

**Prevalence of Cardiovascular Risk Factors,
the Metabolic Syndrome and the 10-year risk for
Coronary Heart Disease
in the Staff of
Tseung Kwan O Hospital**

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**醫院管理局
HOSPITAL
AUTHORITY**

Introduction

- Coronary heart disease (CHD) is the most common cause of death in the world (WHO, 2000)
- In Hong Kong , CHD is the second-most common cause of death. In 2008, CHD causes 6,771 death in Hong Kong
- Metabolic syndrome is associated with increased risk for cardiovascular disease and mortality



Introduction

- Risk factors for the cardiovascular disease are often not recognized or ignored by the staff, but can be reduced by healthy lifestyle choices
- Prevention is better than treatment and we are interested in the health status of the staff working in Tseung Kwan O Hospital (TKOH)
- As part of the 10th Anniversary celebration programme of the Tseung Kwan O Hospital , a comprehensive risk assessment for the cardiovascular health was offered to all hospital staffs



Aim

- To determine :
 1. The prevalence of cardiovascular risk factors
 2. The prevalence of metabolic syndrome
 3. To calculate the 10-year risk for coronary heart disease (CHD) for individual TKOH staff





Methodology





CORONARY HEART DISEASE RISK ASSESSMENT

員工健康推廣: 冠心病風險評估




LDL-cholesterol Blood Pressure LDL-cholesterol Body Weight Body Mass Index HDL-cholesterol Blood Pressure LDL-cholesterol Body Weight Body Mass Index HDL-cholesterol Blood Pressure LDL-cholesterol Body Weight Body Mass Index

Fasting Blood Sugar Pulse Cholesterol Triglycerides Waist Lipid profile Fasting Blood Sugar Pulse Cholesterol Triglycerides Waist Lipid profile Fasting Blood Sugar Pulse Cholesterol Triglycerides

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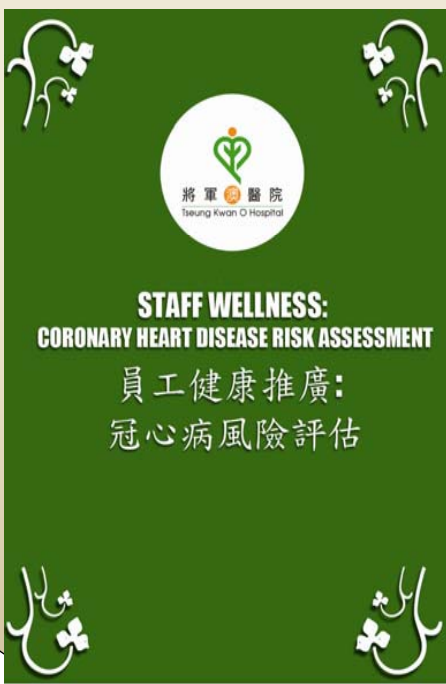
Fasting Blood Sugar Pulse Cholesterol Triglycerides Waist Lipid profile Fasting Blood Sugar Pulse Cholesterol Triglycerides Waist Lipid profile Fasting Blood Sugar Pulse Cholesterol Triglycerides

TKO/H 10th Anniversary
將軍澳醫院十週年



Methodology

- All participants filled in a short health questionnaire, had body mass index (BMI), waist circumference and blood pressure measured
- Fasting blood for glucose and lipid were collected



健康資料

吸煙：是 否

糖尿病：是 否

血壓(Blood Pressure): _____ mmHg

身高(Height): _____ M

體重指數(BMI): _____

空腹血脂(Fasting Lipid)：

總膽固醇 Total Cholesterol: _____ mmol/L

高密度膽固醇 HDL-Chol: _____ mmol/L

低密度膽固醇 LDL-Chol : _____ mmol/L

三酸甘油脂 Triglycerides: _____ mmol/L

總/高密度膽固醇比率 TC/HDL-Chol ratio _____

空腹血糖(Fasting Glucose): _____ mmol/L

血壓高：是 否

心臟病：是 否

脈搏(Pulse): _____ /min

體重(BW): _____ Kg

腰圍(Waist): _____ cm

Methodology

- The prevalence of individual cardiovascular risk factors, metabolic syndrome (according to modified International Diabetes Federation criteria) and the 10-year risk for coronary heart disease (according to Joint British Societies Guideline 2005) were calculated



