

# **Reducing CNCD Morbidity and Mortality Using Blood Pressure and Diabetes as Entry Points**

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**Is there justification to change the single risk factor approach? Yes**

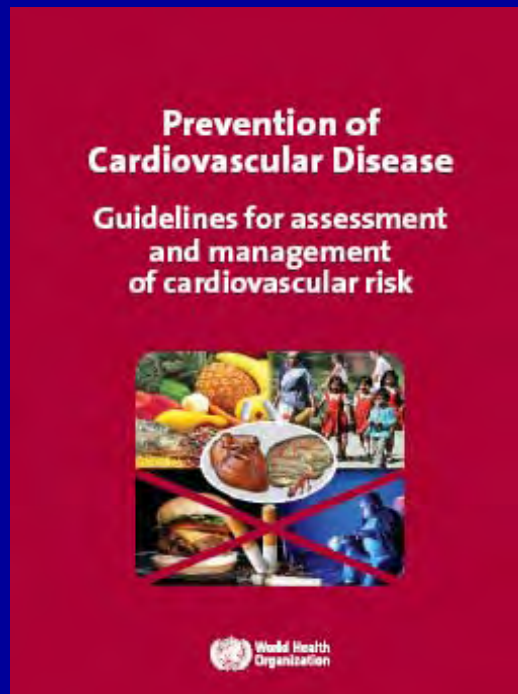
**How can this be operationalized ?**

**What has been the experience of countries that have adopted the approach in EURO, WPRO, AFRO, SEARO, EMRO**

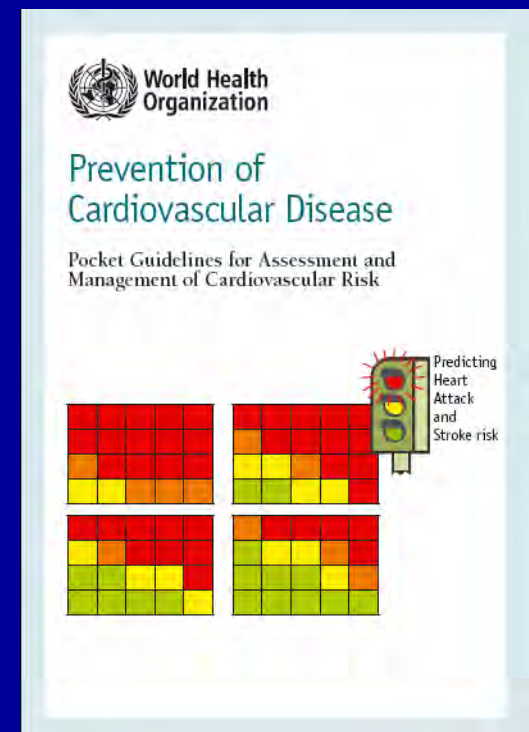


# Guidelines with Risk Prediction charts Using BP or BG as Entry Points

## Full guidelines



## Pocket version



- **All who need treatment should be treated**
- **Resources limited in most settings**
- **Match the nature and intensity of interventions with absolute risk of a heart attack or stroke**
- **Low risk does not = no risk**
- **Low risk group SHOULD NOT be ignored**

- **Outcomes of Diabetes patients beyond cardiovascular risk**
- **CV Risk control (BP, BS, lipids)**
- **Nephropathy, Neuropathy, retinopathy, foot care**
- **Risk of people with Diabetes**



# **What is it for ?**

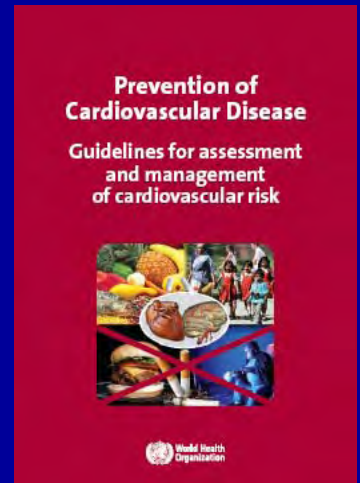
**Prevent cardiovascular disease  
(heart attacks, strokes, heart failure)**

**by**

- Assessment and reduction of CVR associated with raised blood pressure**
- Assessment and reduction of CVR of diabetics (Majority of diabetic deaths are due to CVD)**

