



**KDIGO - Controversies Conference**  
**Chronic Kidney Disease as a Global Public**  
**Health Problem: Approaches and Initiatives**  
12-14 October, 2006

**Classification, Surveillance and Public Policy for CKD**  
**Global overview**

**Meguid El Nahas**  
**Sheffield Kidney Institute**  
**UK**



## Preventing **CHRONIC DISEASES** a vital investment

**“The lives of far too many people in the world are being blighted and cut short by chronic diseases such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes.”**



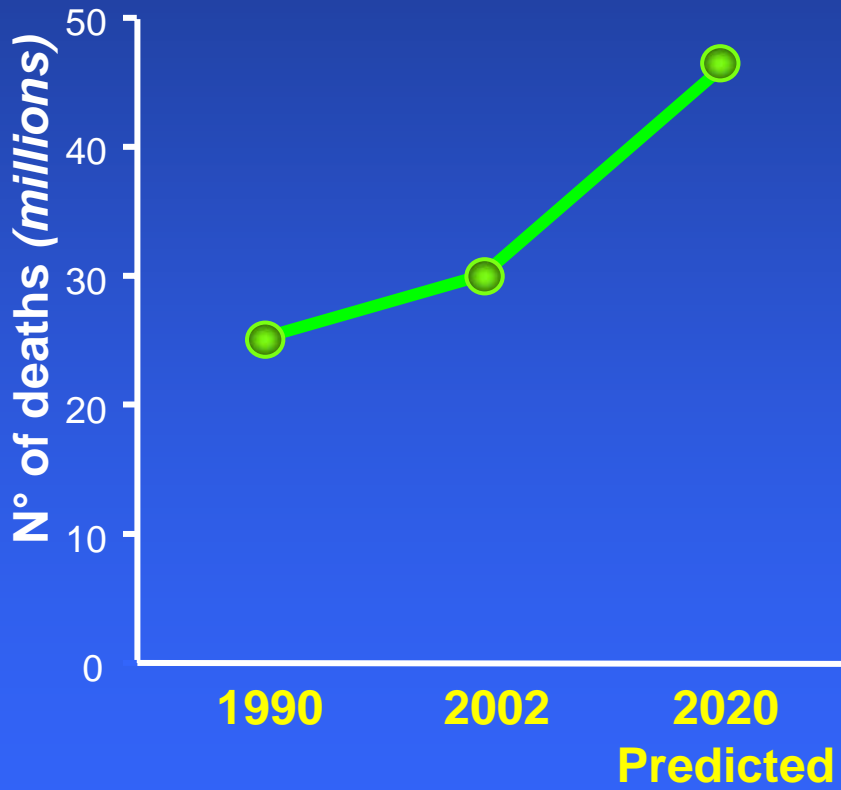
World Health  
Organization



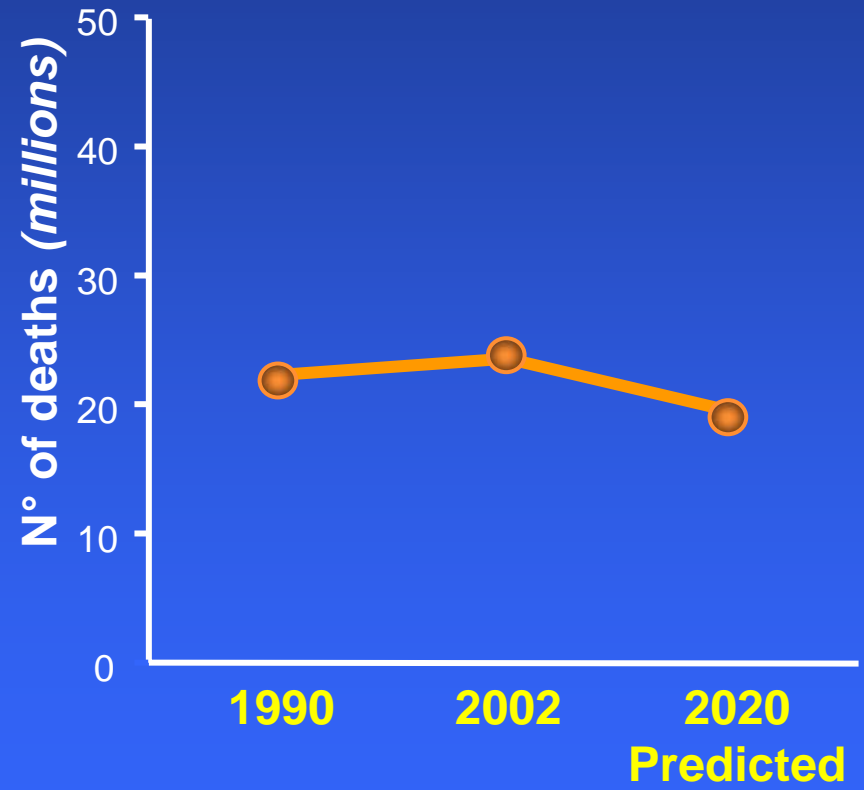
***Global Goal: +2% mortality reduction/year***

