



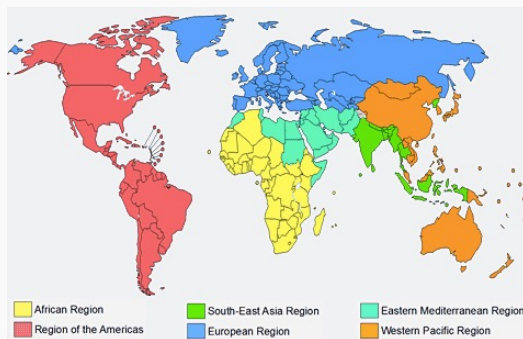
International survey on secondary prevention of
cardiovascular disease across six WHO regions

J. William McEvoy
on behalf of the INTERASPIRE Investigators



Introduction

- Adults with prior coronary heart disease are at high risk for future cardiovascular events
- To minimise this risk, guidelines recommend evidence-based lifestyle and pharmacologic treatment of modifiable cardiovascular risk factors (secondary prevention)
- Studies, e.g. EUROASPIRE surveys, show poor implementation of these guidelines in Europe
- Less is known on the implementation of secondary prevention at a **global level**



14 countries/6 WHO regions, 2019 – 2023



Malaysia



Argentina



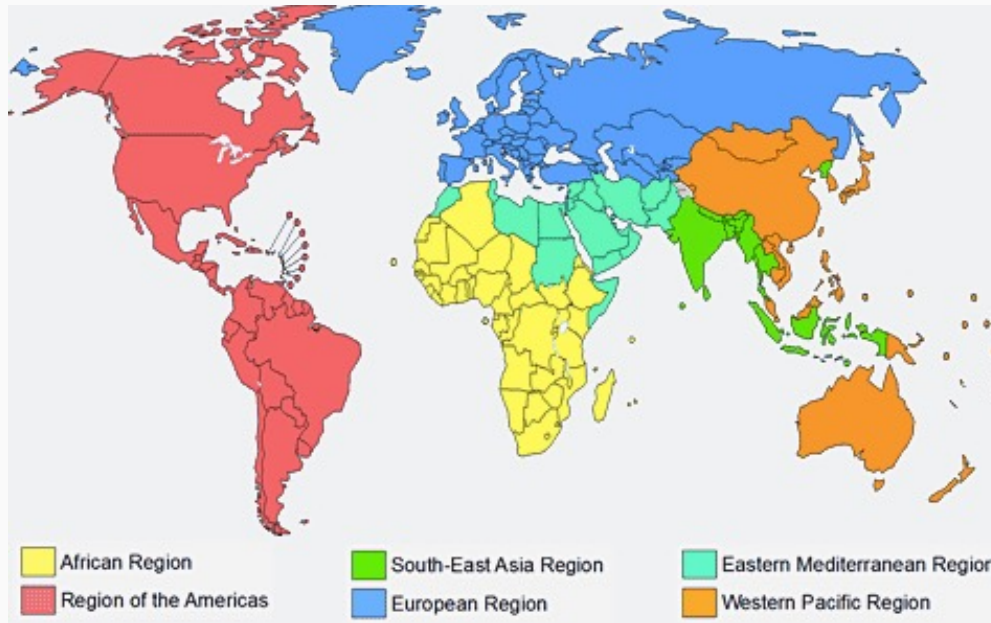
Indonesia



Philippines



UAE



Portugal



Tanzania



Kenya



Nigeria



Colombia



Singapore



China

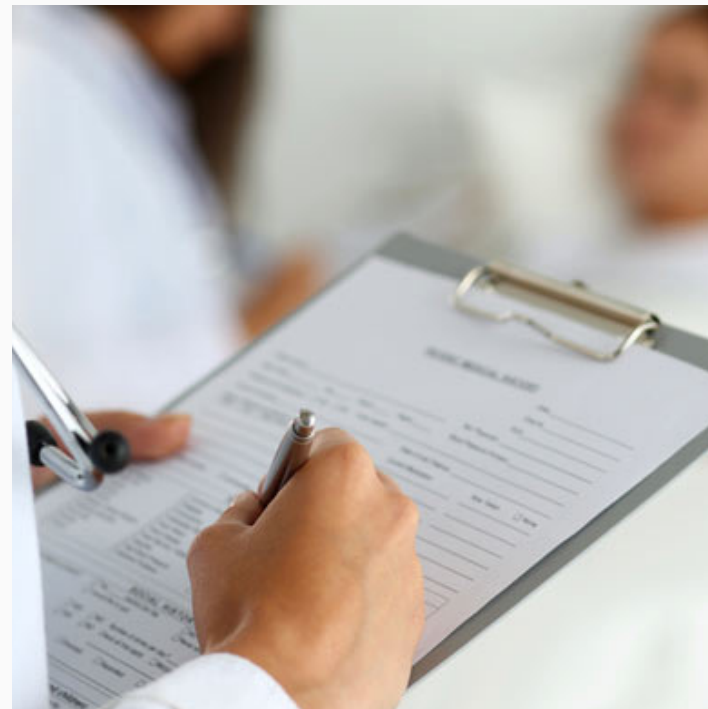


Egypt



Poland

1. Consecutive males and females <80 years with first or recurrent diagnosis of Coronary Heart Disease
2. At least 3 regions per country*, up to 6 centres, aiming at 400 participants/country
3. All sites trained by National Institute for Prevention and Cardiovascular Health
4. Standardized patient interview and examination
5. Blood analysed for lipids, creatinine, and eGFR by core lab (Helsinki- Drs Erlund and Vihervaara)
6. Data managed by ESC- European Observational Research Program (EORP) & AIMES (Liverpool, UK) and analysed at Ghent University (Belgium)





The population



Unstable angina / acute
myocardial ischaemia

20%

PCI
21%

CABG
7%

MI
52%

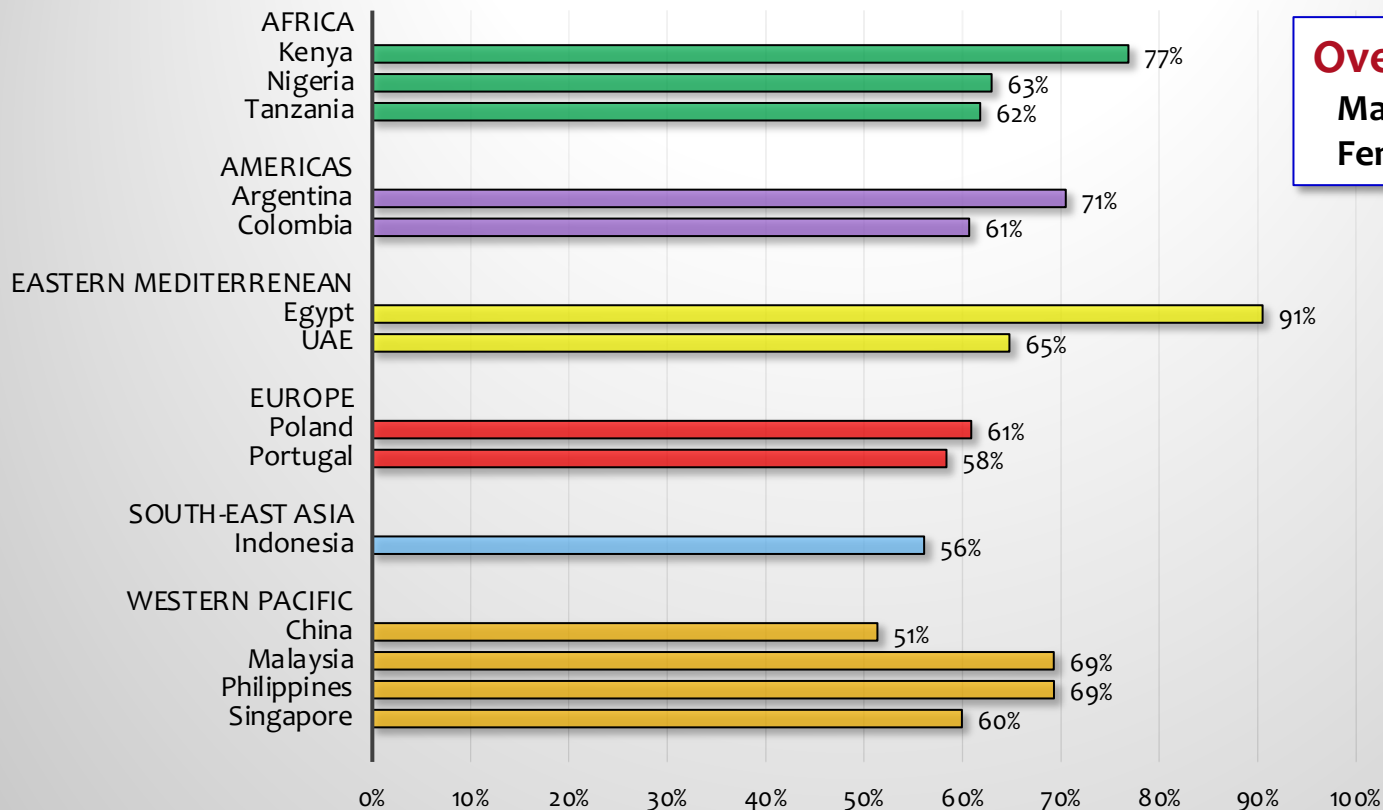
STEMI
31%

Non-STEMI
21%

Participants no	4,548
Age mean \pm SD (years)*	60 \pm 10
Female no (%) *	961 (21)
Median time since CHD event	1 yr



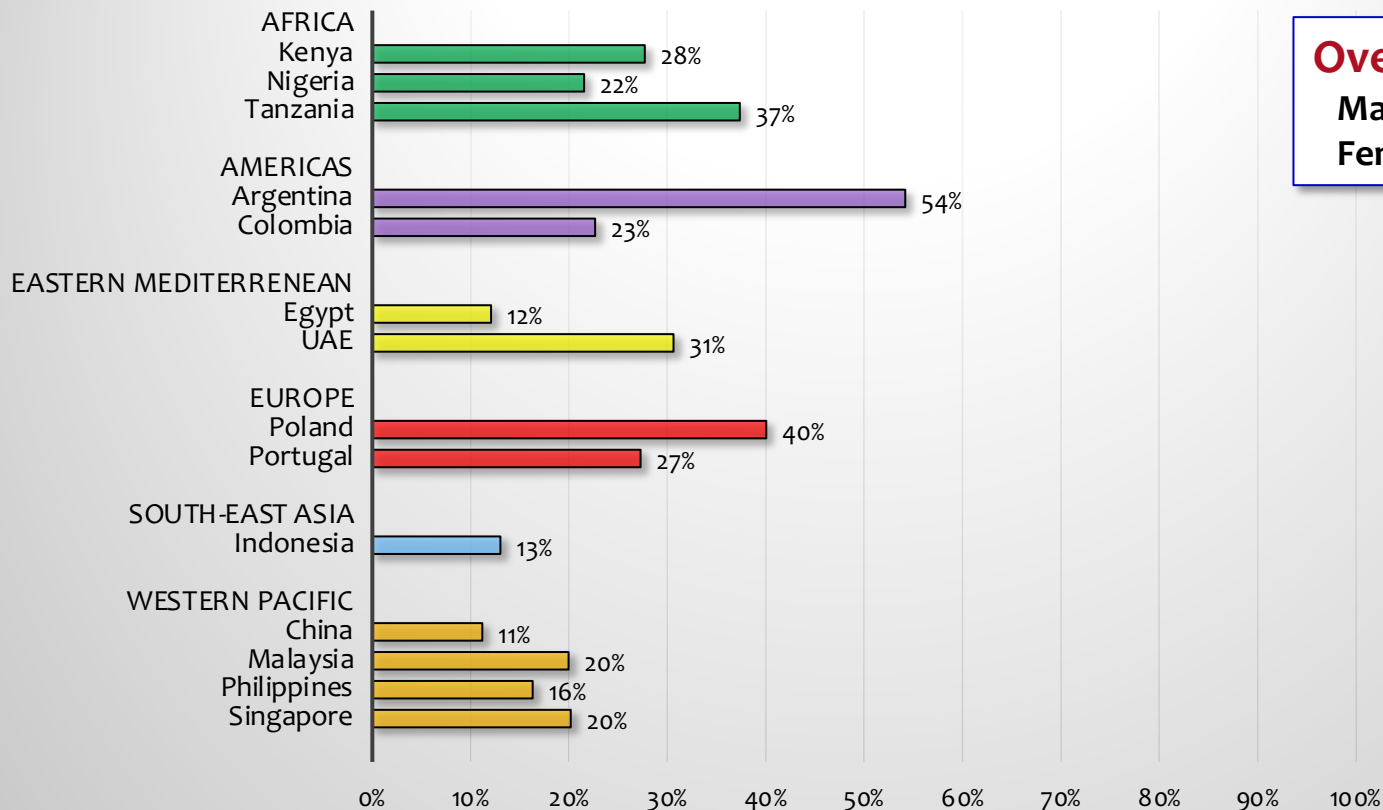
Physical Inactivity*



Overall 67% (60-73)