Diagnosis of Metabolic Syndrome

- **Measure (any 3 of 5 constitute diagnosis of metabolic syndrome)**

1. Elevated waist circumference :

- 90 cm (35.5 inches) in men
- 80 cm (31.5 inches) in women

2. Plus any 2 of the following :

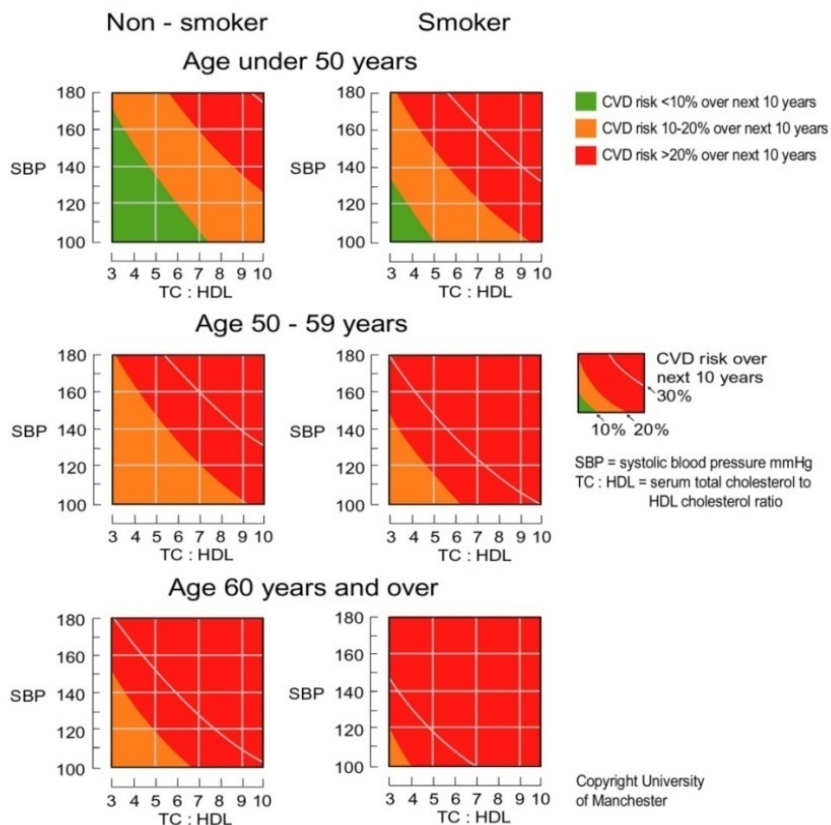
- Elevated triglycerides
 - 150 mg/dL (1.7 mmol/L)
- Reduced HDL-C
 - <40 mg/dL (1.03 mmol/L) in men
 - <50 mg/dL (1.3 mmol/L) in women
- Elevated blood pressure
 - 130 mm Hg systolic blood pressure
 - or 85 mm Hg diastolic blood pressure
- Elevated fasting glucose
 - 100 mg/dL (5.6mmol/L)