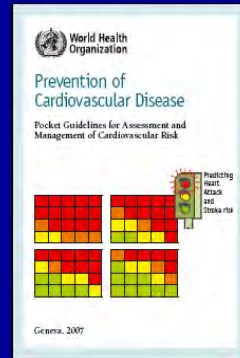
**CVR=cardiovascular risk**

# Methodology



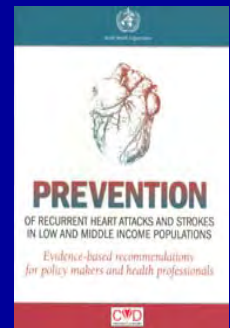
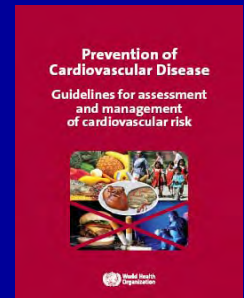
- **Costly, labour intensive, several years**
- **Explicit evidence based methodology**
- **No funding from industry**
- **Experts declare conflicts of interest**
- **Extensive review**

# Pocket guidelines



**Part 1= Reduce cardiovascular risk to prevent coronary/cerebral vascular disease**

**Part II= Reduce cardiovascular risk in those with established coronary/cerebral vascular disease**



What is the added value?

# **Added Value**

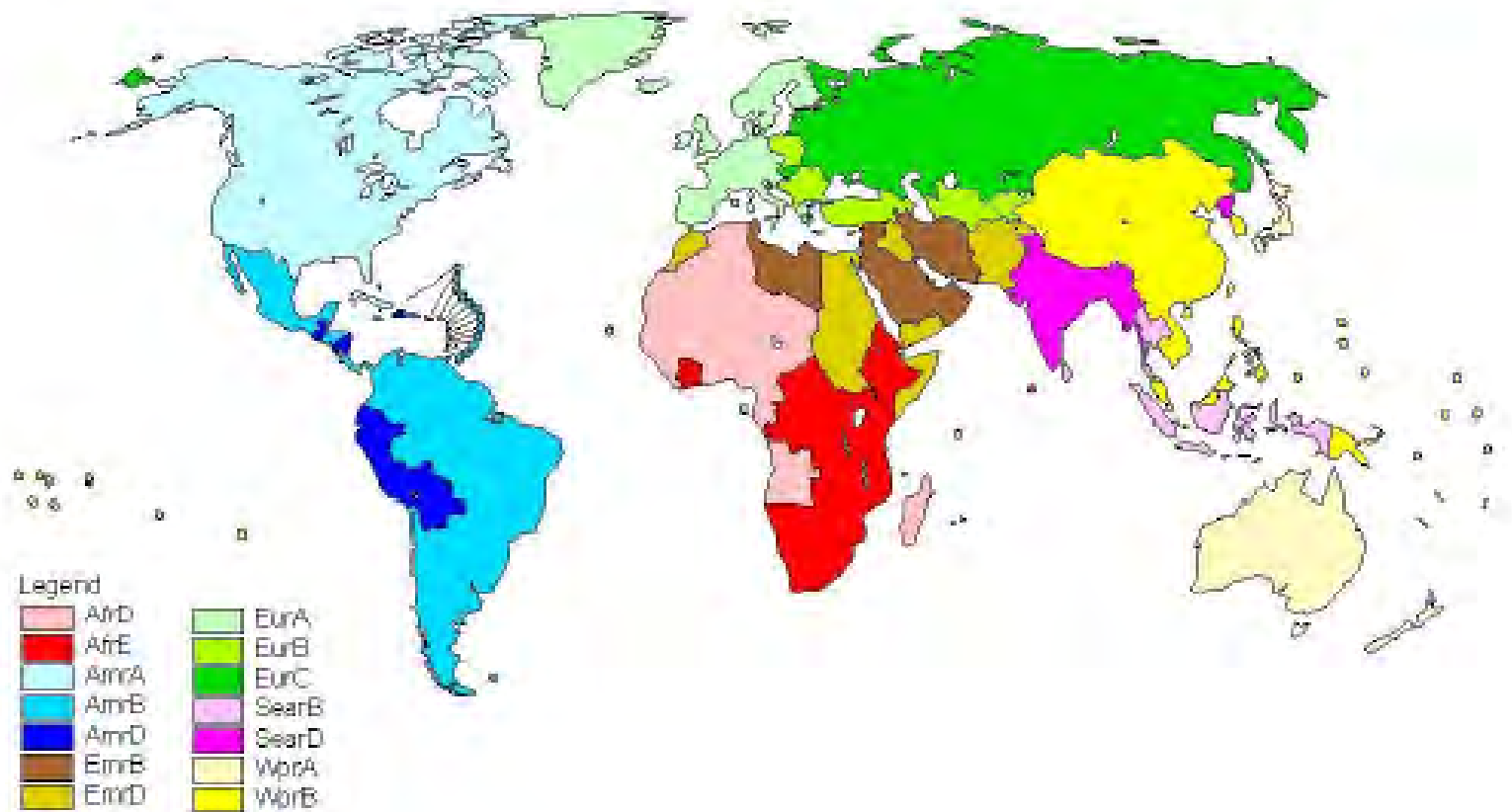
- Make hypertension programs cost effective, affordable, equitable**
- Convey risk of an asymptomatic disease to people/community**
- Integrates single risk factor approaches**
  - (hypertension /diabetes/hyperlipidemia)**
- Match action & resources (countries can determine cut off for treatment )**