Males 65% (59-72)

Females 69% (60-76)

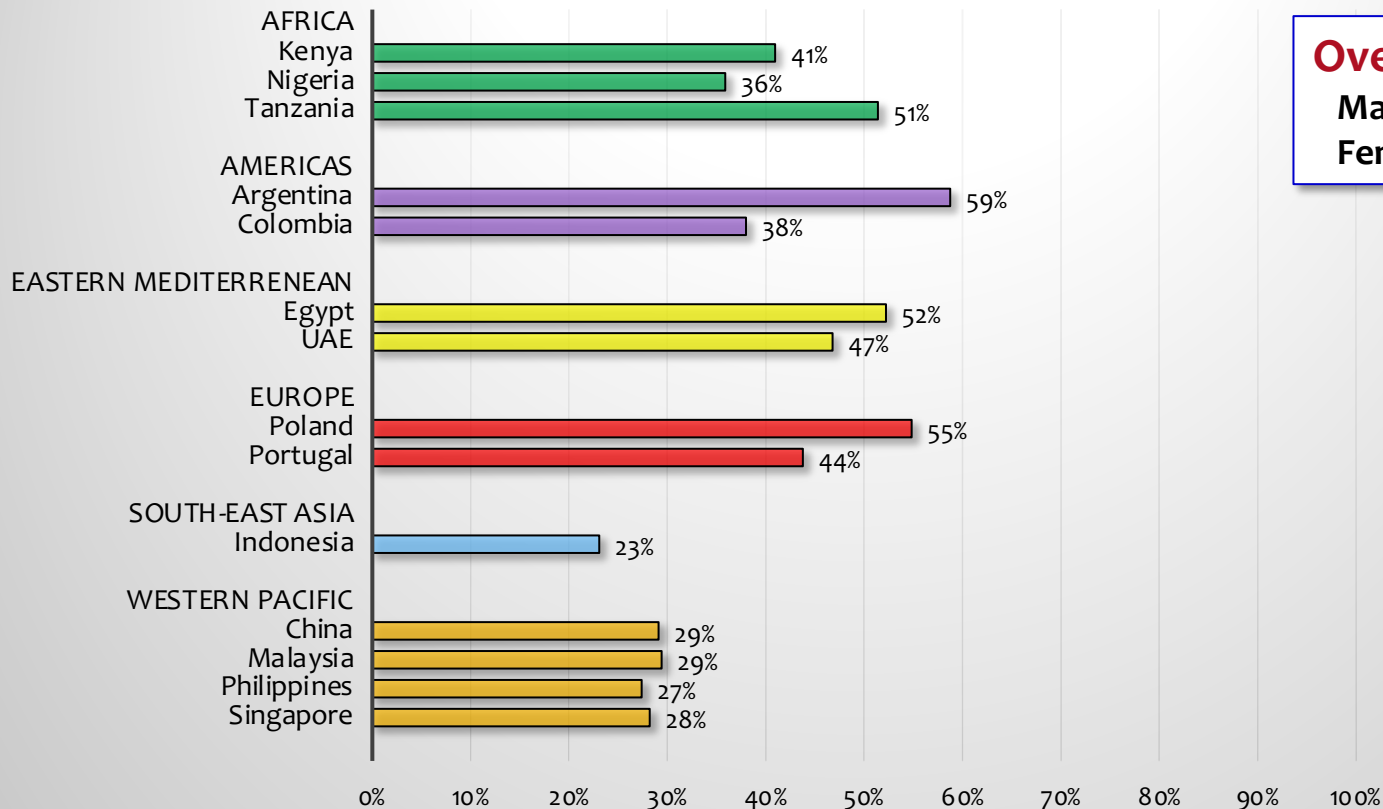


Overall 25% (18-32)

Males 27% (21-34)

Females 19% (12-28)

Central obesity*

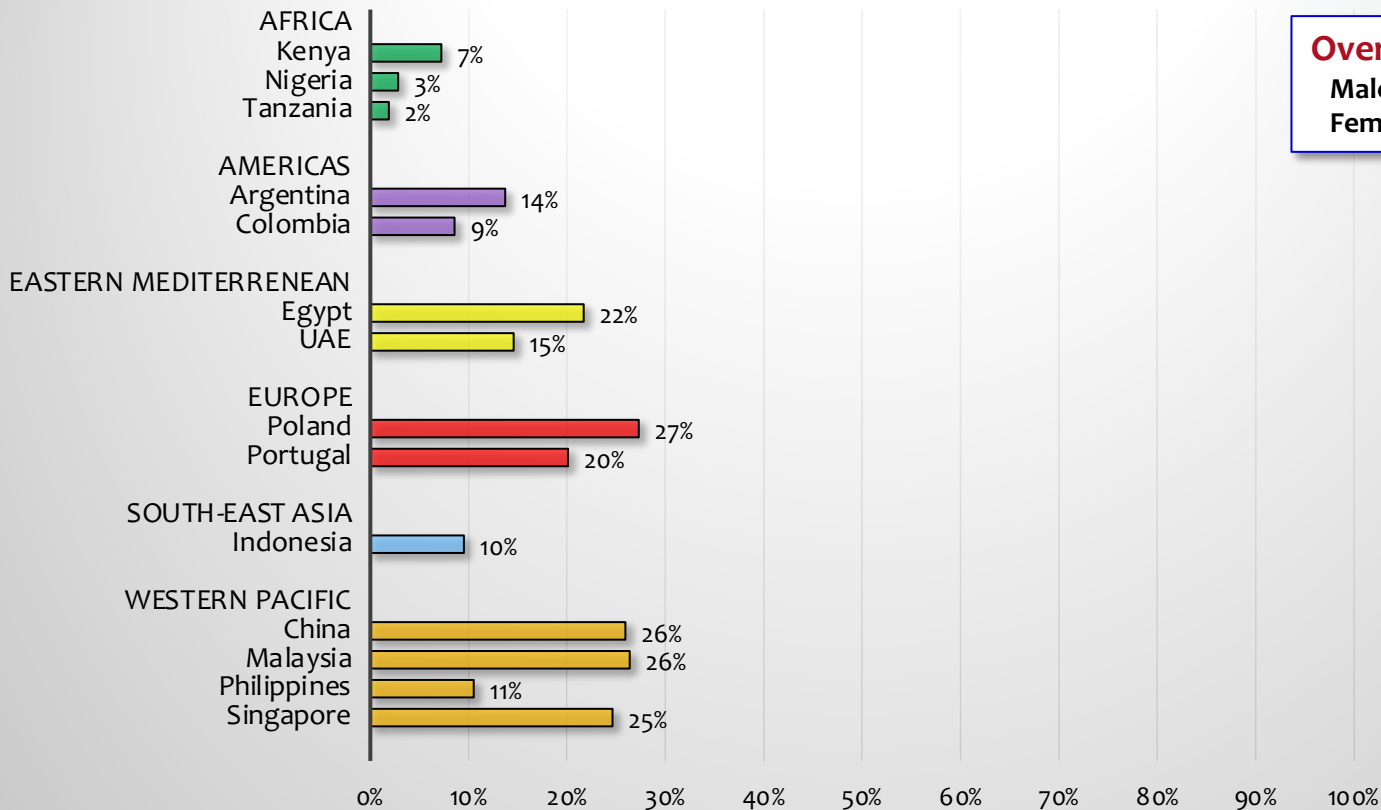


Overall 41% (33-49)

Males 40% (33-48)

Females 41% (32-51)

Prevalence of smoking*

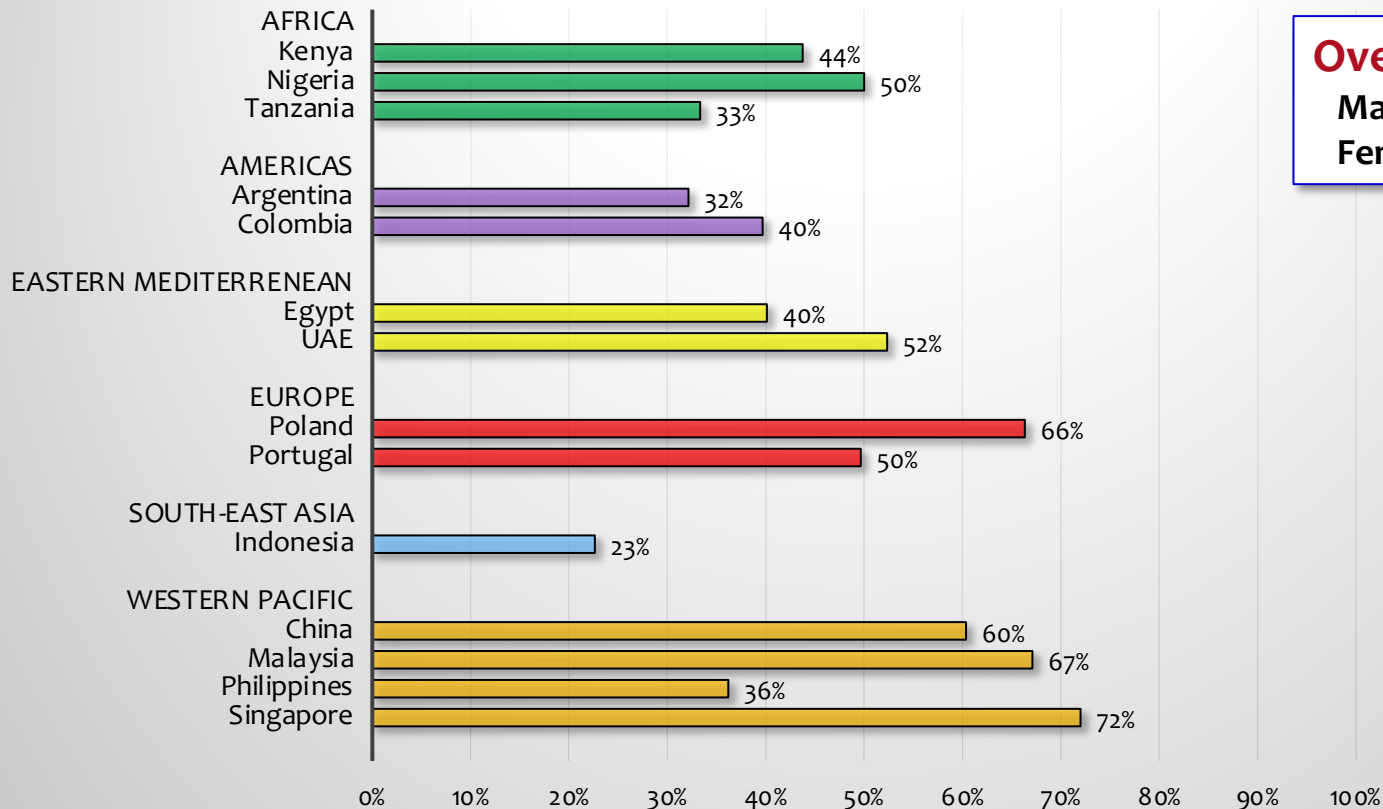


Overall 12.6% (7.8-19.6)

Males 16.1% (10.1-24.5)

Females 7.1% (4.5-10.9)