## CHRONIC DISEASES DEATHS WORLDWIDE

### Chronic diseases (NCD)

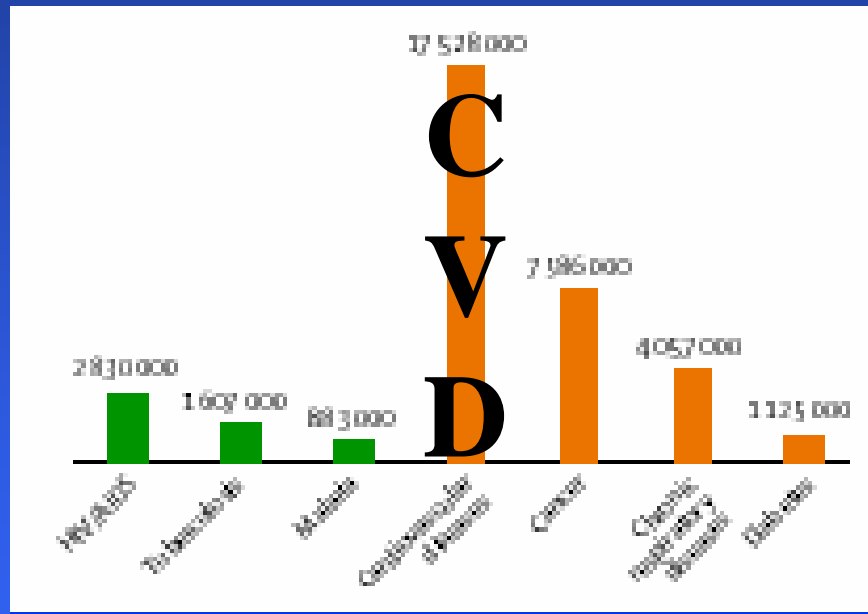


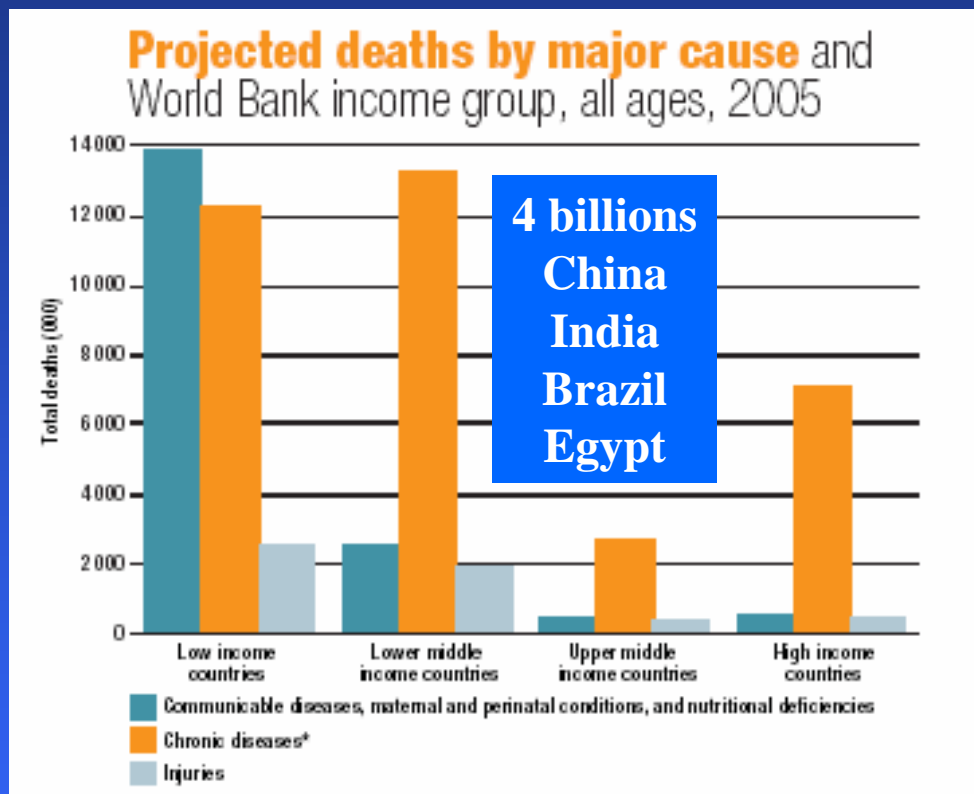
### Communicable diseases



## Projected global deaths (58 million) by major cause 2005

30% CVD = 17,528,000 deaths





Preventing  