# **Single Risk Factor Approach**

- Single RF approach works when RF are markedly high**
- Commits patients with a small CVR to drug Rx while neglecting those with overall high risk.**
- Does not take into account the continuous relationship between BP BC BS and CVR**

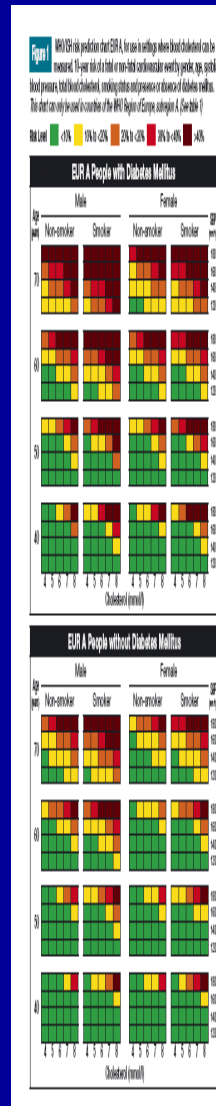
How was it developed ?

# WHO Subregions



# WHO/ISH Risk Prediction Charts

- Charts for 14 WHO epidemiological subregions
- Each subregion has a group of countries
- Only one chart is applicable to any country
- Not for countries with existing risk charts
- CD in the full GL contain all charts
- Each pocket GL contain charts for one WHO region (AFRO, AMRO, EURO, SEARO, EMRO, WPRO)
- 14 charts with cholesterol and 14 without
- English version for AMR B countries  
(will explore )



# WHO/ISH Risk Prediction Charts

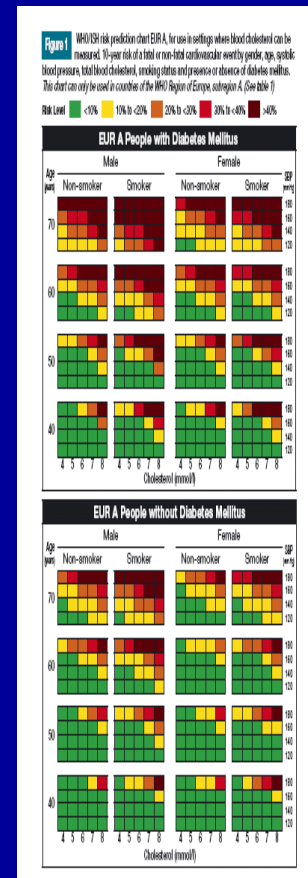
Predict 10-year risk fatal/non-fatal vascular events