Modified International Diabetes Federation Criteria
for Metabolic Syndrome

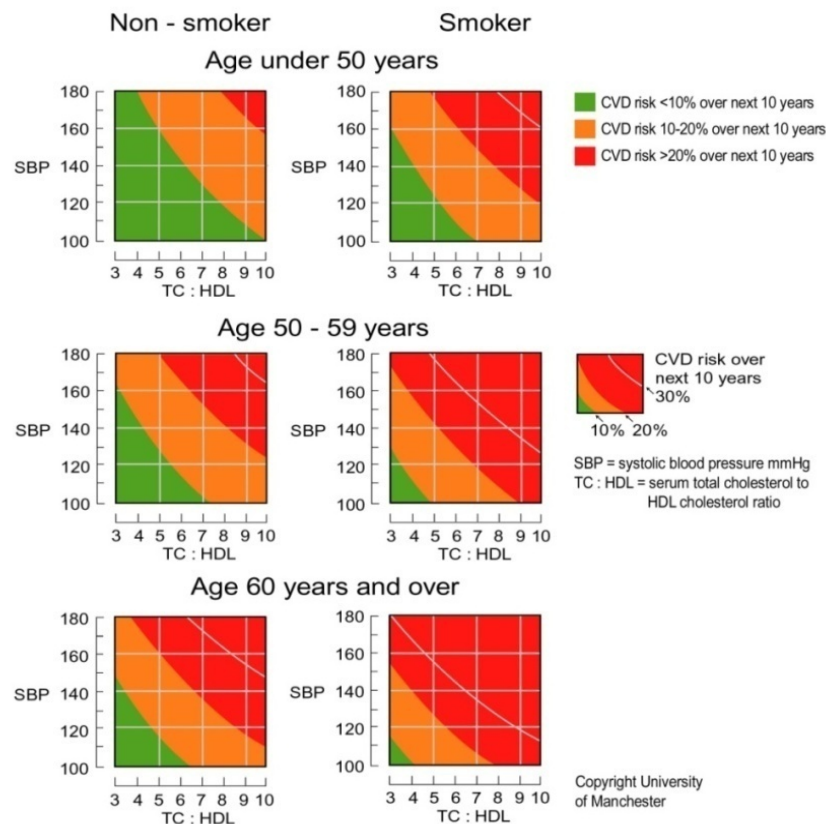


10-Year Risk for CHD

Nondiabetic Men



Nondiabetic Women



Health Questionnaire
CHD / DM / HT
Smoking status
Blood Pressure / Body Mass Index
Waist Circumference
Fasting glucose /lipid



10 year risk for CHD



High-Risk >20%
Lifestyle change
Stop smoking
Exercise
Optimal weight
Lecture
Treat HT /DM/
Hyperlipidemia
review

**Moderate-Risk
10 -20%**
Lifestyle change
Stop smoking
Exercise
Optimal weight
Lecture
Nurse counseling

Low-Risk <10%
Lifestyle change
Stop smoking
Exercise
Optimal weight
Lecture

Flow Chart :Screening ,Risk Stratification and Intervention of Study Subject

Result : Baseline Characteristics



Demographic Factors	Data
Sample Size	489 (41%)
Age (median)	46 years [range 20 -64]
Female Gender	387 (79%)

Cardiovascular Risk Factors	Number (Percentage)
Smoker	22 (4.5%)
Past History of Hypertension	43 (8.8%)
Past History of Diabetes mellitus	16 (3.3 %)
Past History of Coronary Heart Disease	3 (0.6%)

Result:



Metabolic Factors	Data	
BMI (median)	22.7	[range 14.7 – 38.7]
BMI \geq 23 Kg/m ²	230	(47%)
BMI \geq 25 Kg/m ²	115	(24%)
BMI \geq 27.5 Kg/m ²	49	(10%)
Waist circumference (median) : male	81.3 cm	[range 57 – 108 cm]
Waist circumference (median) : female	75 cm	[range 51 – 104 cm]

Result : Cardiovascular Risk Factors



Metabolic Factor	Number (Percentage)	
Hypertension (BP \geq 140/90)	64	(13%)
Newly diagnosed Hypertension	21	(4.3%)
Hypercholesterolemia (TC > 5.2 mmol/L)	178	(36.3%)
Low Density Lipoprotein -C (LDL-C \geq 2.6 mmol/L)	302	(61.9%)
Hypertriglyceridemia (TG \geq 1.7 mmol/l)	70	(14.3%)
History of diabetes mellitus or FBS \geq 7.1 mmol/L	23	(4.7%)
Newly diagnosed diabetes mellitus	7	(1.4%)