**CHRONIC DISEASES**  
a vital investment

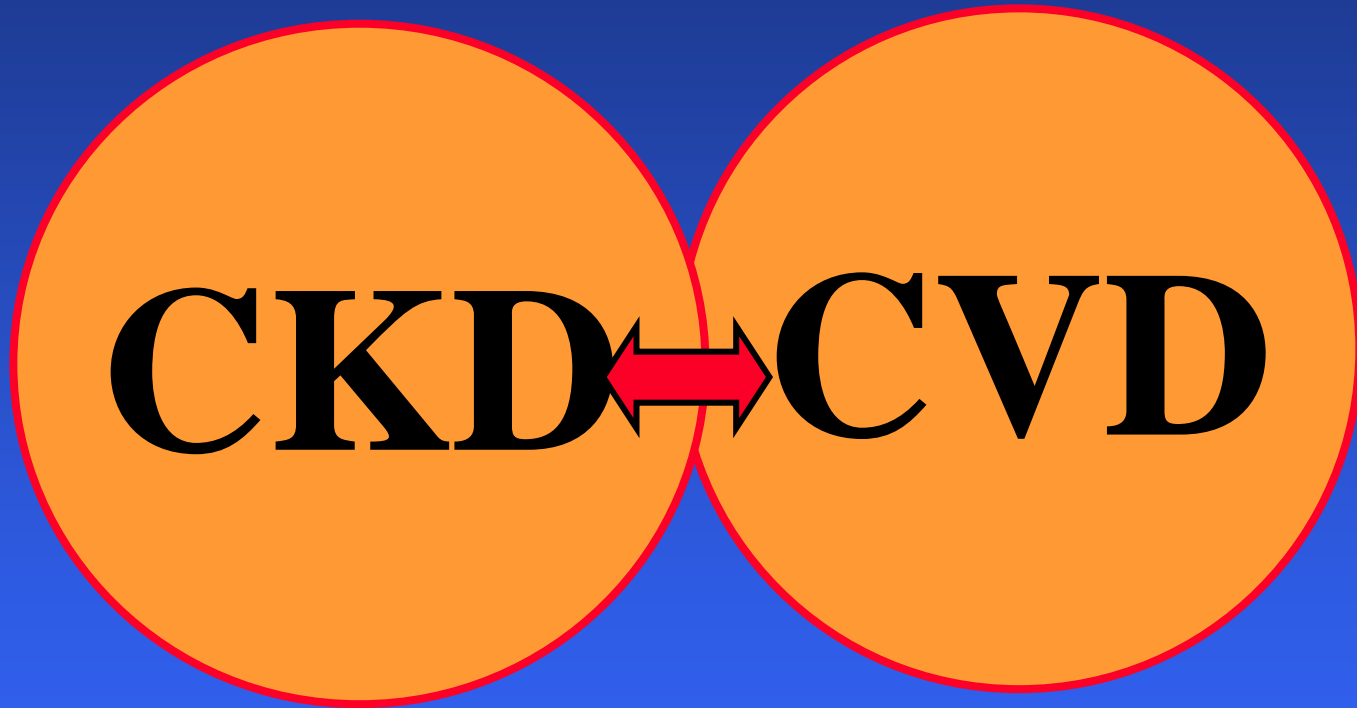
**DCPP**

**CKD??!!**

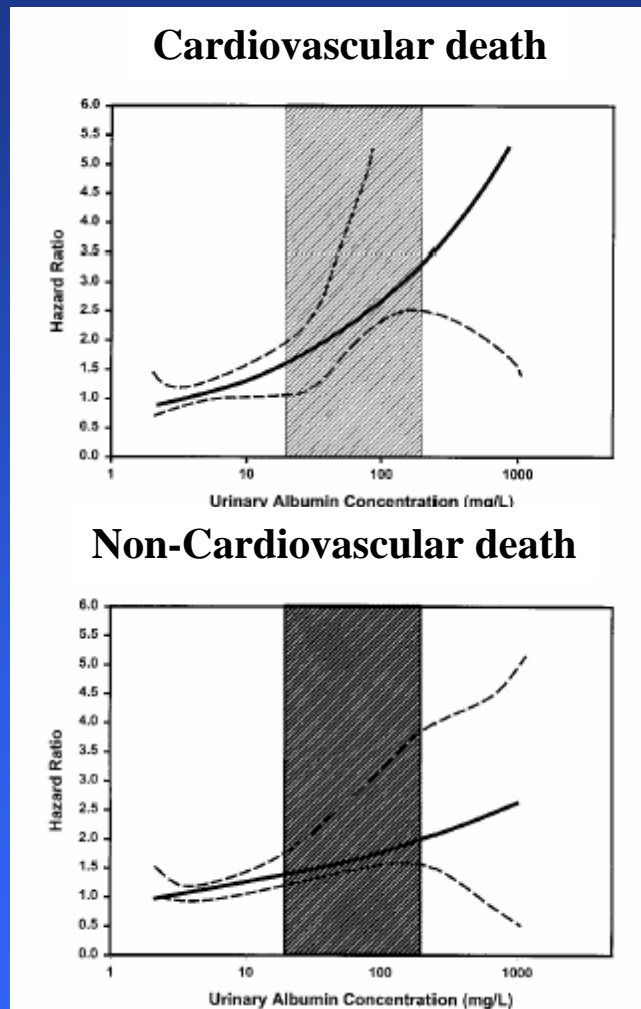


*Global Goal: +2% mortality reduction/year*

# CKD-CVD Complex

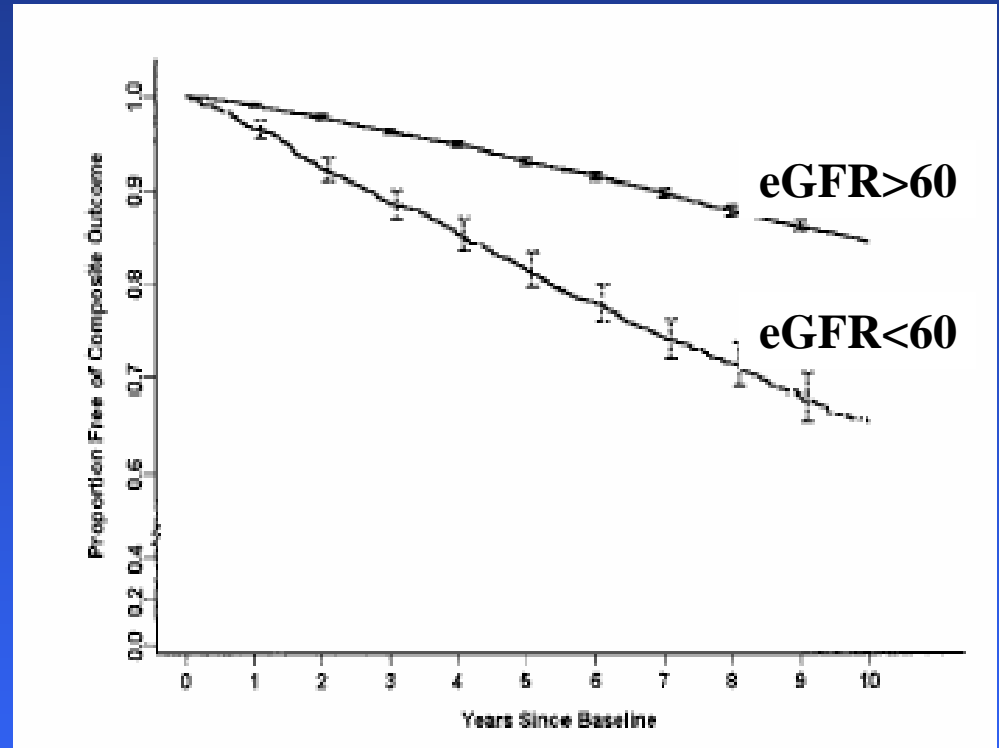
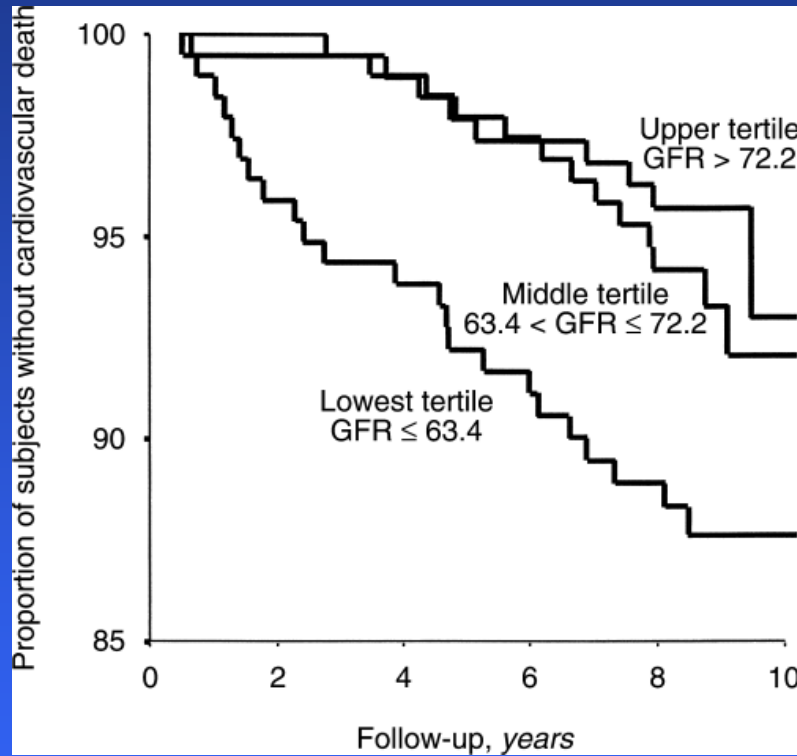