Persistent smoking*

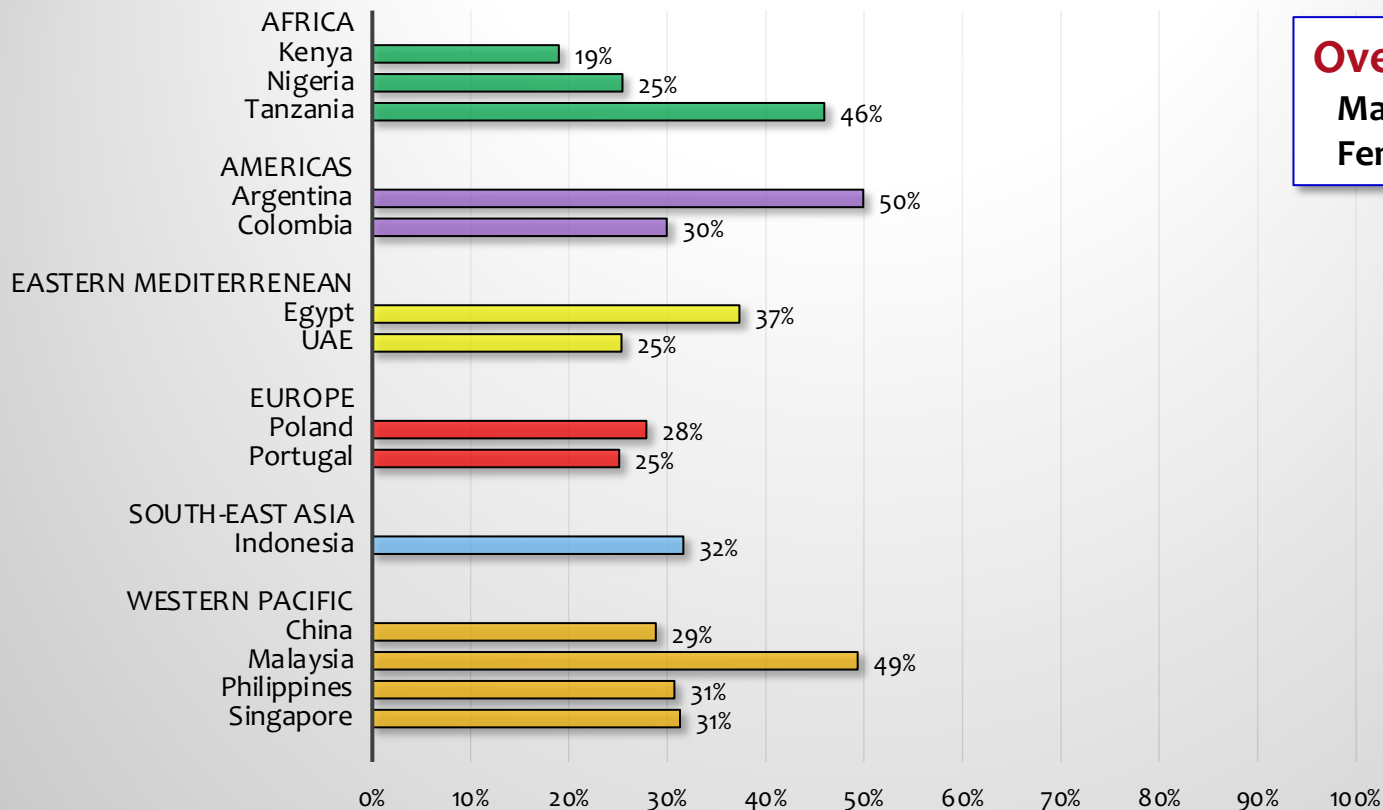


Overall 48% (39-58)

Males 51% (41-61)

Females 43% (31-55)

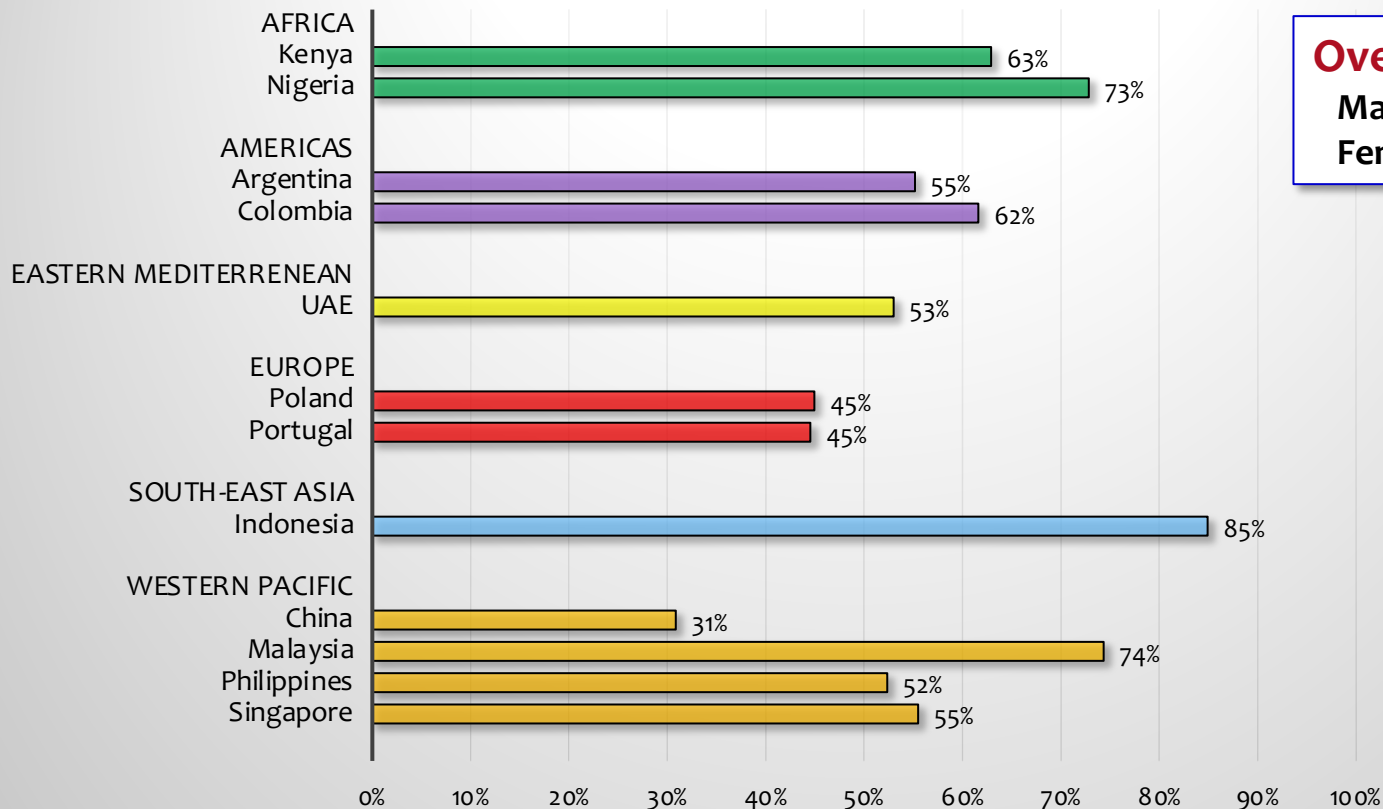




Overall 32% (27-38)

Males 30% (25-35)

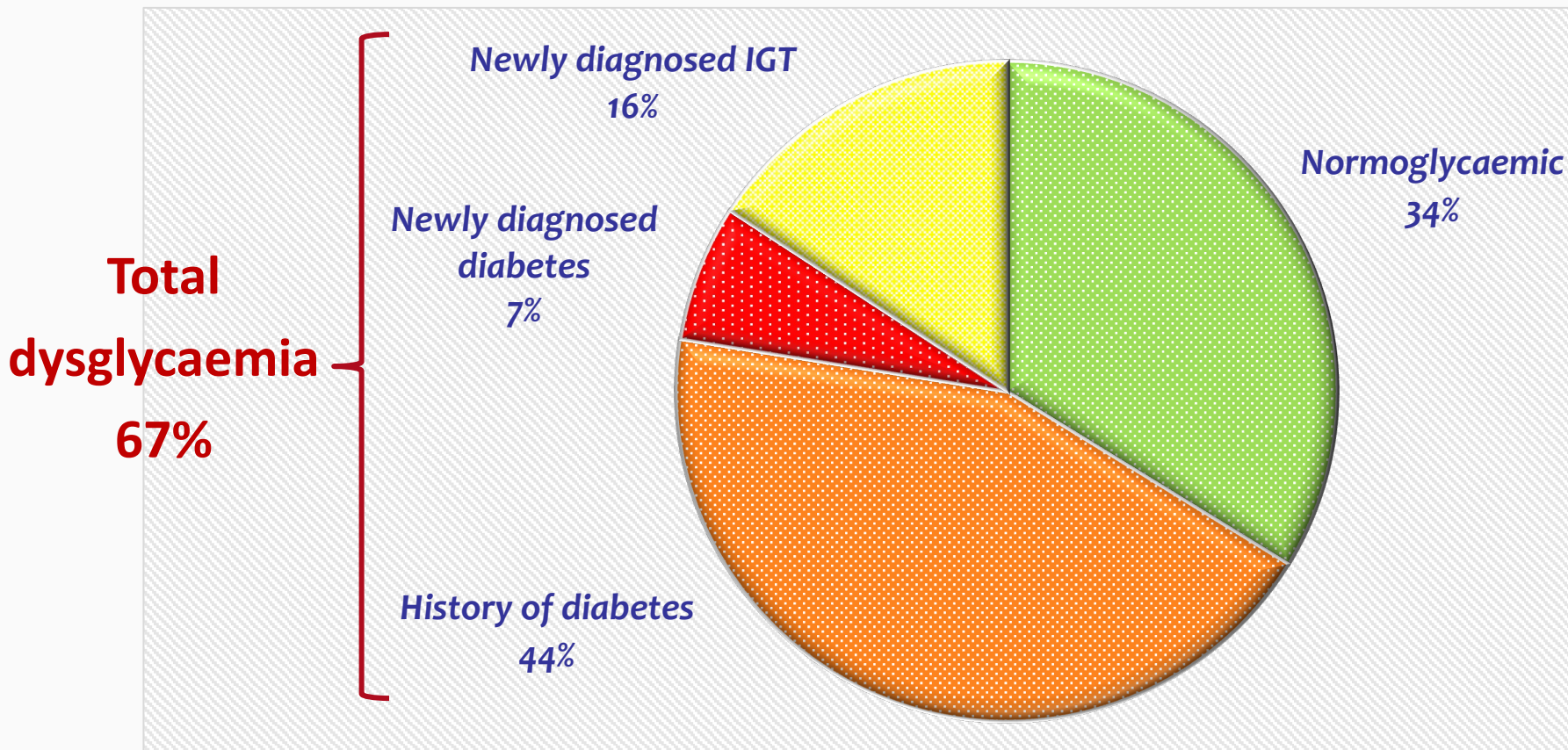
Females 37% (31-44)



Overall 59% (49-68)

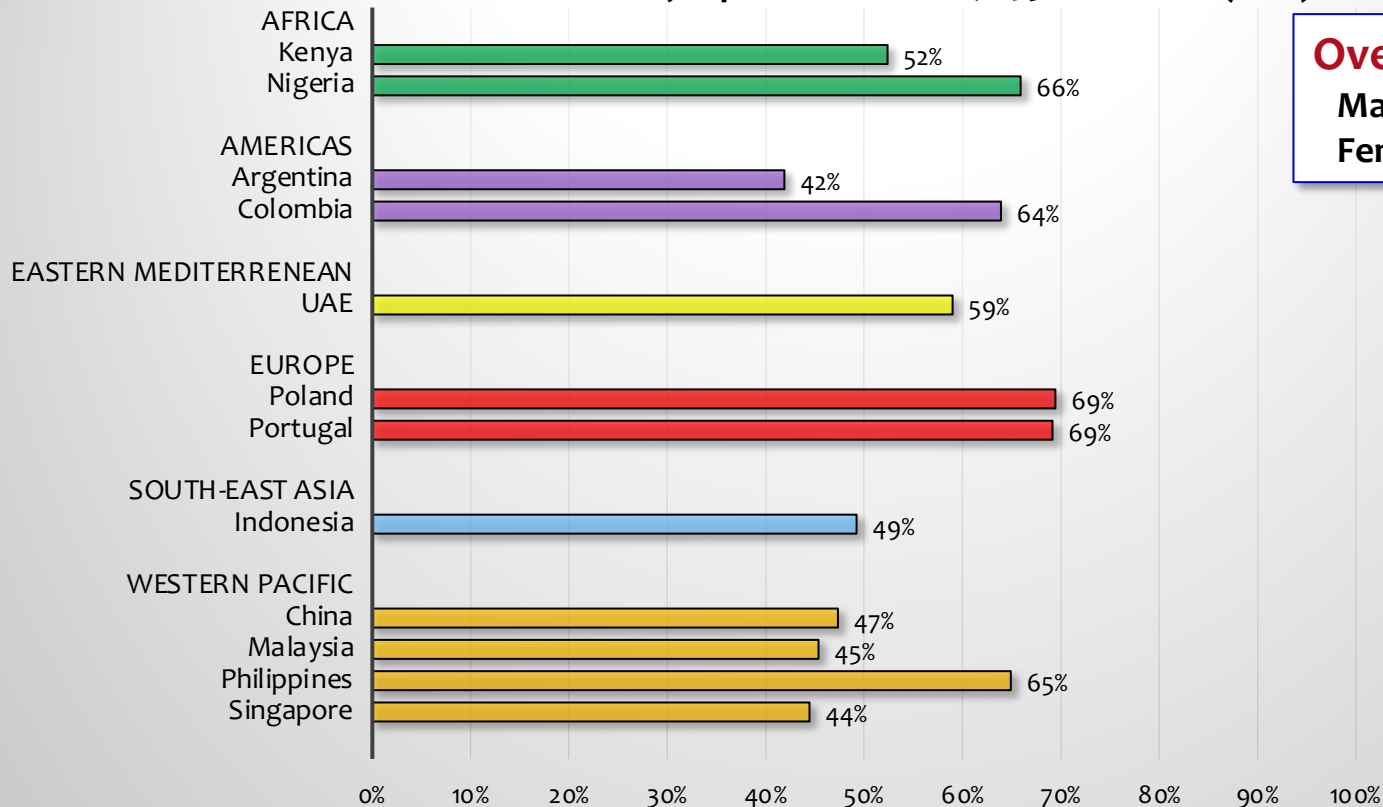
Males 57% (47-66)

