease and stroke, is the world's leading cause of death claiming 18.6 million lives each year, and highlights the actions that individuals can take to prevent and control CVD. By controlling risk factors such as tobacco use, unhealthy diet and physical inactivity, at least 80% of premature deaths from heart disease and stroke could be avoided. For more information about the World Heart Day, please visit world-heart-federation.org/world-heart-day.



The Department of Health appeals to members of the public to protect their heart by no smoking, eating a balanced diet, being physically active and refraining from alcohol drinking ♥

 **WORLD HEART DAY** 29 SEP | **USE ♥ FOR EVERY ♥** | IN PARTNERSHIP WITH
#UseHeart | #WorldHeartDay | WORLDHEARTDAY.ORG | Partners:    

Non-Communicable Diseases (NCD) WATCH is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community. The Editorial Board welcomes your views and comments. Please send all comments and/or questions to so_dp3@dh.gov.hk.

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