## Albuminuria and CVD Risk





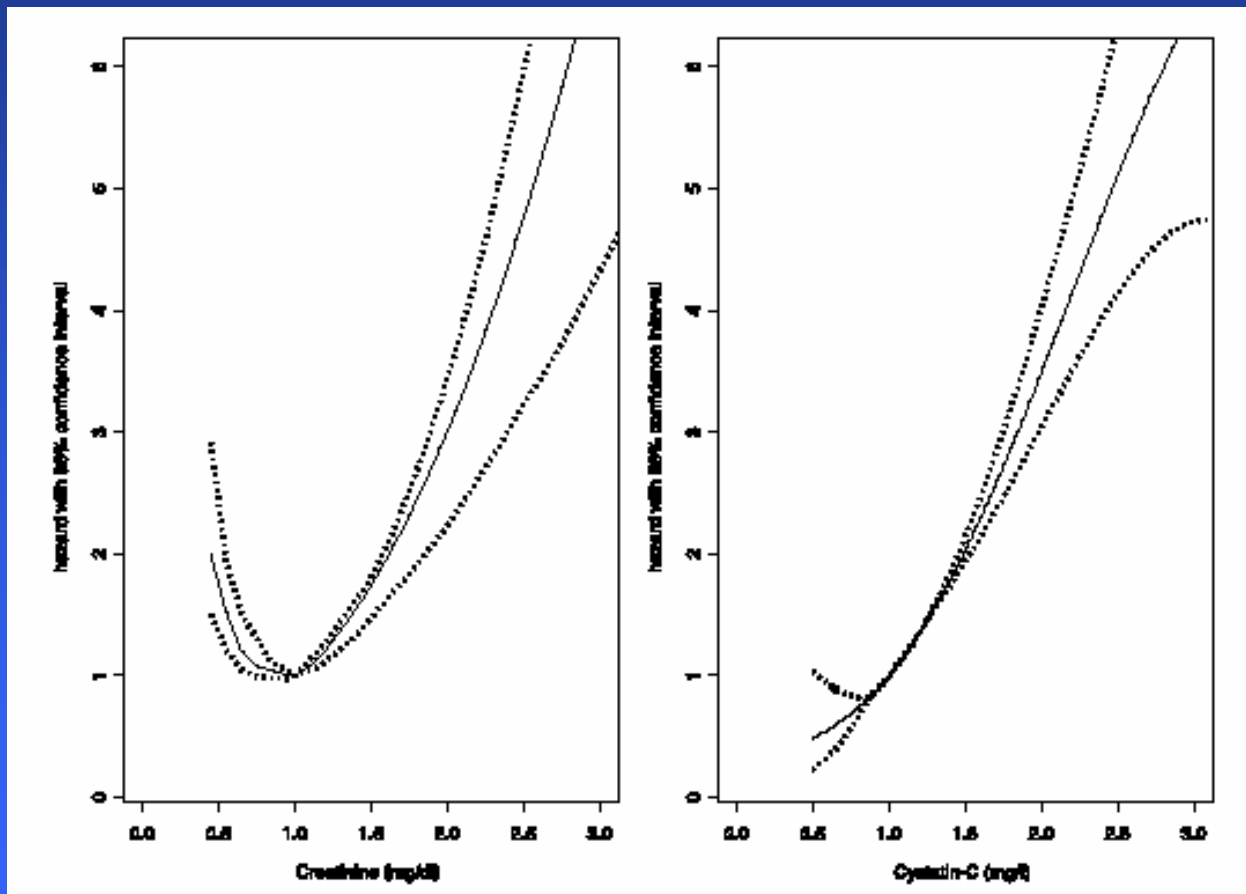
## CKD and CVD Risk

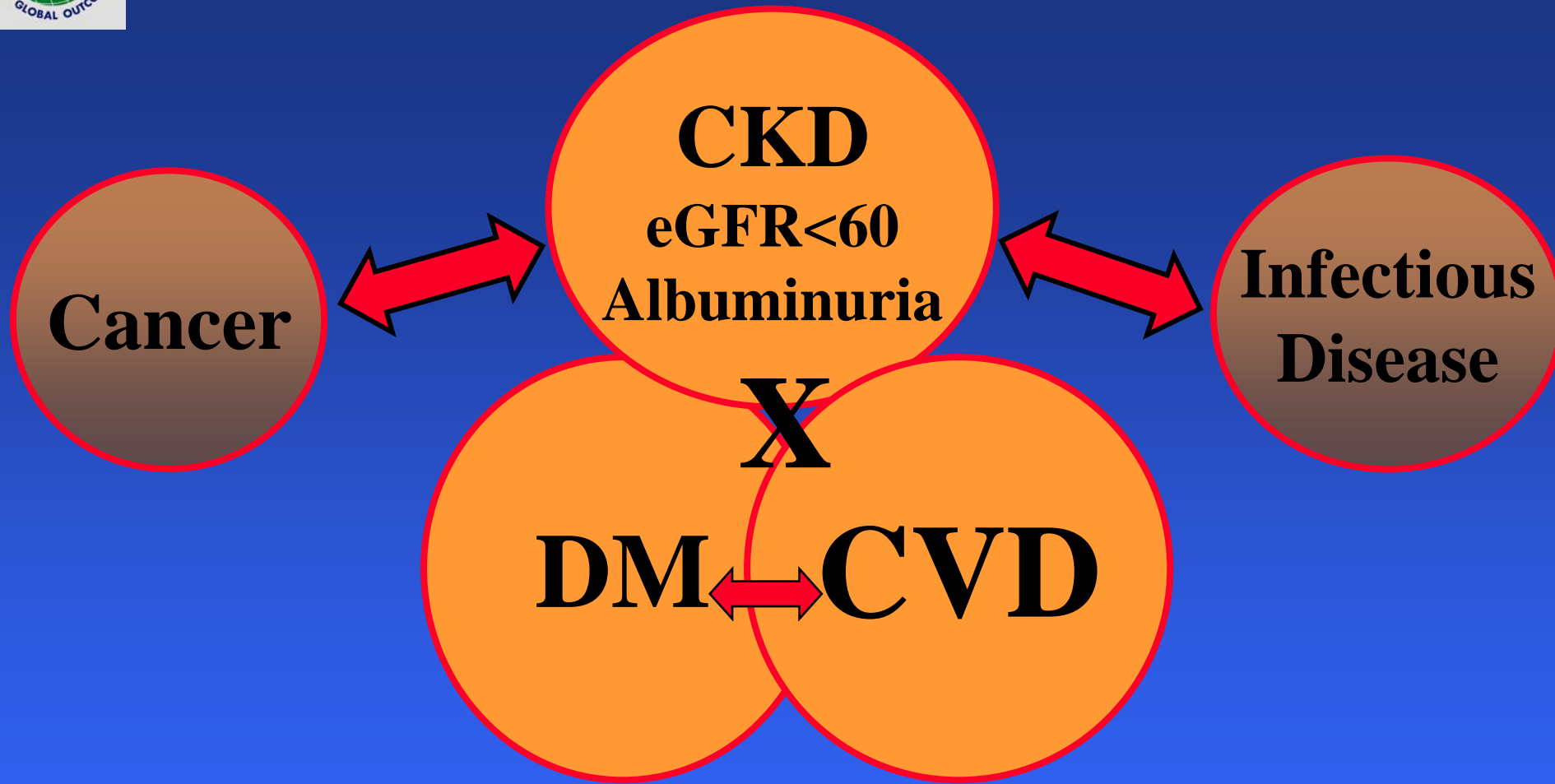


HOORN Study, Henry et al, 2002

Pooled Analysis, Weiner et al, 2004