Charts use easy- to- measure variables

Chart with /without diabetes

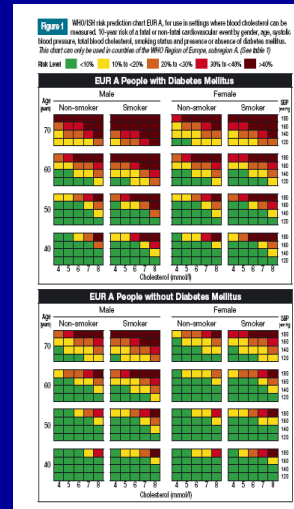
Age, M/F, SBP, smoking, cholesterol

Age, M/F, SBP, smoking



# WHO/ISH Risk Prediction Charts

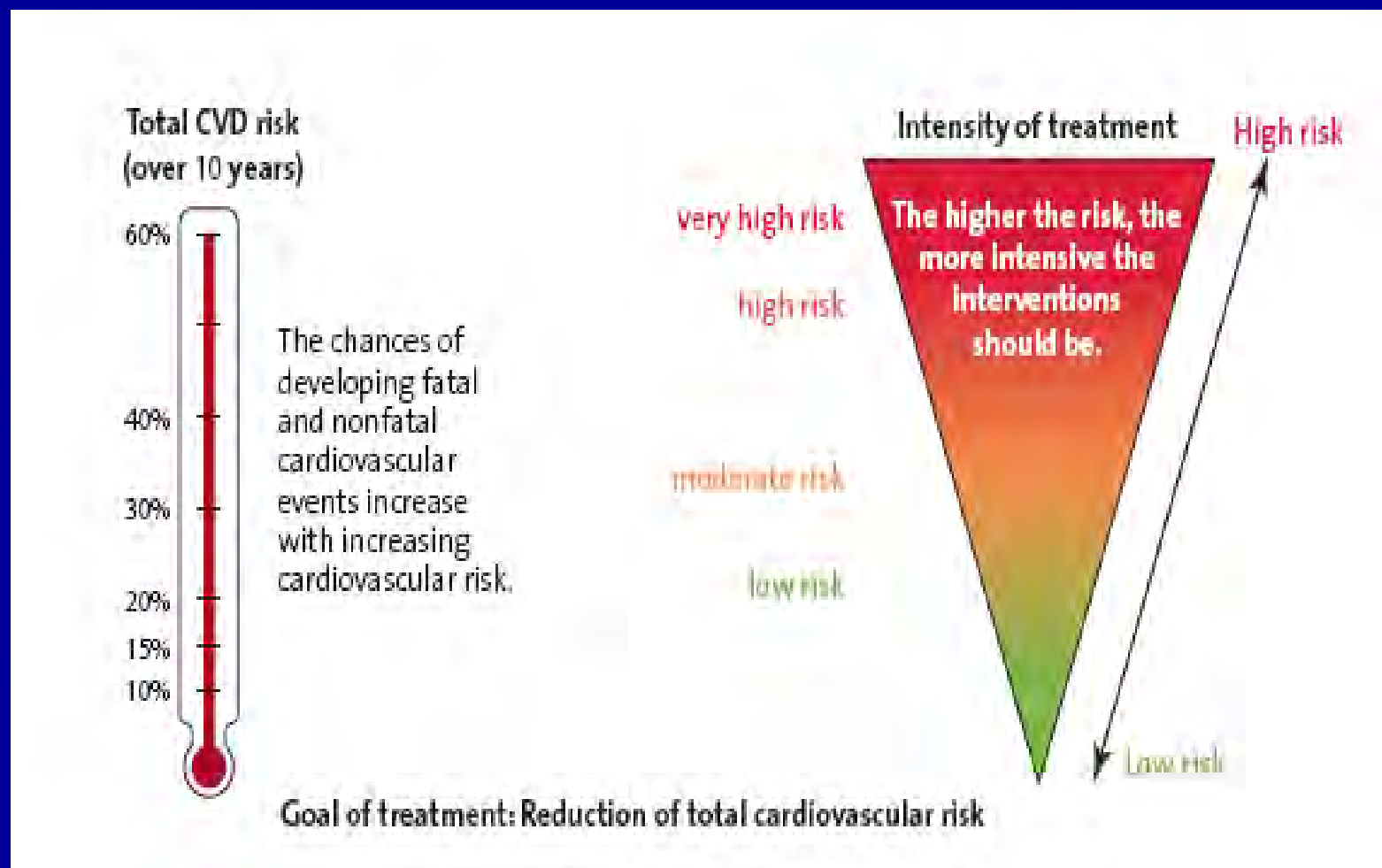
- Modeling available data
- Cohort data not available for LMIC
- Accurate enough for risk stratification / clinical use
- Prediction accuracy will be refined when more data are available in countries
- Adding more variable would increase accuracy but reduce utility/cost-effectiveness for LMIC