Females 66% (53-76)



Achievement of HbA1c target

Patients with self-reported diabetes ; <53 mmol/mol (7.0%)



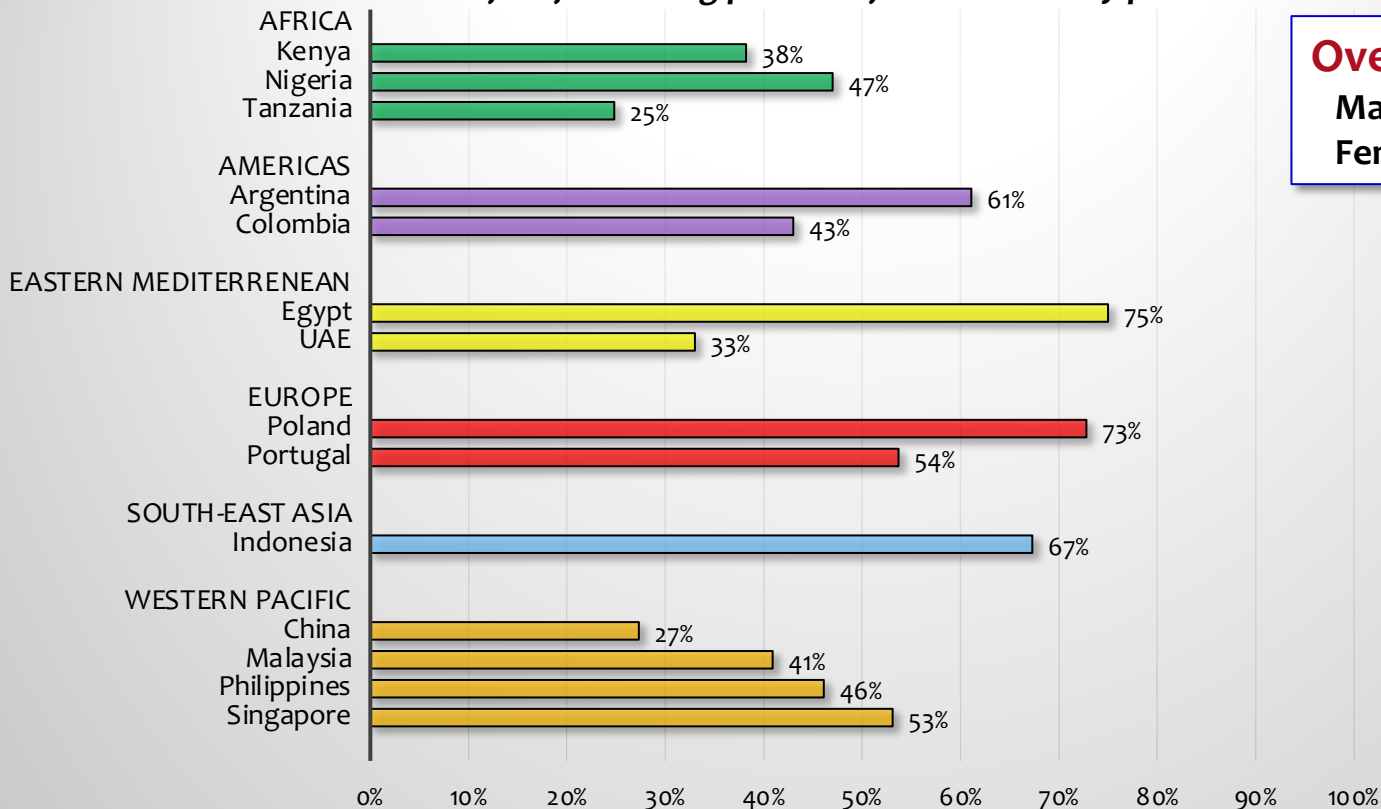
Overall 56% (50-62)

Males 59% (52-65)

Females 48% (39-58)

Combined use preventive drugs

Use of all four “drug pillars” of CVD secondary prevention*



Overall 49% (40-58)

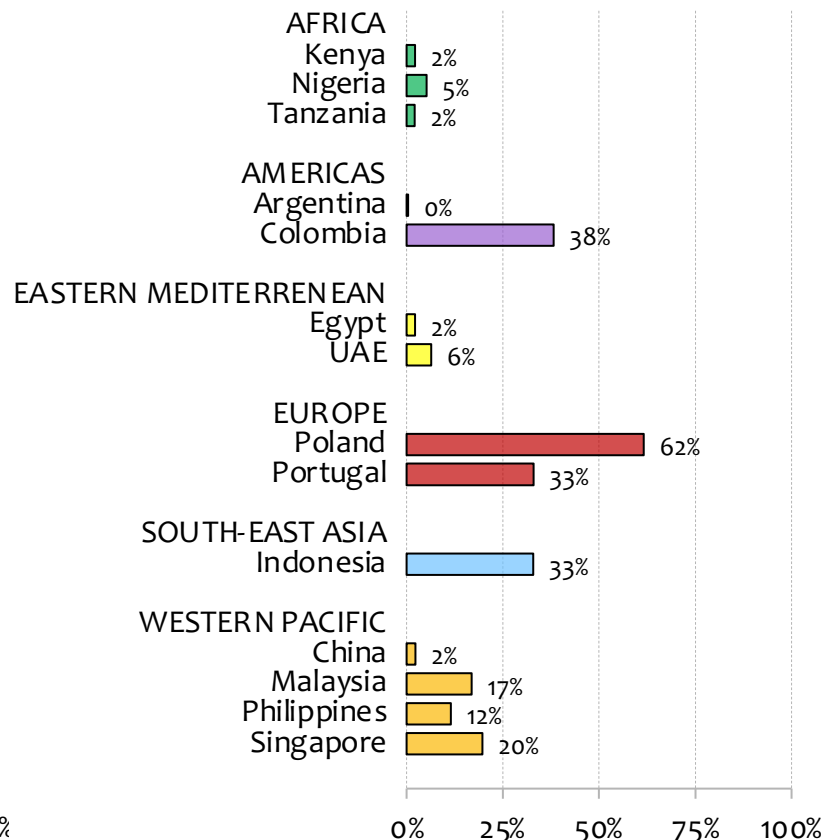
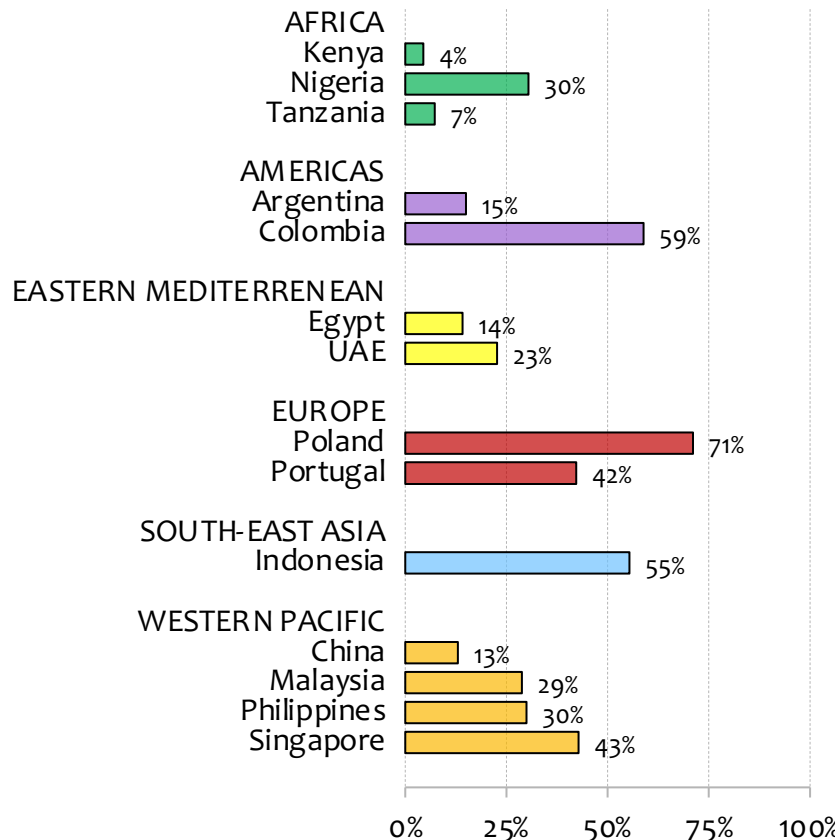
Males 49% (40-59)

Females 46% (38-55)

Cardiac rehabilitation

Referral 27% (16 – 41)

Attendance* 9% (4 – 20)



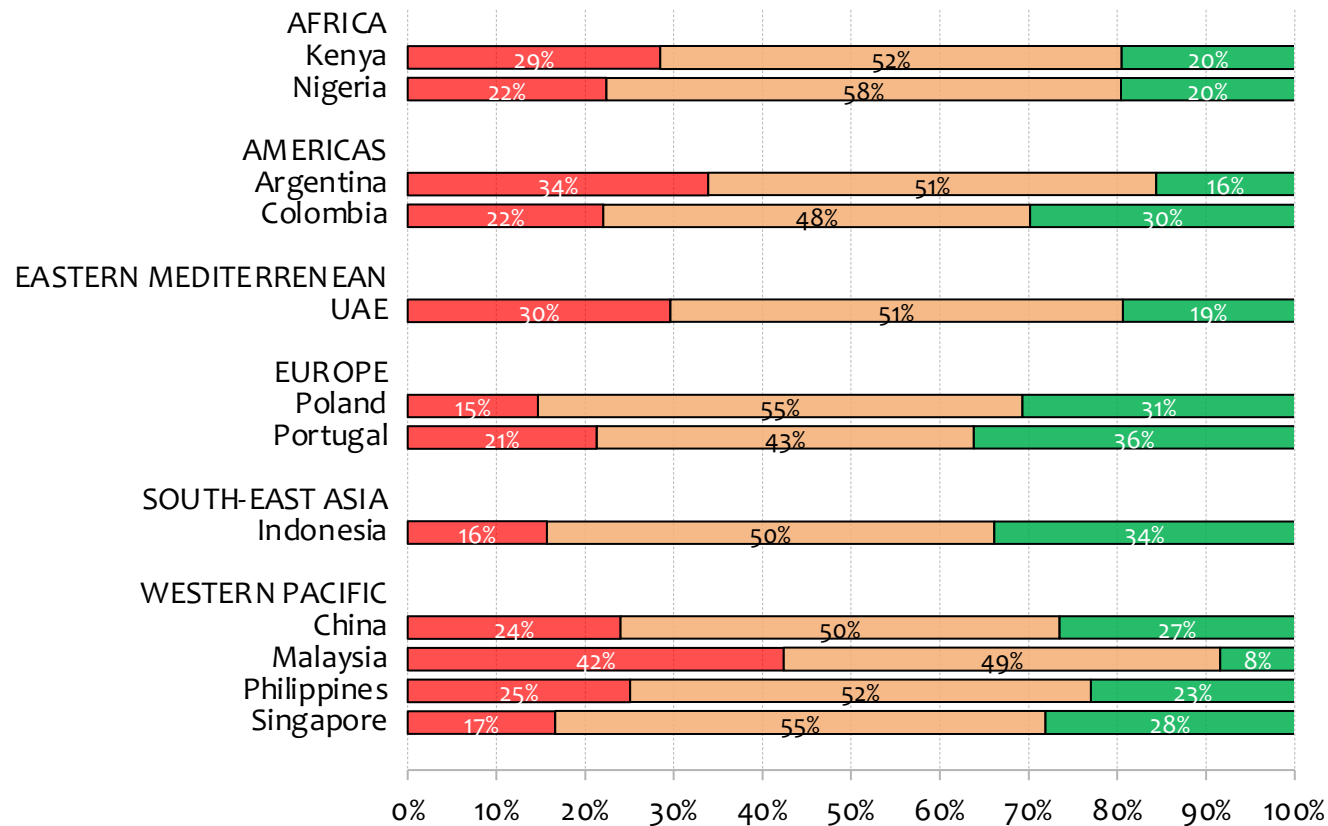
Ten-point score

- ✓ Non-smoking
- ✓ BMI <25 kg/m²
- ✓ PA ≥150min/week
- ✓ BP <140/90 mm Hg
- ✓ LDLc <1.8 mmol/L
- ✓ HbA1c at target
- ✓ Antiplatelet Rx
- ✓ LLT Rx
- ✓ Beta Blocker Rx
- ✓ ACE inhibitor Rx

8/10 17%

9/10 6%

10/10 1%



*Score ranging from 0 to 10 ■ ≤5 ■ 6-7 ■ ≥8

1. INTERASPIRE provides a global picture of secondary prevention among adults with CHD, conducted during the COVID19 pandemic
2. Global achievement of evidence-based lifestyle and medical risk factor targets was poor. Less than half of participants taking the 4 “drug pillars” of CVD secondary prevention.
3. Only 1% of participants achieved all 10 of the core lifestyle and risk factor targets recommended by prevention guidelines
4. Females were less likely than males to achieve BP, lipid, and glycaemic targets
5. Global cardiac rehabilitation referral and attendance rates despite a Class 1 recommendation in all guidelines were low, with a marked variability between WHO regions and countries