## CKD All Cause Mortality

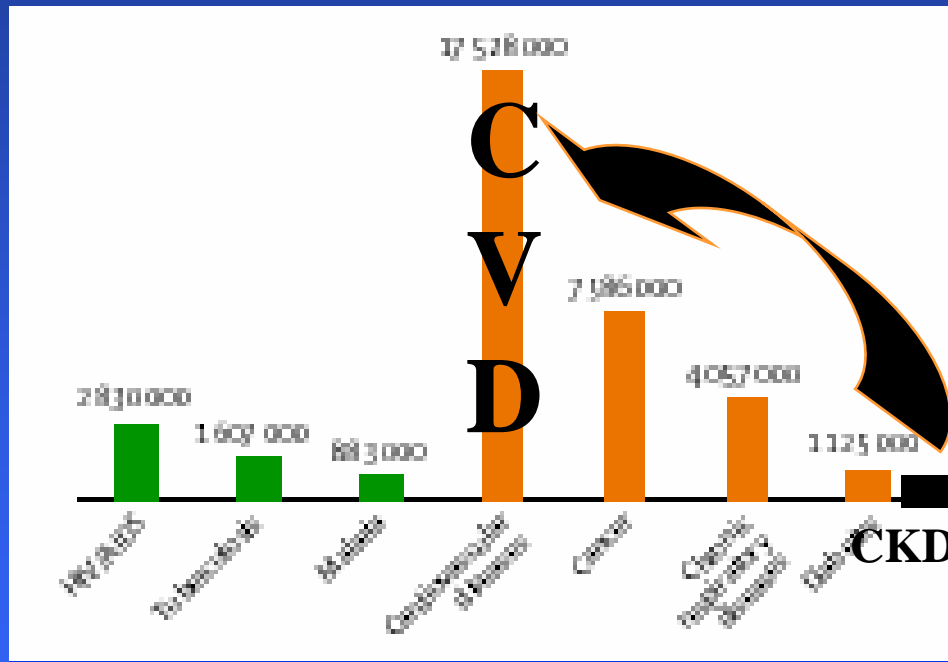




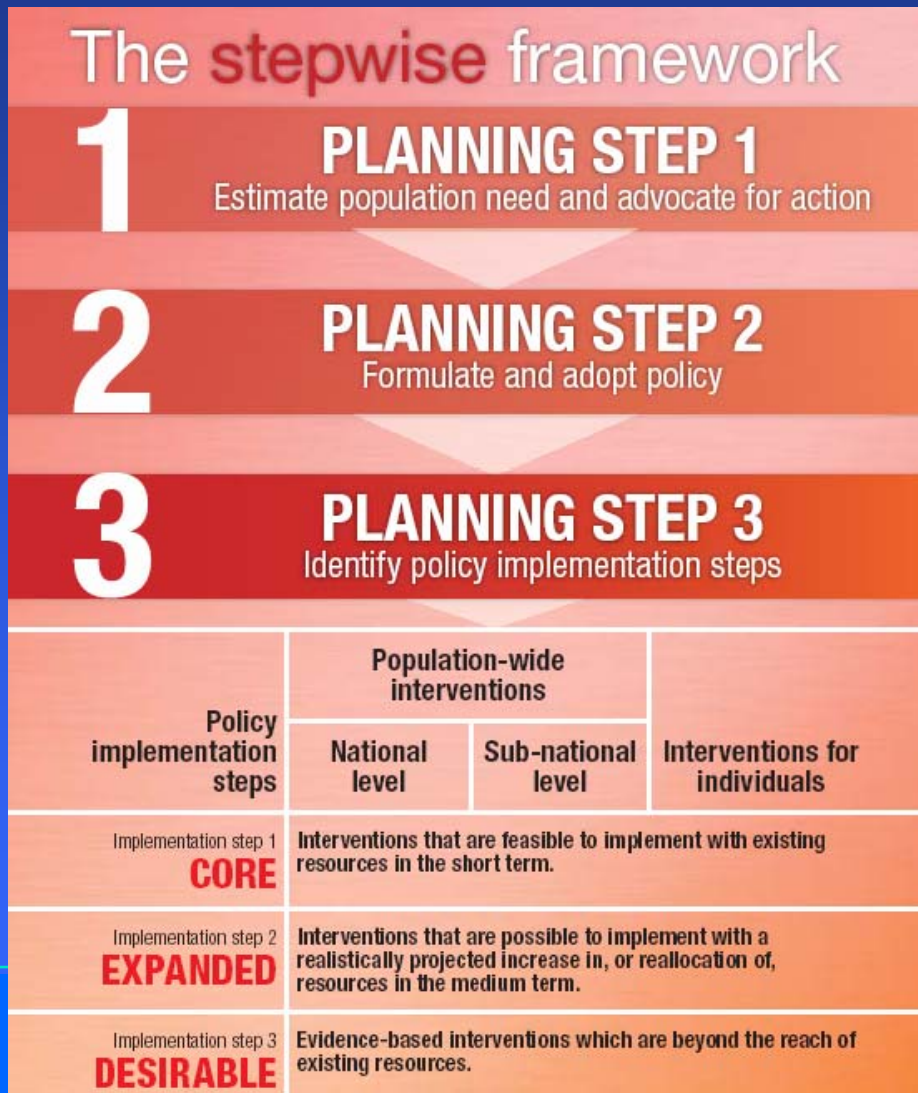


## Projected global deaths (58 million) by major cause 2005

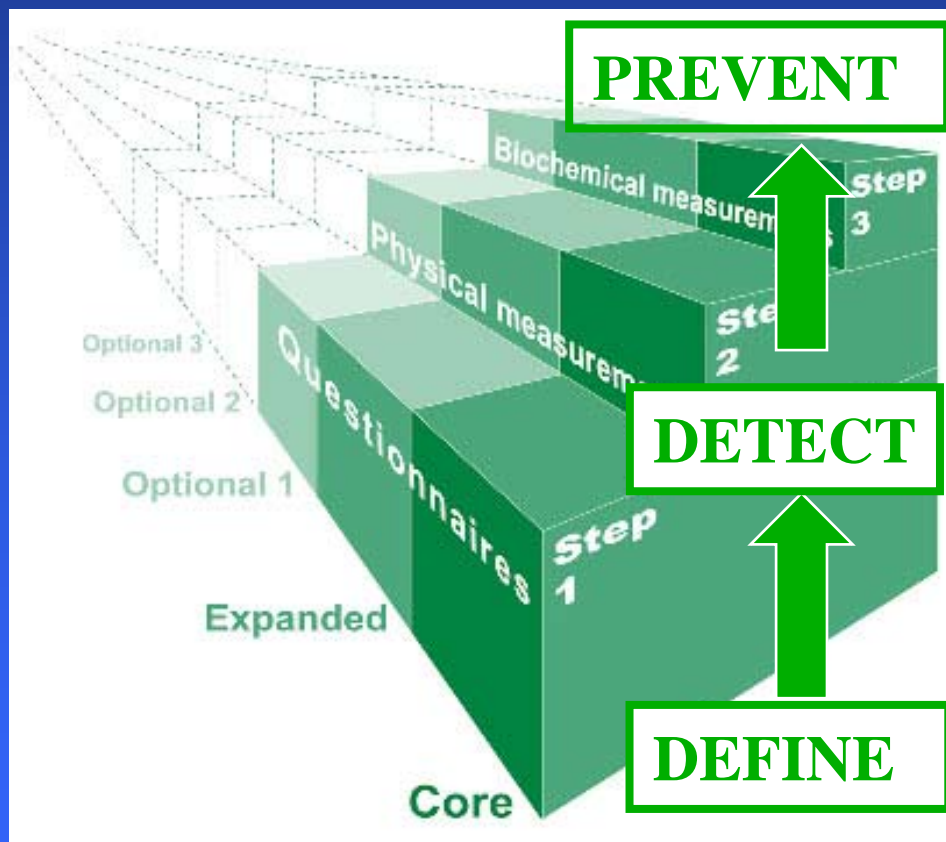
30% CVD = 17,528,000 deaths



# WHO STEPwise Surveillance of Chronic Diseases STEPS



## CKD Surveillance STEPS



1

## NKF-K/DOQI Definition of CKD KDIGO Modifications (Amsterdam 2004)

Structural or functional abnormalities of the kidneys for  $\geq 3$  months, as manifested by either:

1. **Kidney damage**, with or without decreased GFR, as defined by

- pathologic abnormalities
- markers of kidney damage
  - urinary abnormalities (proteinuria)
  - blood abnormalities (renal tubular syndromes)
  - imaging abnormalities
- kidney transplantation

2. **GFR  $< 60$  ml/min/1.73 m<sup>2</sup>**, with or without kidney damage



## CKD Classification

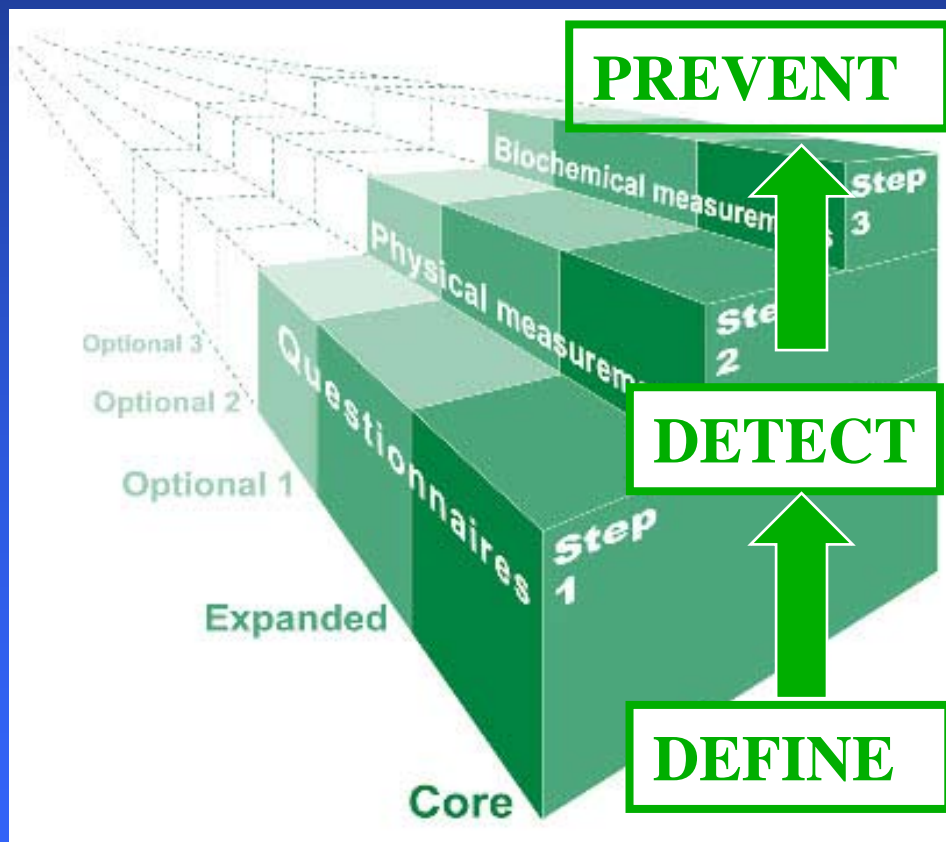
Table 3. Current CKD Classification Based on Severity and Therapy

Stage	Description <i>clinically significant</i>	GFR (ml/min/1.73 m <sup>2</sup> )
1	Kidney damage with normal or ↑ GFR	≥ 90
2	Kidney damage with mild ↓ GFR	60-89
3	Moderate ↓ GFR <b>T</b> for transplant	30-59
4	Severe ↓ GFR	15-29
5	Kidney failure <b>D</b> for dialysis	< 15 (or dialysis)

## Proposed Classification of CKD by Diagnosis

<b>Disease</b>		<b>CKD Classification</b>		
		<b>Stage</b>	<b>Marker of Kidney Damage</b>	<b>Disease (ICD Code list)</b>
<b>Diabetic Kidney Disease</b>	<b>Type 1</b>	<b>Same for all (585.x), V codes for dialysis or transplant</b>	<b>Proteinuria</b>	
	<b>Type 2</b>		<b>Proteinuria</b>	
<b>Non-Diabetic Kidney Disease</b>	<b>Glomerular diseases</b>		<b>Hematuria +Proteinuria</b>	
	<b>Vascular diseases</b>		<b>+Proteinuria</b>	
	<b>Tubulointersitial Diseases</b>		<b>+Pyuria, +Proteinuria, +Imaging studies</b>	
	<b>Cystic Diseases</b>		<b>Cysts</b>	
	<b>Non-diabetic kidney disease not otherwise specified</b>		<b>+Proteinuria</b>	
<b>Transplant</b>			<b>+Proteinuria</b>	

## CKD Surveillance STEPS



2





## GLOBAL CKD Programmes



## Global CKD Detection Programmes Approaches

- **Population studied:**
  - General, Health service, Targeted
  - Targeted high risk including minorities/ethnicities
  - Children, adults, elderly
- **Methods:**
  - Urine Dipstick
  - Albuminuria
  - sCreatinine
  - Formulated eGFR (CG & MDRD)

## Global CKD Detection Programmes Results

- **Albuminuria:** ~5-16%
- **Proteinuria:** ~0.6-4.5%
- **eGFR<60:** ~2.5-5%
- **eGFR<30:** ~0.3-4%
- **ESRD:** ~0.1-0.3%