*This is a real breakthrough ... primary healthcare workers now have a new simple tool to assess and manage people at risk of heart attacks and strokes . This brings cardiovascular care to the places and people who need it most.`*

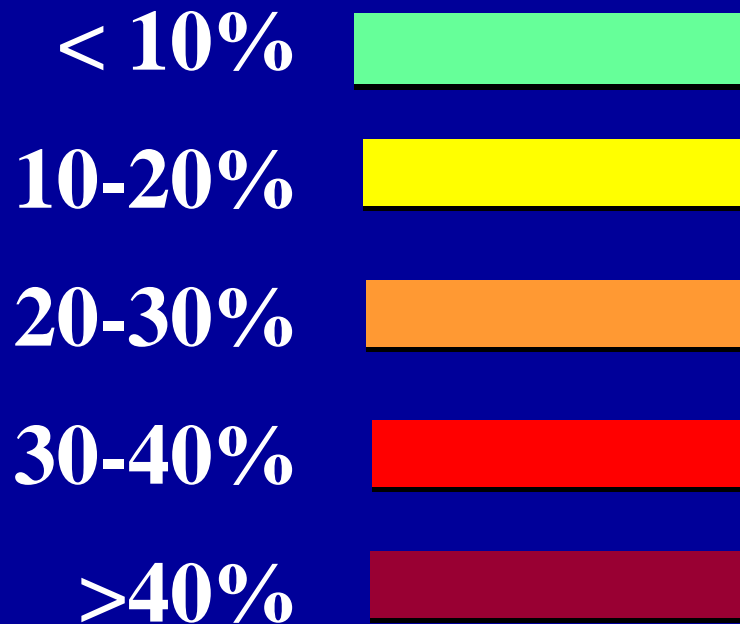
**Dr. Margaret Chan**  
**Director General, WHO**

# Intensity of intervention should be proportional to the CVD risk



# Cardiovascular Risk Levels

(10-year combined AMI and stroke risk )



# Match Action with Available Resources

National and local governments can decide on the 10 year risk cut off for intensive treatment (e.g. statins)

- High-resource setting >10%
- Medium-resource setting >20%
- Low-resource setting >30%
- Very low-resource setting >40%