National coordinators



Argentina	Dr Maria Ines Sosa Liprandi, Dr Jose Luis Navarro Estrada
China	Dr Yong Huo, Dr Junbo Ge, Dr Yong Li
Colombia	Dr Miguel Urina Triana
Egypt	Prof Hossam Hasan
Indonesia	Dr Ade Meidian Ambari
Kenya	Prof Elijah Ogola, Dr Lilian Mbau
Malaysia	Ass Prof Ahmad Syadi Mahmood Zuhdi
Nigeria	Profs Amam Mbakwem, Ogah Okechukwu, Sani Mahmoud
Philippines	Dr Rodney Jimenez
Poland	Prof Piotr Jankowski
Portugal	Prof Ana Abreu
Singapore	Prof Jack Tan, Dr Tee Joo Yeo
Tanzania	Prof Abel Makubi
United Arab Emirates	Dr Wael Al Mahmeed



中国心血管健康联盟
Chinese Cardiovascular Association



Asociación
SOCIEDAD COLOMBIANA
DE CARDIOLOGÍA & CIRUGÍA
CARDIOVASCULAR



EGYPTIAN SOCIETY OF
CARDIOLOGY



Emirates Cardiac Society
"Sharing matters of Heart"



BECAUSE
YOUR
HEART
MATTERS



Sociedade Portuguesa de
CARDIOLOGIA



Singapore
Heart
Foundation
Your Heart We Care



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Sponsors



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NIPC

National Institute for Prevention
and Cardiovascular Health

NIPC is an independent medical research and education institute striving to position Ireland as a leader in Cardiovascular Health

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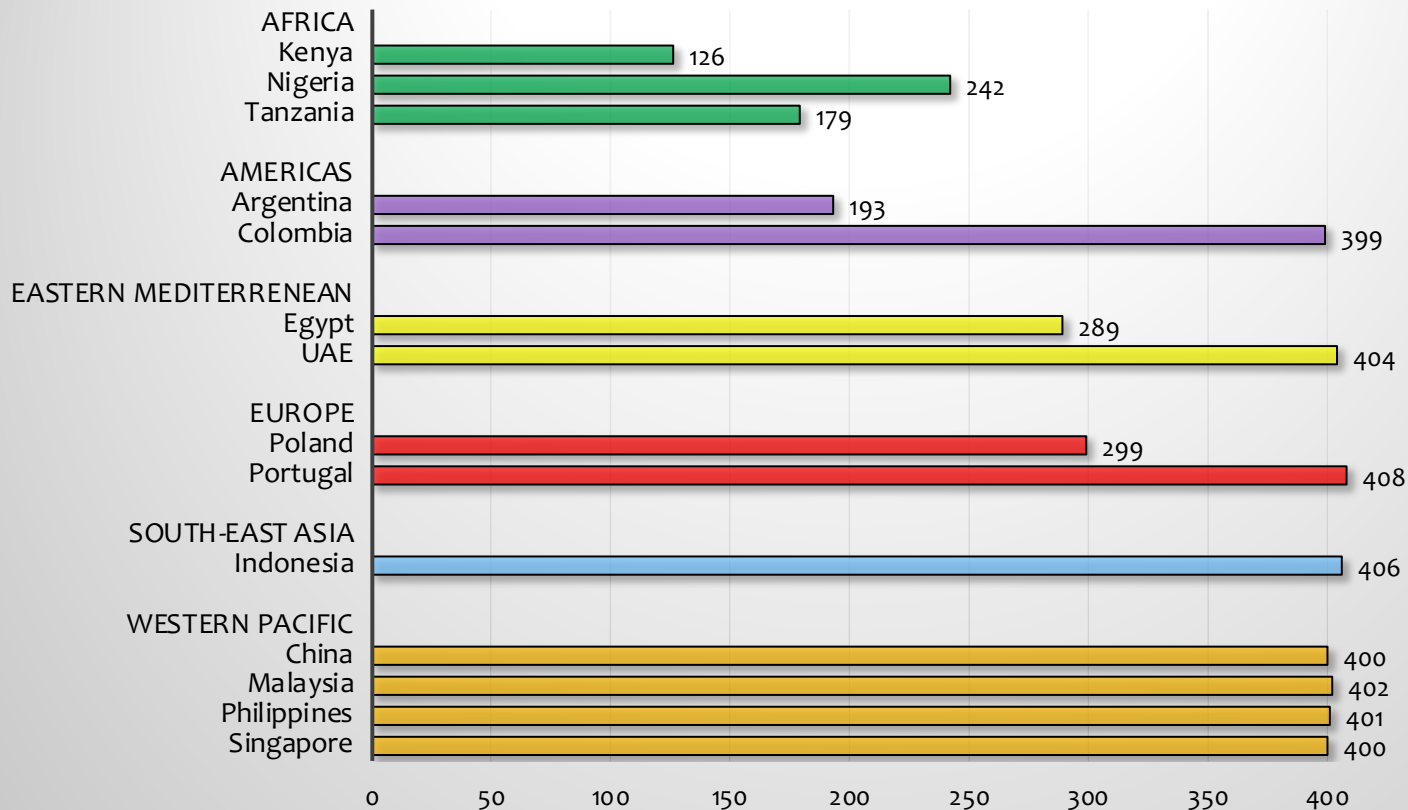


OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY

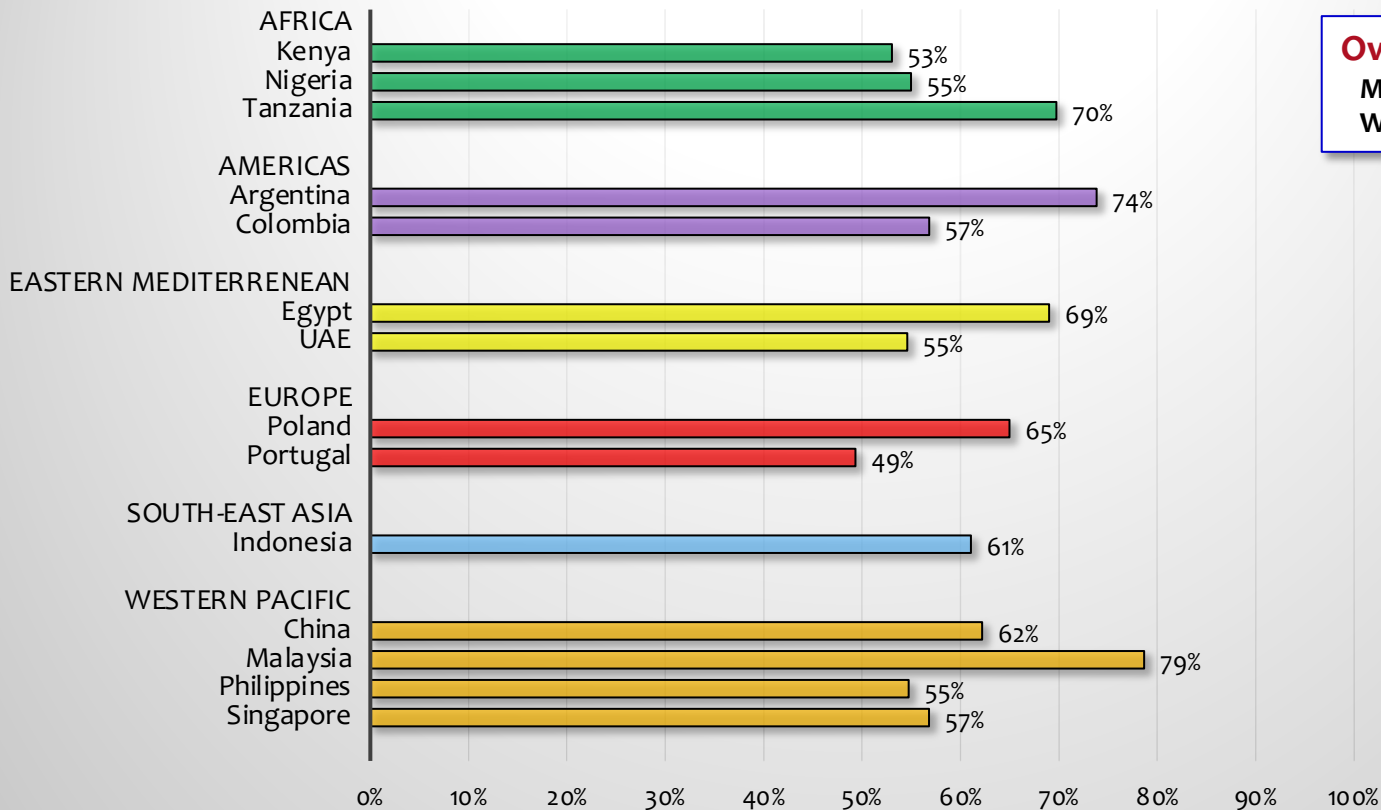


EXTRA SLIDES

Number of participants per country



Prevalence of systolic/diastolic blood pressure $\geq 130/80$ mmHg



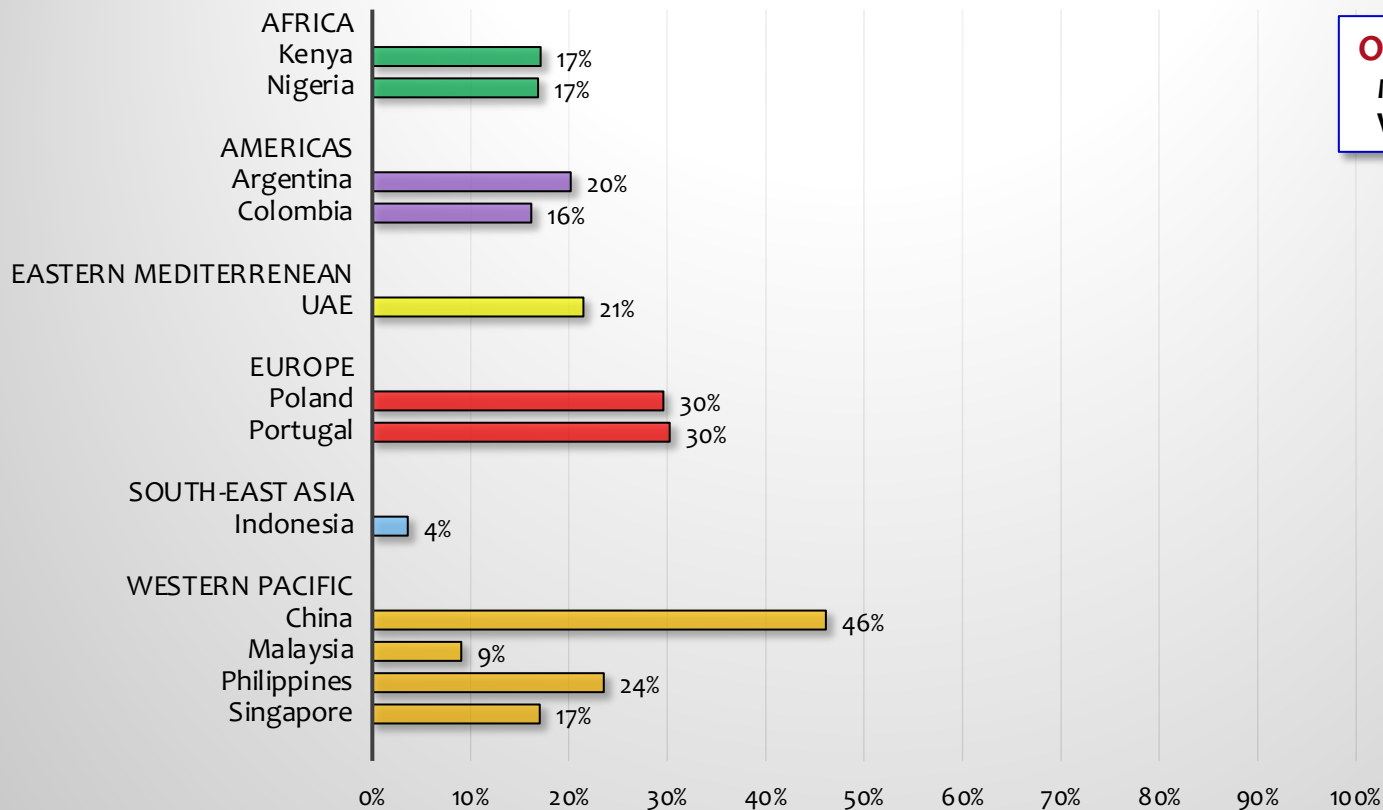
Overall 61.4% (56.2-66.5)

Men 61.1% (55.8-66.1)

Women 62.1% (56.0-68.0)