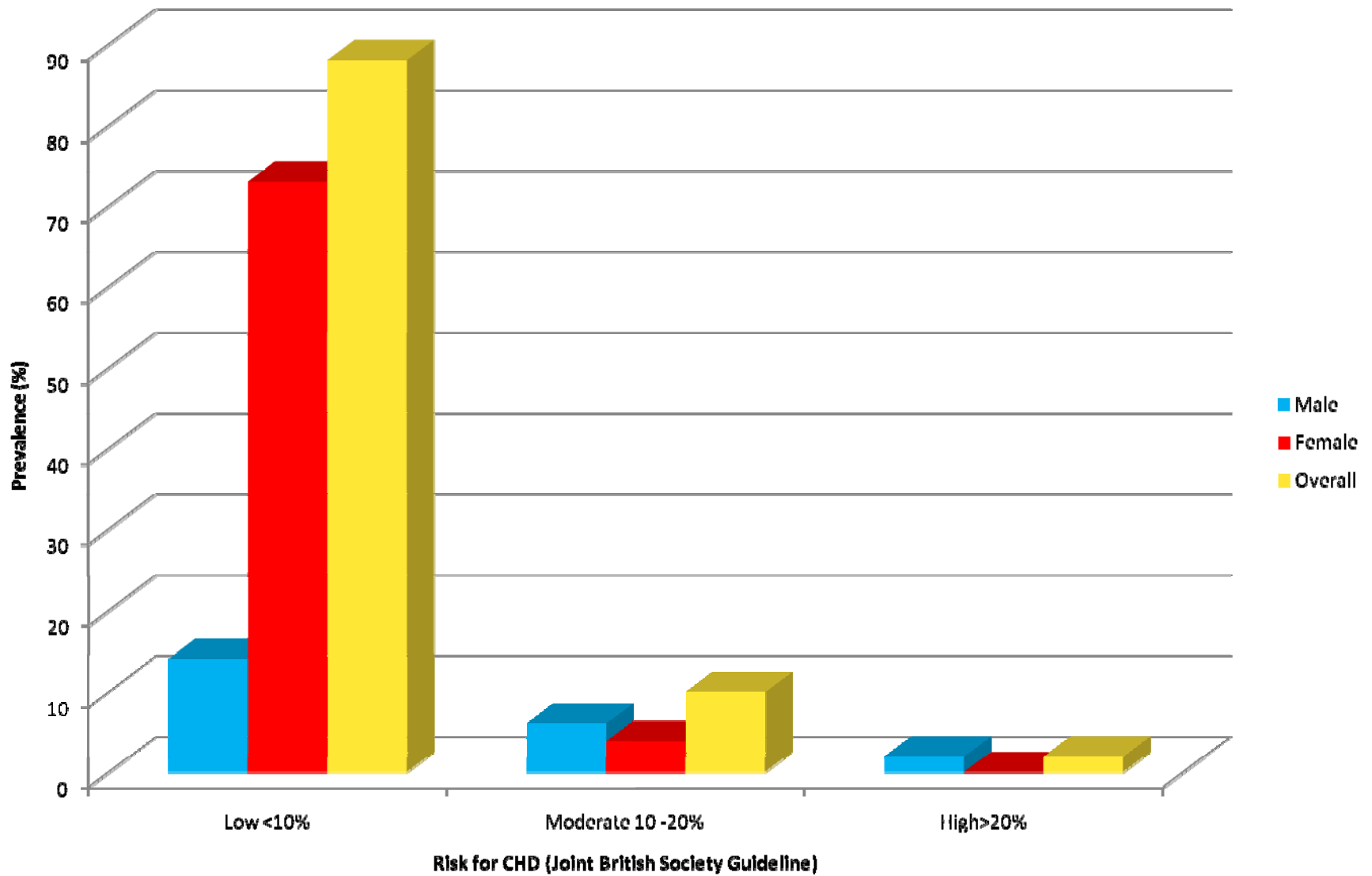
Result	Number (Percentage)
Metabolic Syndrome	23 (4.7%)
10-year risk for CHD \geq 20% [High Risk]	9 (2%)*
10-year risk for CHD 10 -20% [Moderate Risk]	47 (10%) ¶
10-year risk for CHD \leq 10% [Low Risk]	425 (88%) ‡