**Male 48 yrs**  
**Non smoker**  
**Non diabetic**  
**BP 150/95**  
**TC 5**

**Low risk**  
**.....5%**

**Smaller absolute reduction**

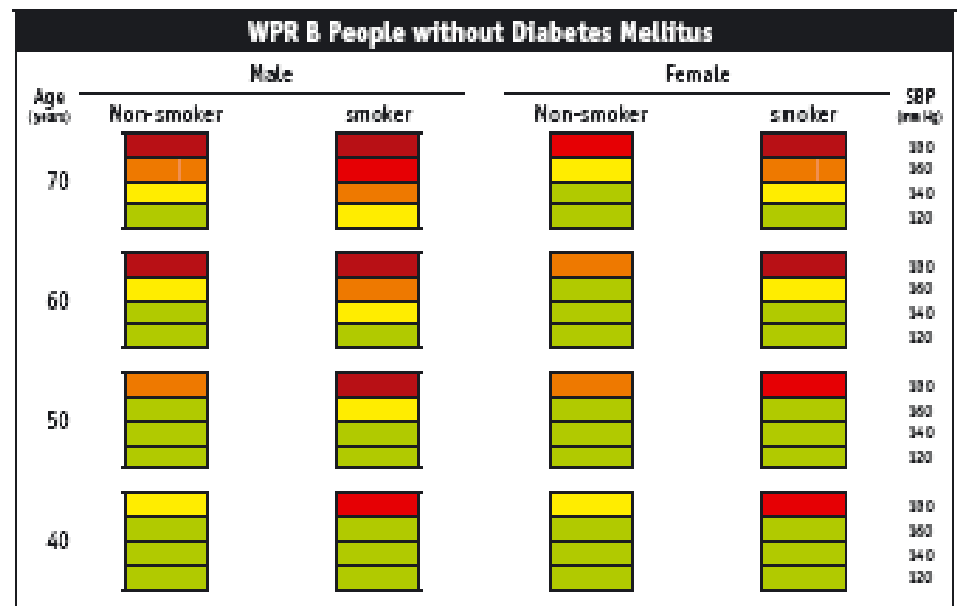
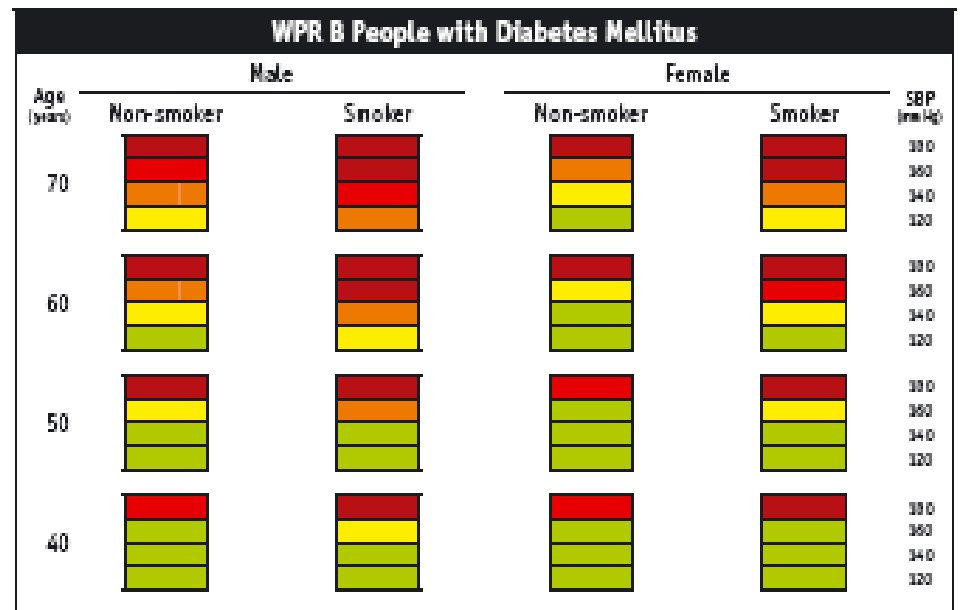
**Male 60 years**  
**Smoker**  
**Non diabetic**  
**BP 155/95**  
**TC 6**