Achievement of LDL targets*

LDL cholesterol < 1.4 mmol/L



Overall 19.2% (13.1-27.3)

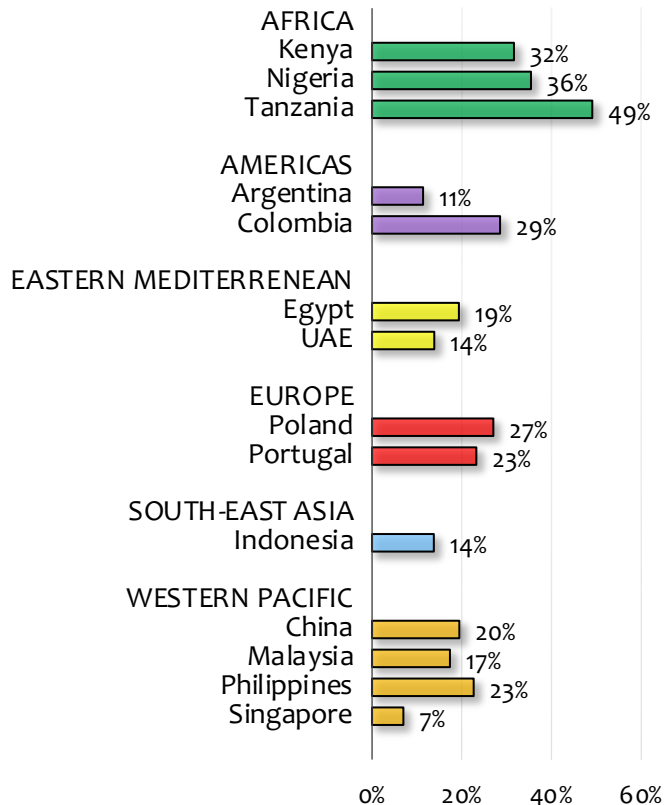
Men 20.3% (14.1-28.3)

Women 14.5% (8.3-24.0)

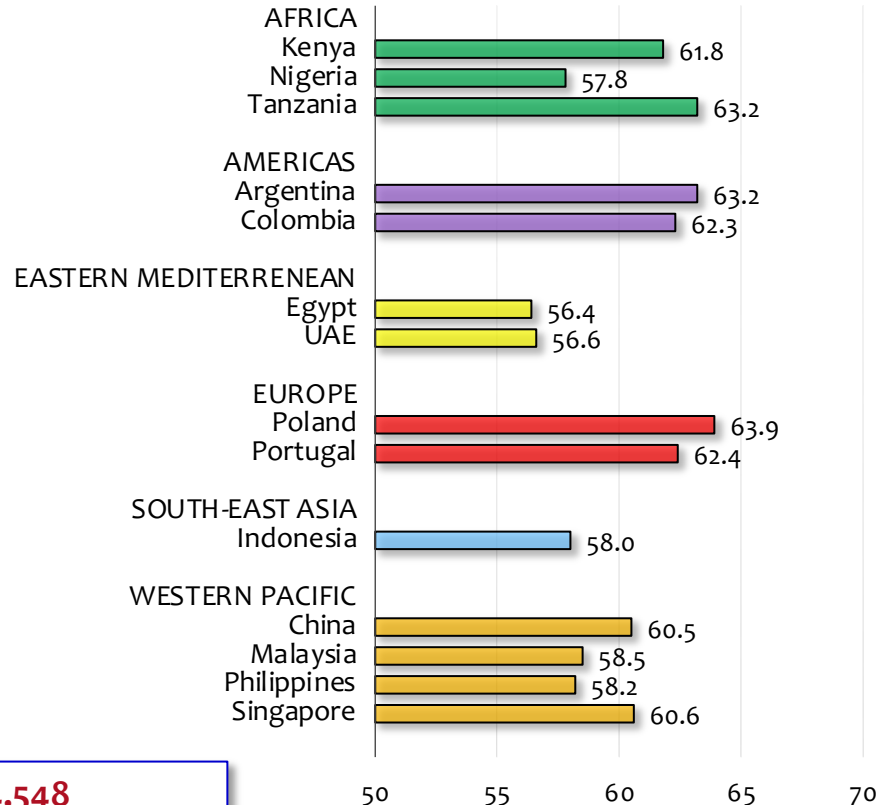


Distribution of sex and age at interview

% Female



Mean age

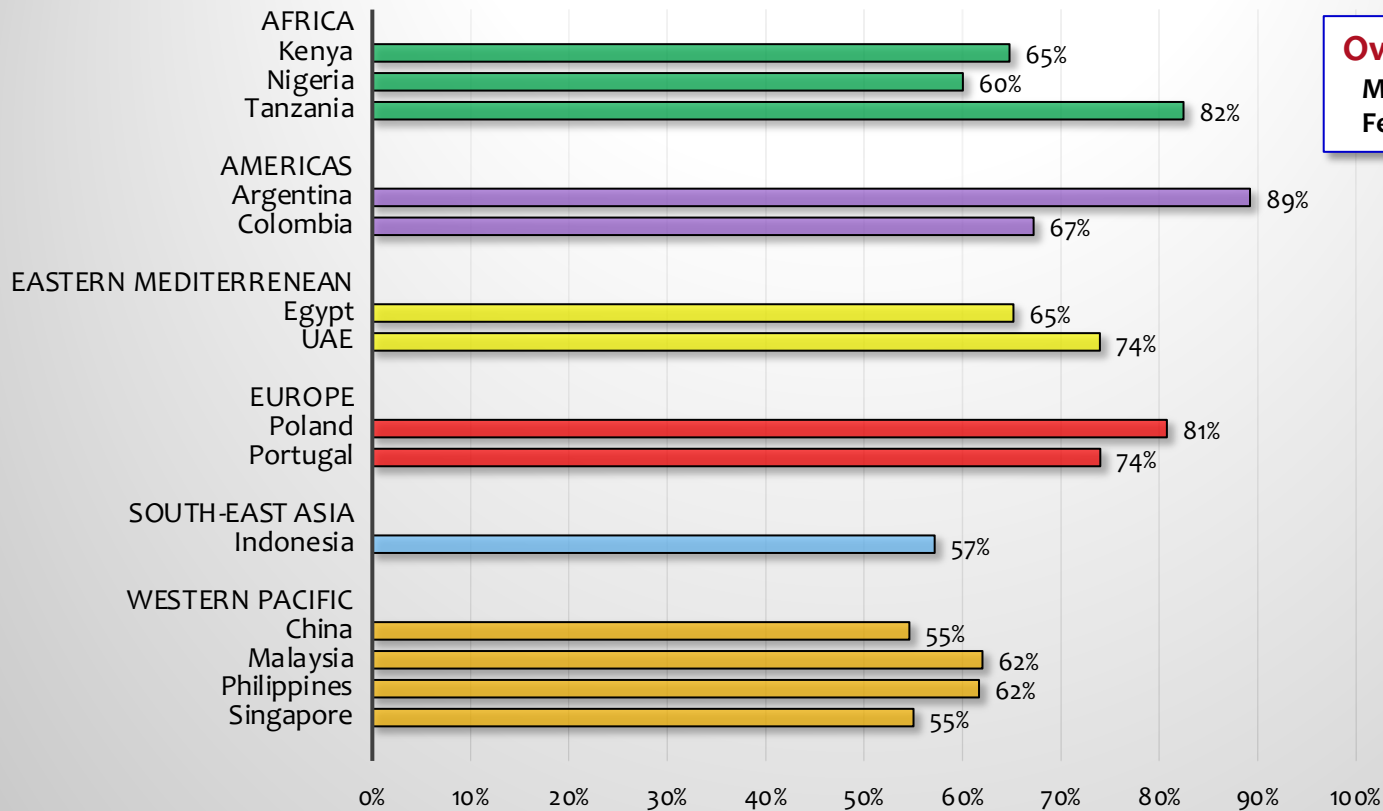


Overall N=4,548

Mean (SD) age 60 (10.3) years

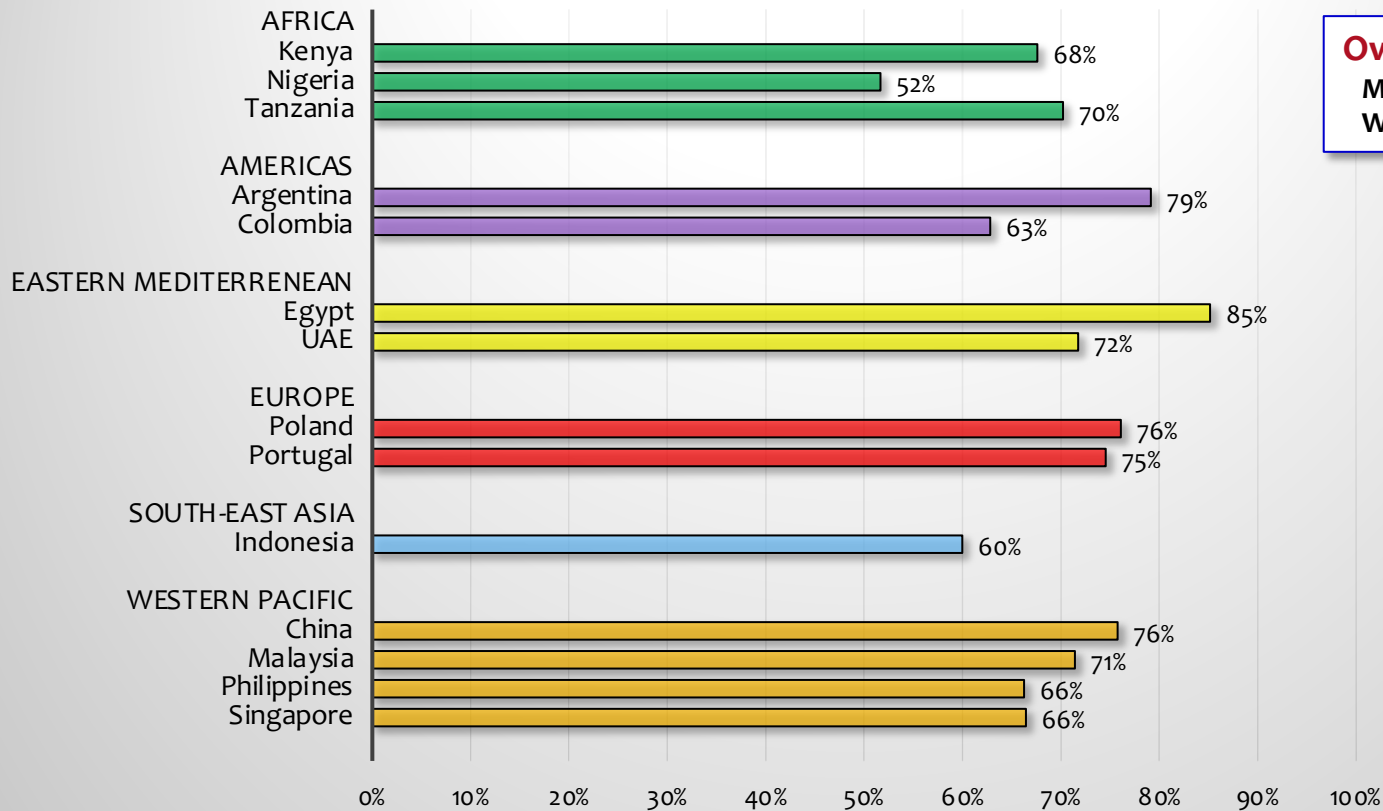
Female N=961 (21.1%)

Prevalence of BMI ≥ 25 kg/m²



Overall 69.7% (63.0-75.7)
Males 71.6% (65.9-76.6)
Females 64.7% (55.2-73.2)