***100% are male**

¶ 53% are male 47% female

‡ 16% are male 84% female

10-year risk for CHD



Conclusion

- **The individual risk factors for CHD are commonly seen in the staff of TKOH**
- **Nearly 5% of staff have metabolic syndrome and therefore at high risk of cardiovascular morbidity and mortality**
- **Relatively high percentage of “apparently healthy” staff (12%) are classified as having moderate to high 10-year risk for CHD**



Discussion

- The prevalence of individual risk factors and metabolic syndrome is not as high as the figure quoted in the Hong Kong Cardiovascular Risk Factor Prevalence Survey-2 (2004) and the Cardiac Health Promotion Program in the Community (2007 Chan KM etal)
- The low percentage (2%) of high risk group (10-year risk for CHD > 20%) may be related to the young age of the staff , majority of them are being female and they are more health conscious
- However, the percentage of moderate risk group (10-year for CHD risk 10 -20%) is 10% which is relatively high



Discussion

- 4.3% of the staff are newly diagnosed to have hypertension and 1.4% of the staff are newly diagnosed to have diabetes mellitus by the study
- Screening of cardiovascular risk factors is worthwhile because of the relatively high yield in those “apparently healthy” and asymptomatic individuals
- Targeted intervention should be implemented for prevention of CHD
- Enhance the overall health of the workforce



Risk Factor Intervention :

- Lifestyle modification
- stop smoking
- body weight management
- lipid control
- diabetes and blood pressure control should be practiced in order to prevent major CHD event



將軍澳醫院十周歲，我們精心炮製一連串的慶祝活動，內容豐富又精彩，期望同大家開開心心、高高興興歡度醫院生辰，立即click入以下連結，約定您的家人朋友一齊參與啦！

● 員工社區健康運動日 (2010.1.1)

報名中

- 「員工個人及隊際賽」報名表
- 「同步2000/ 5000步」報名表

● 10周年慶祝晚宴 (2009.12.18)

Yummy

● 10周年典禮暨開放日 (2009. 11. 7)

進行中

● 糖尿病足工作坊 (2009. 10. 17- 18)

● 社區安全及健康教育推廣 (2009.10 - 2010.9)

● 日間醫療服務大禧奠基典禮 (2009.9.20)

G.F

展覽中

● 員工健康推廣：冠心病風險評估 (2009.8 - 2009.11)

● 員工攝影比賽：「生命 — 由我演繹」

● 醫院傑出成就展板

● 十周年年報

編撰中





Acknowledgment



STAFF WELLNESS WORK GROUP

• 1.1 Core Members :

- Dr. Steven Tsang (AC/Med) Chairman
- Dr. Ming Kin Cheng (MO/Med)
- Mr. Patrick Wong (DM/PI)
- Dr. John Wong (MO/Med)
- Ms Jennifer San (WM/Med)
- Ms Ho Shiu Man (NO/SOPD)
- Ms Pansy Lee (APN/Med)
- Mr. Jimmy Chung (APN/Med)
- Mr. Terence Tse (HRM/HRD)

• 1.2 Co-organizing Committee:

- Community project workgroup of Department of Medicine (民康橋)

• 1.3 Members:

- Ms. Kwok Man Kit (APN/5B/Med)
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- Ms. Kwan Wing Man, Sally (RN/3B/Med)
- Ms. Doris Au Yeung (RN/SOPD)
- Ms. Rosa Chan (EN/X Ray)
- Ms. Lam Man Yi (EN/5C/Med)

INVITED STAFF

- Dr KK Tsang (Consultant /Med)
- Dr Myles Chan (Resident/Med)
- Ms. Karen Lee (Dietitian)
- Mr. Tong Au (SPT i/c)
- Ms. Kong Siu Man (APN)
- And others...

All staff involved in TKOH

- Department of Medicine
- Department of Clinical Pathology
- Human Resources Department
- Specialist Outpatient Department
- Integrated Rehabilitation Services
- Sponsor :
 - TKOH Staff Welfare Committee
 - Roche Diagnostic Ltd

Thank You