**Medium risk**  
**.....15%**  
**Thiazide**

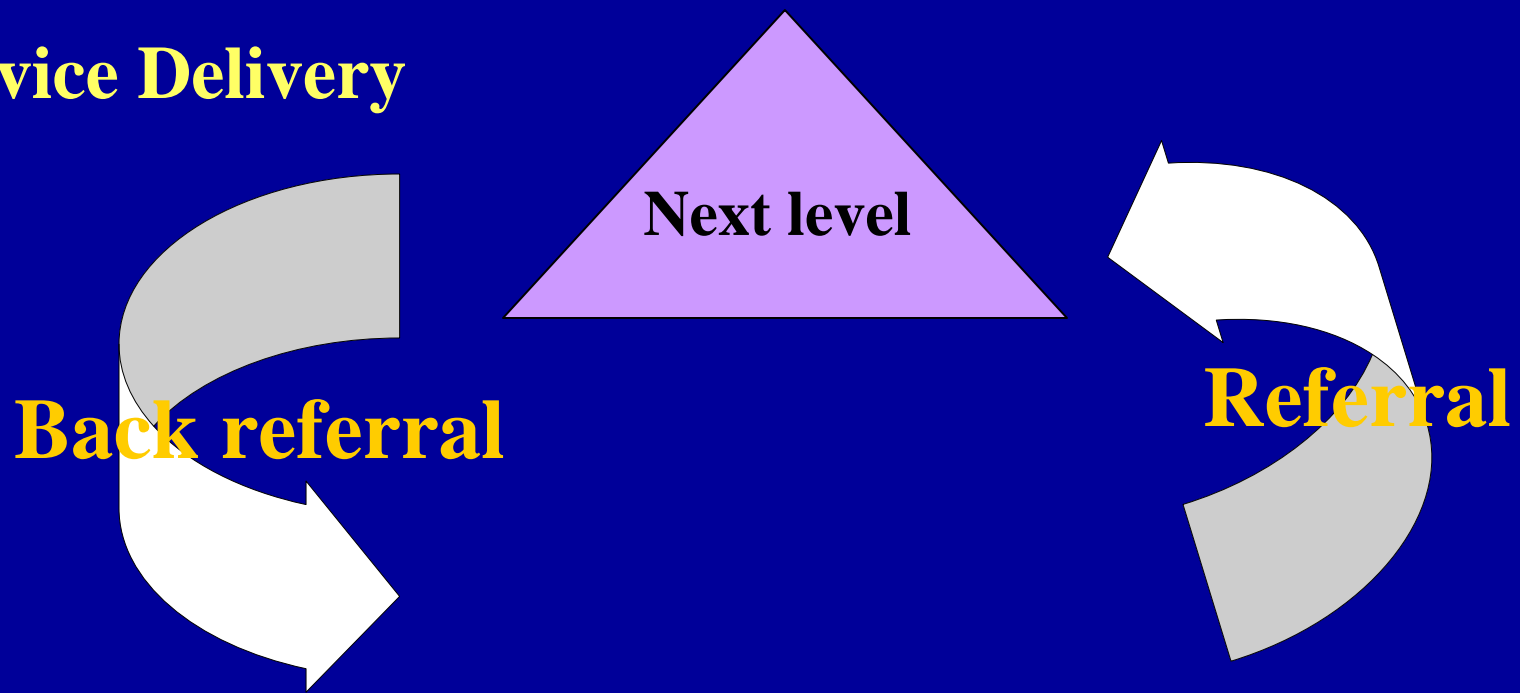
**Higher absolute reduction**

Figure 4. WHO/ISH risk prediction chart for WPR B. 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, smoking status and presence or absence of diabetes mellitus.

Risk Level ■ <10% ■ 10% to <20% ■ 20% to <30% ■ 30% to <40% ■ ≥40%



# Service Delivery



10-<20%

Low

20-<30%

Medium

30-<40%

High

>40%

Very high

**PHC**  
(NPHW)

Very low risk  
Manage in PHC

# Issues

- Focus on elderly
- Accuracy (accurate enough as it is for treatment decisions)
- Risk ? (all people with very high levels of single RF get Rx)
- Validation will refine . If resources allow to be done for specific population (cohort study)
- Risk of those < 40 yrs



*All risk groups need  
non-drug treatment*

- **Low-risk non-drug treatment**
- **Medium -risk add drugs as well**
- **High-risk need intensive drug treatment (aspirin, antihypertensives, statin)**

# Prevention of CVD according to individual total risk

10-year risk of cardiovascular event > 30%	10-year risk of cardiovascular event 20–30%	10-year risk of cardiovascular event 10–20%	10-year risk of cardiovascular event < 10%
<p>Individuals in this category are at very high risk of fatal or nonfatal vascular events.</p> <p>Monitor risk profile every 3–6 months</p>	<p>Individuals in this category are at high risk of fatal or nonfatal vascular events.</p> <p>Monitor risk profile every 3–6 months</p>	<p>Individuals in this category are at moderate risk of fatal or nonfatal vascular events.</p> <p>Monitor risk profile every 6–12 months</p>	<p>Individuals in this category are at low risk. Low risk does not mean “no” risk.</p> <p>Conservative management focusing on lifestyle interventions is suggested<sup>b</sup>.</p>
<p>When resources are limited, individual counselling and provision of care may have to be prioritized according to cardiovascular risk.</p>			





# *Manage as high risk*

- **BP 160-170/100-110**
- **Cholesterol > 8 mmol/l**
- **Diabetes with nephropathy**
- **Established CHD, CeVD, PVD**
- **Target organ damage**
- **Renal failure**