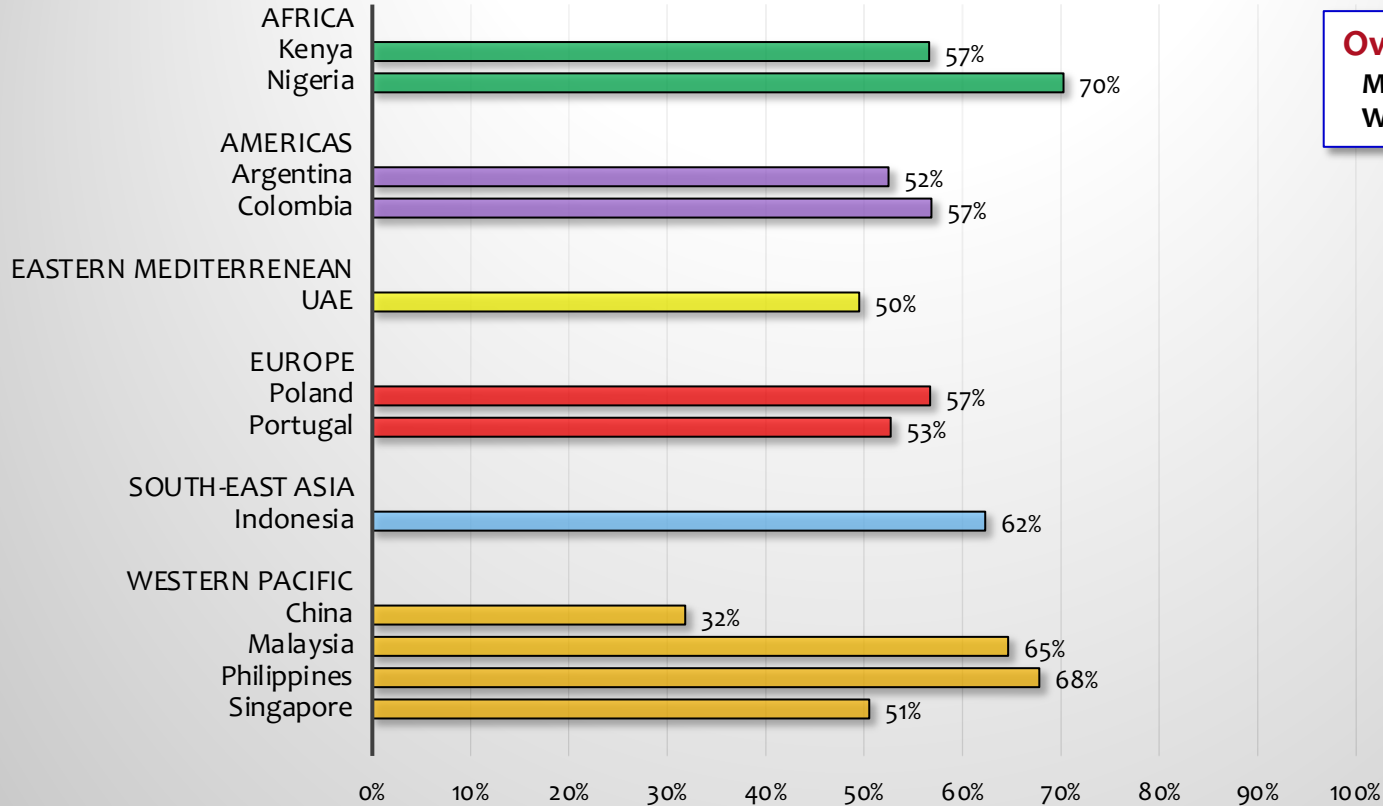
Prevalence of central overweight*



Overall 71.9% (67.3-76.1)
Men 71.5% (66.5-76.1)
Women 72.5% (67.0-77.4)

*Waist circumference $\geq 80/94$ cm for women/men (South Asian and Chinese men ≥ 90 cm)

Prevalence of eGFR < 90 ml/min/1.73m²

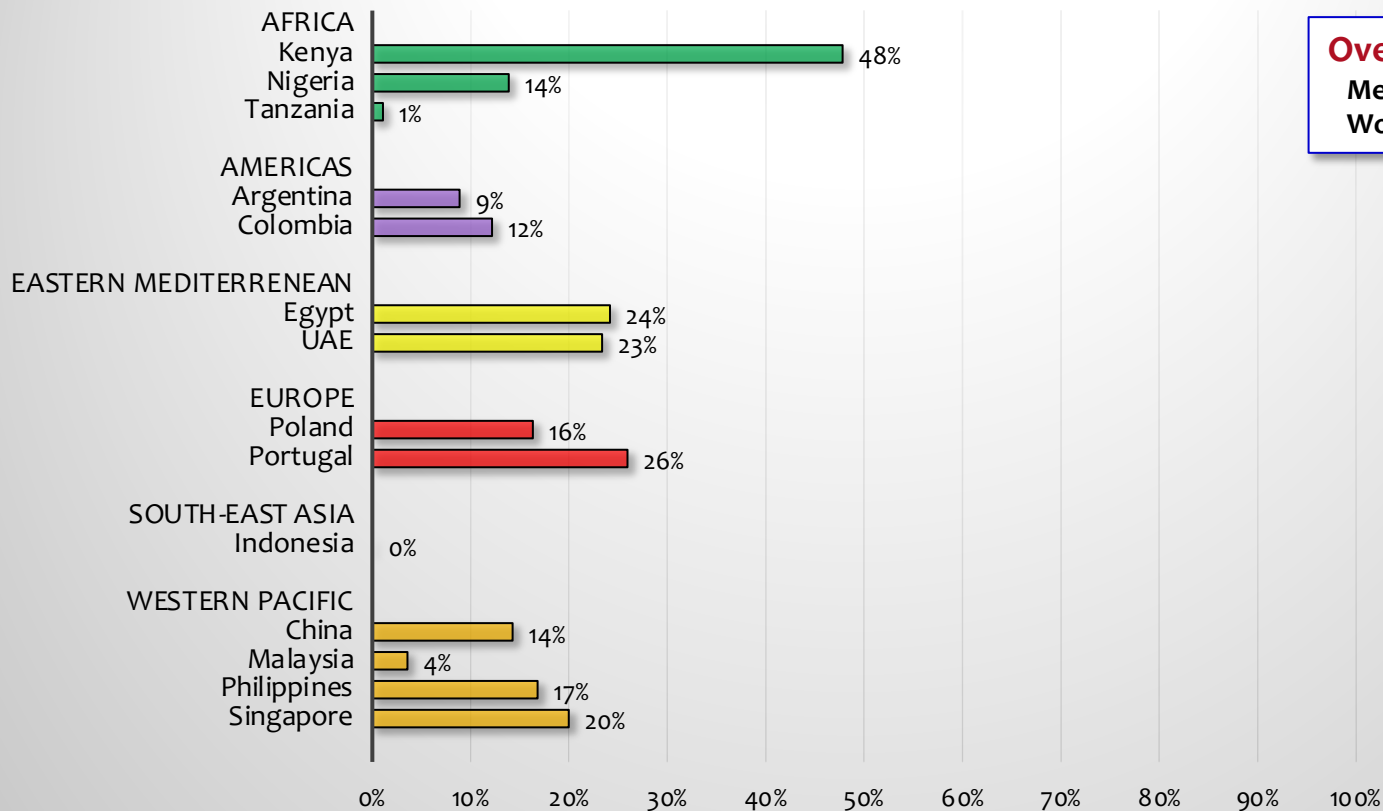


Overall 57.2% (51.5-62.7)

Men 63.8% (57.1-70.1)

Women 33.9% (28.1-40.3)

Medication use: SGLT2 inhibitors

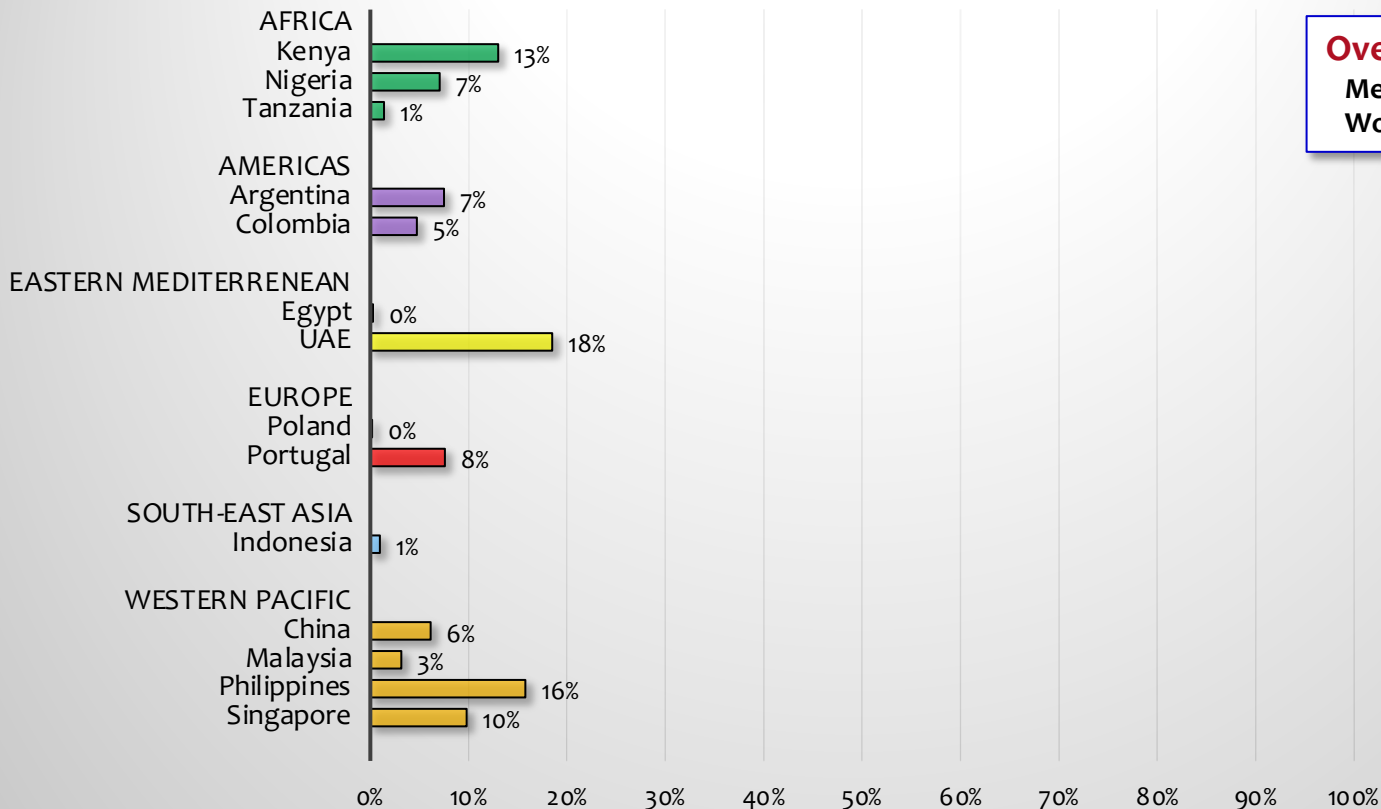


Overall 11.4% (5.5-22.3)

Men 10.9% (5.5-20.5)

Women 14.4% (7.7-25.2)

Medication use: Incretins



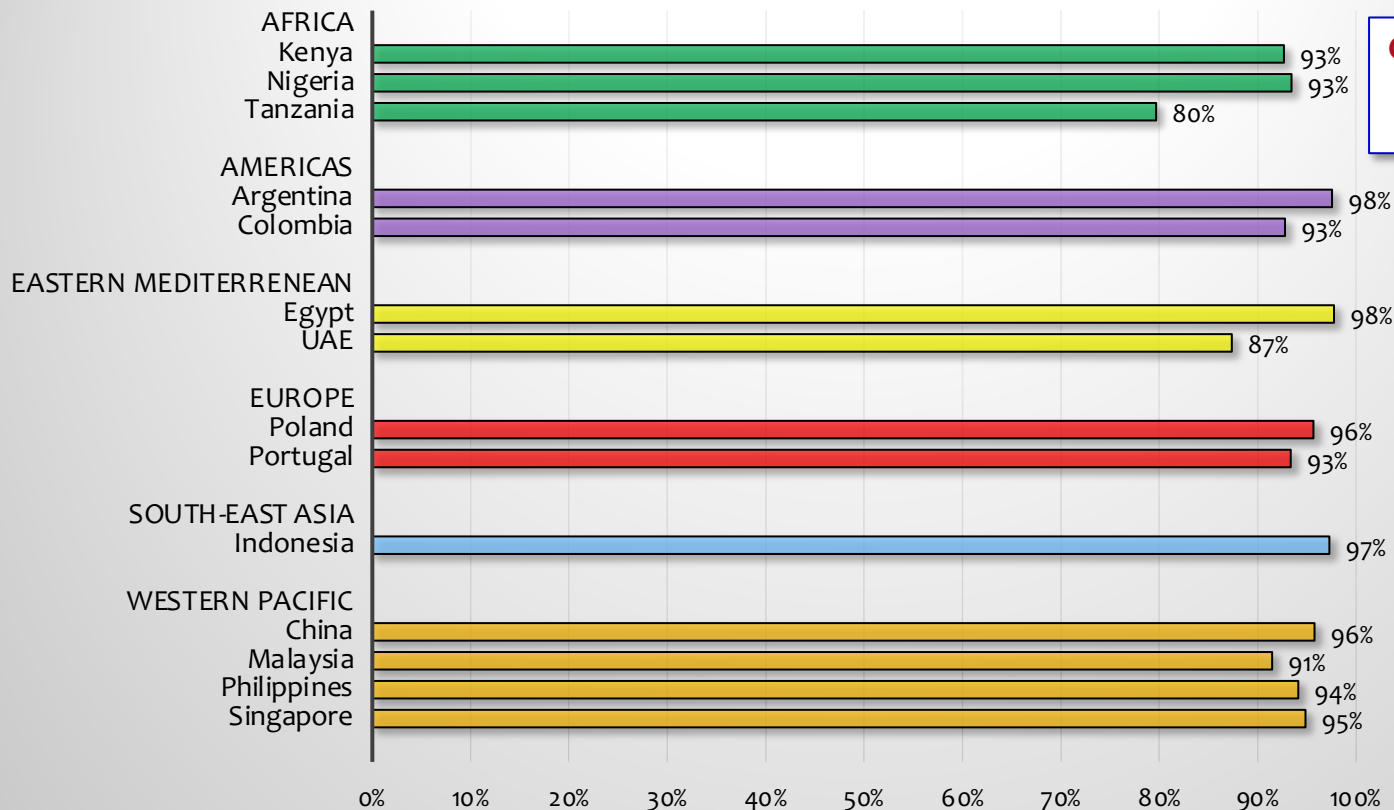
Overall 4.4% (2.2-8.6)

Men 4.0% (2.2-7.3)

Women 6.1% (3.1-11.6)



Medication use: Antiplatelets

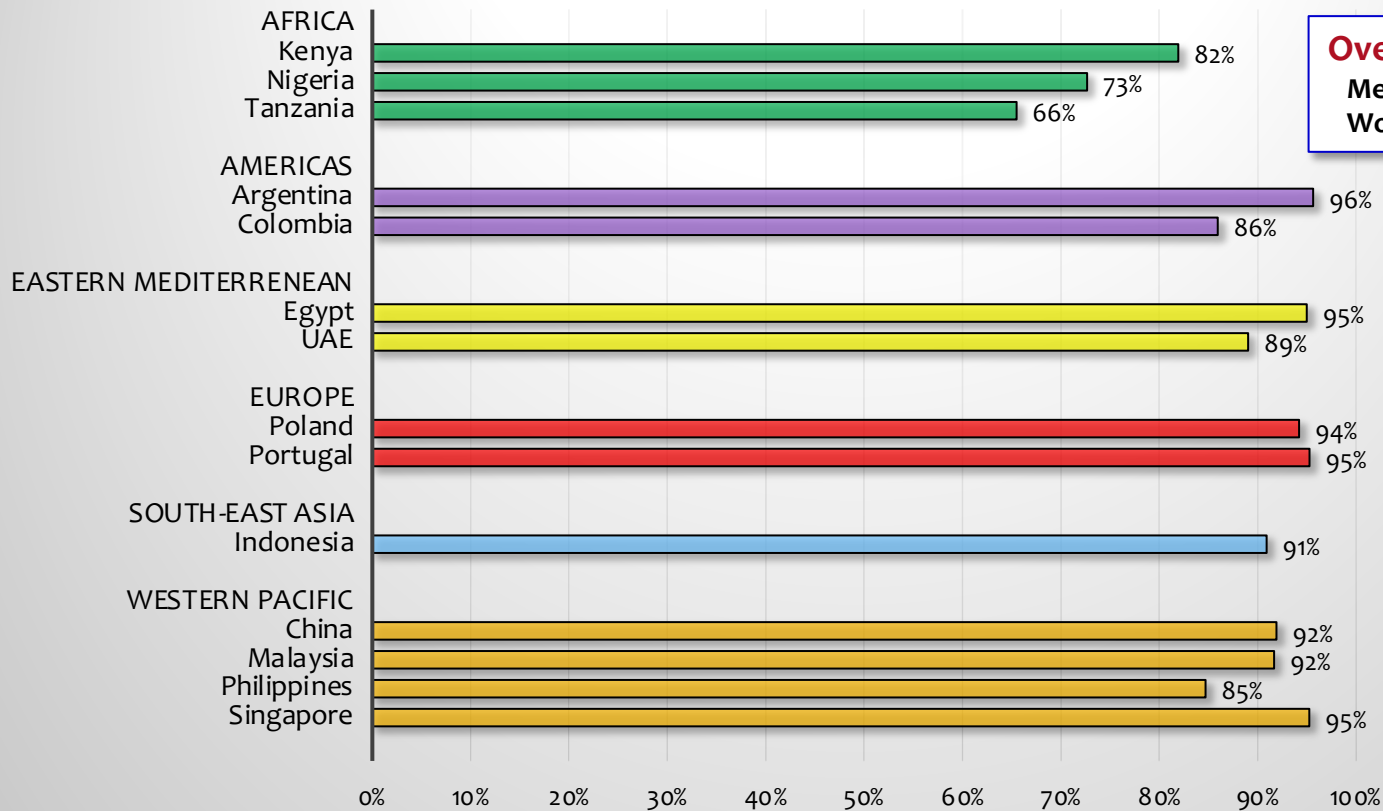


Overall 94.2% (90.7-96.0)

Men 94.9% (92.0-96.7)

Women 93.1% (90.7-94.9)

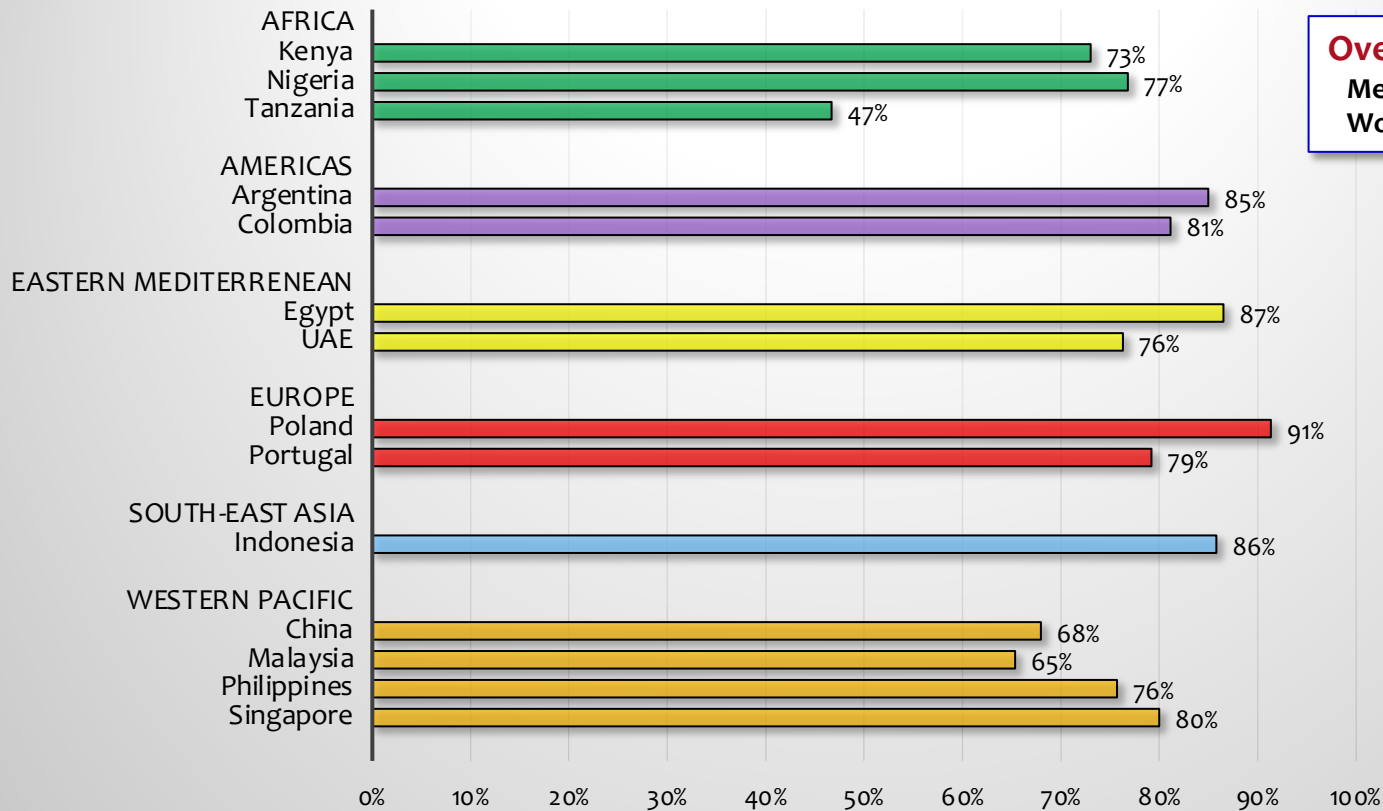
Medication use: Lipid-lowering drugs



Overall 90.0% (84.9-93.5)
Men 89.3% (83.6-93.2)
Women 91.8% (87.1-94.9)

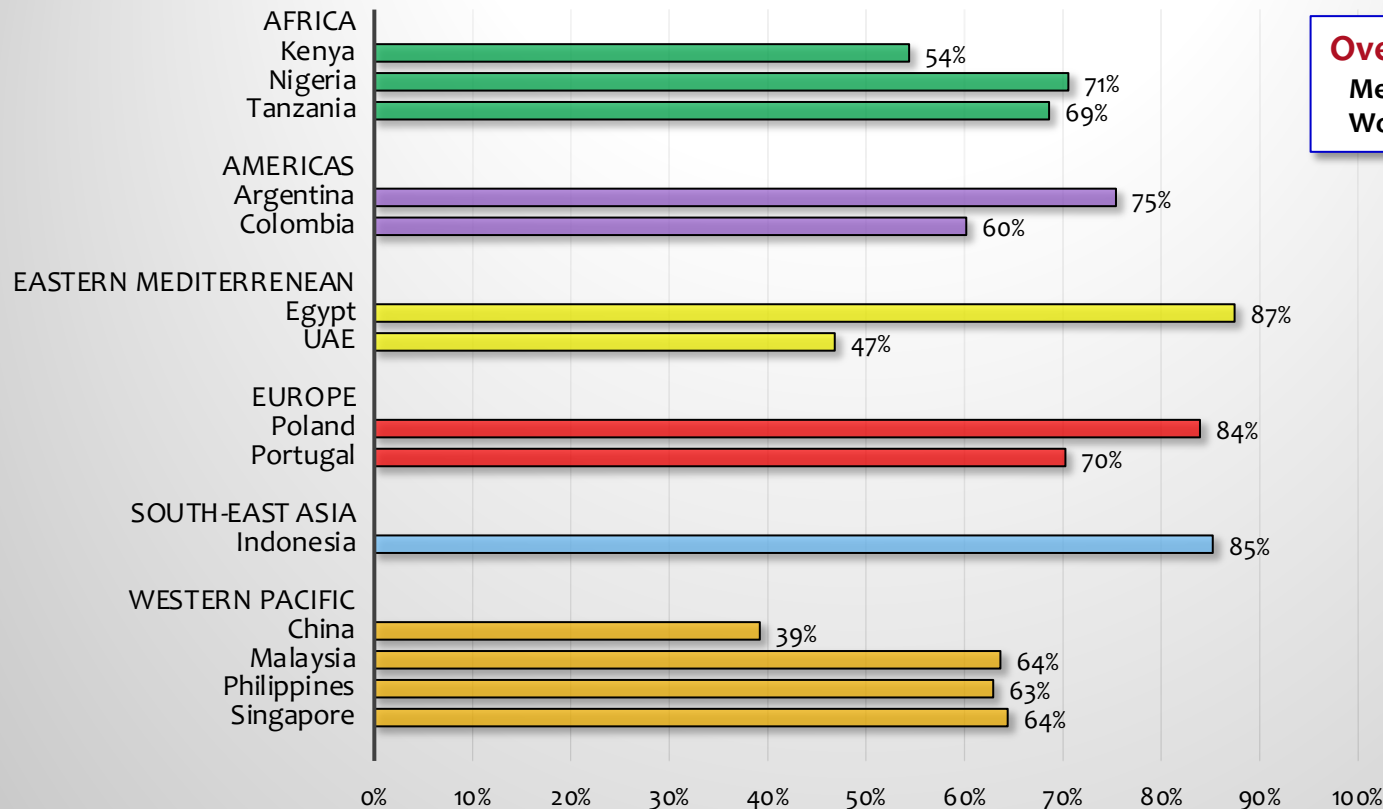
*Statins, fibrates, nicotinic acid, cholesterol absorption inhibitors, PCSK9 inhibitors, resins or a fixed-dose combination

Medication use: Beta-blockers



Overall 78.5% (72.1-83.7)
Men 80.0% (73.7-85.1)
Women 75.2% (68.2-81.1)

Medication use: ACE inhibitors/ARBs



Overall 67.9% (59.2-75.5)

Men 67.4% (58.8-75.1)

Women 68.2% (59.0-76.1)

- All prevalences are **standardized** for age and sex (according to direct method)
- **Precision** → overall & sex-specific estimates shown with 95% CI
- **Clustering** of patients within countries are accounted for (meta-analytic approach)
→ wider confidence intervals
- **Biochemical analyses:** Central laboratory THL, Helsinki
China, Indonesia, UAE, Egypt: local laboratories
→ Lab standardization: conversion formulas*

**from Deming regression models (intercepts and slopes calculated according to orthogonal least squares approach; variances and confidence intervals estimated by using jackknife method)*