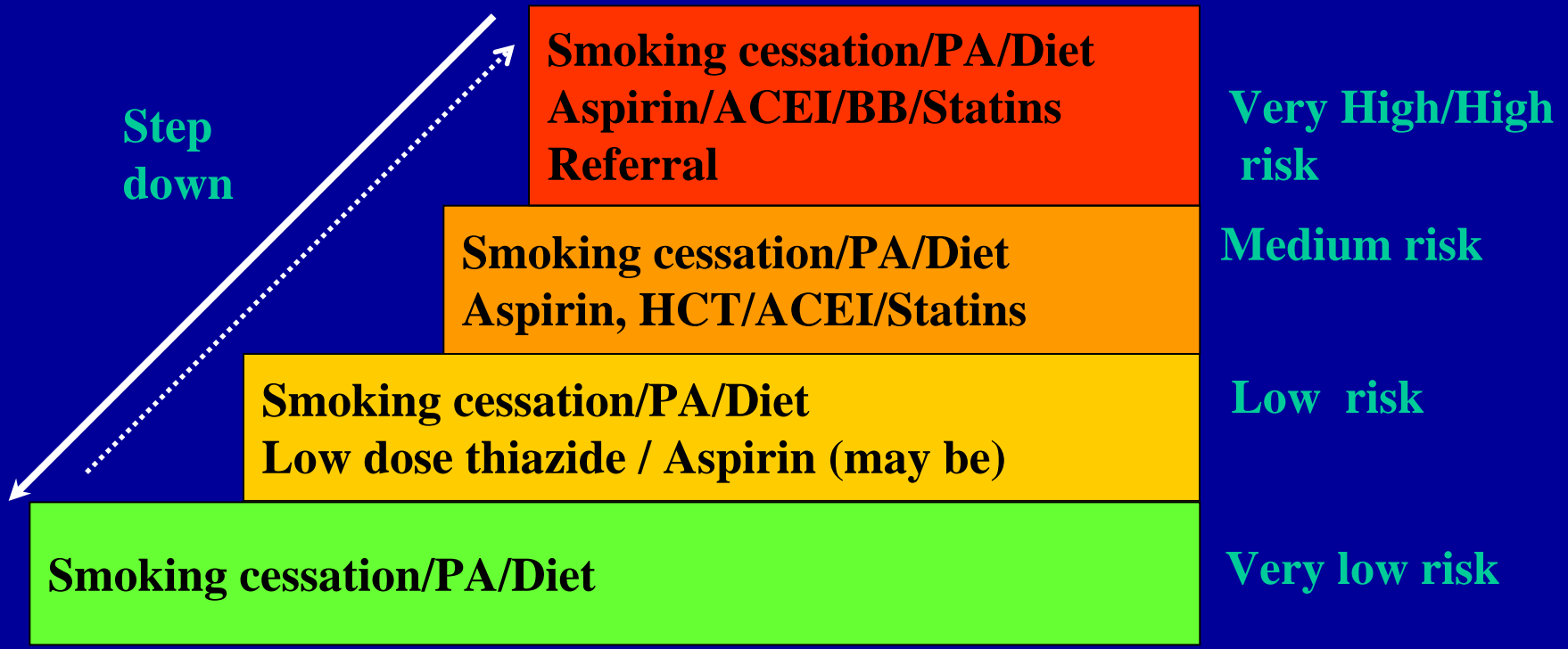
# *Charts underestimate risk*

- **Already on antihypertensives**
- **Family history**
- **Obesity**
- **Raised TG >2 mmol/l**
- **Low HDL <1 mmol/l**
- **Microalbuminuria**
- **Raised homocysteine**





# Simplified standardized care for heart attack and stroke prevention



**GL : Diagnose/grade risk with simple indicators & Rx**

# Practice Points

- **The most cost-effective drug Rx are aspirin and initial low-dose thiazides. Intensive antihypertensive Rx and statins are less cost effective.**
- **If limited resources, first offer aspirin and low dose thiazides to all.**
- **In diabetics, if resources are limited focus mainly on lowering BP and Rx of severe hypoglycemia .**

# *Integrating diabetes and hypertension into primary health care (PHC)*

- **Develop and integrated guidelines for PHC**
- **Use hypertension and diabetes as entry points**



# Integrating Diabetes and Hypertension into PHC

- What can a PHC worker do to prevent diabetic nephropathy?
- What can a PHC worker do to prevent limb amputation in Diabetics (foot care)?
- What can a PHC worker do to prevent diabetic retinopathy?
- What are the referral criteria for a diabetic?
- Diet /physical activity what special advise should be given for Diabetic patients?
- What insulin regimens can be maintained in PHC?
- What are the basic equipment and lab measurements needed in PHC for managing DM?