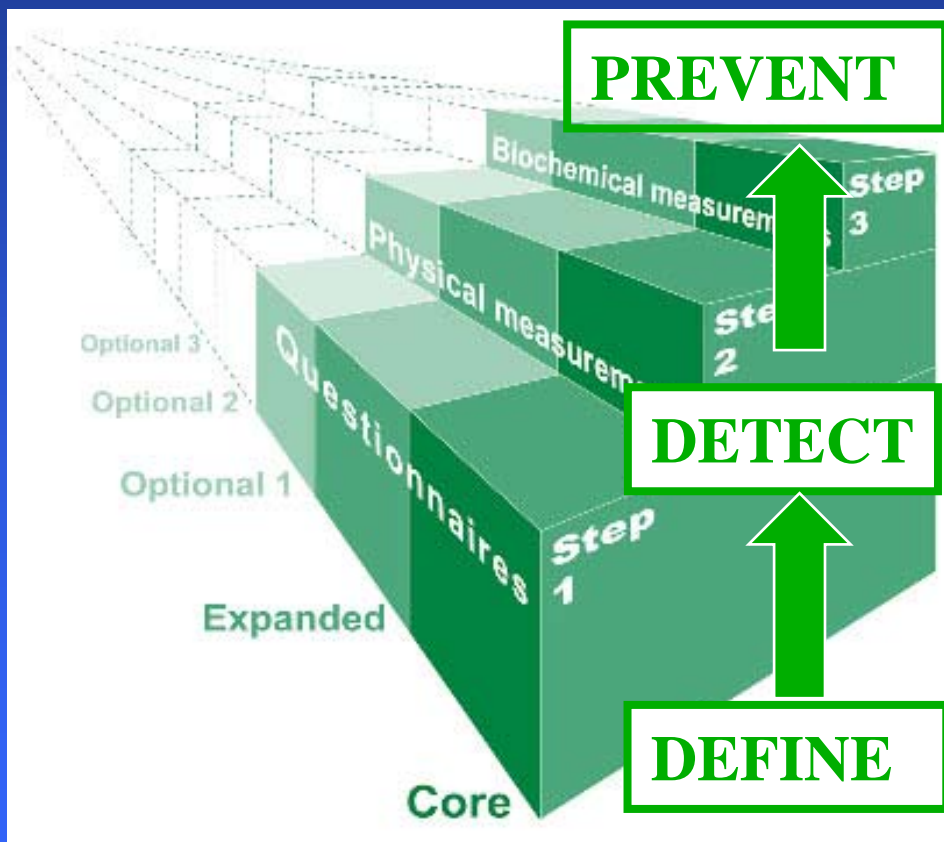


## Global CKD Detection Programmes Issues

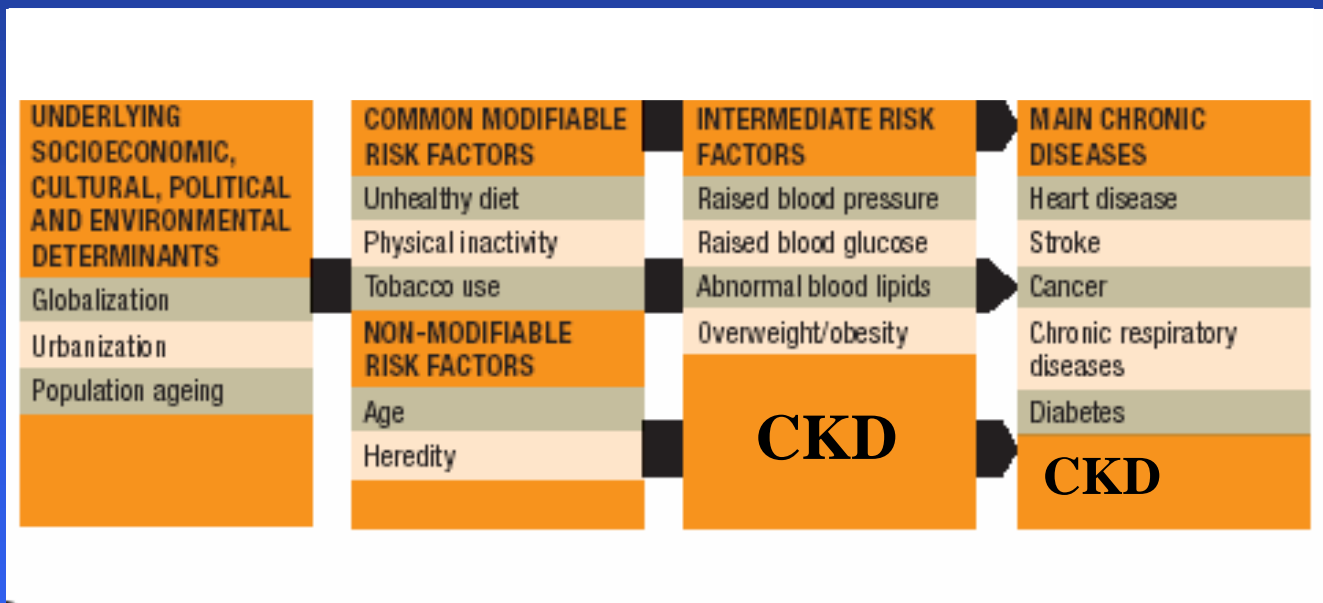
- Representativeness of sample? **Variable**
- Urine testing: **Seldom repeated/confirmed**
- **Albuminuria:**
  - Methodology: Calibration/Standardisation
  - Confounders: age, obesity, smoking, poverty, infections
  - Diagnostic: CKD/CVD?
  - Prognostic: CVD>CKD
- **Serum Creatinine:**
  - Variability: Biological and methodological
  - Methodology: Calibration/standardisation
- **eGFR Equations:**
  - Applicability: Healthy Population, elderly, ethnicities, obese, females



## CKD Surveillance STEPS



## WHO Global InfoBase Causes of Chronic Diseases

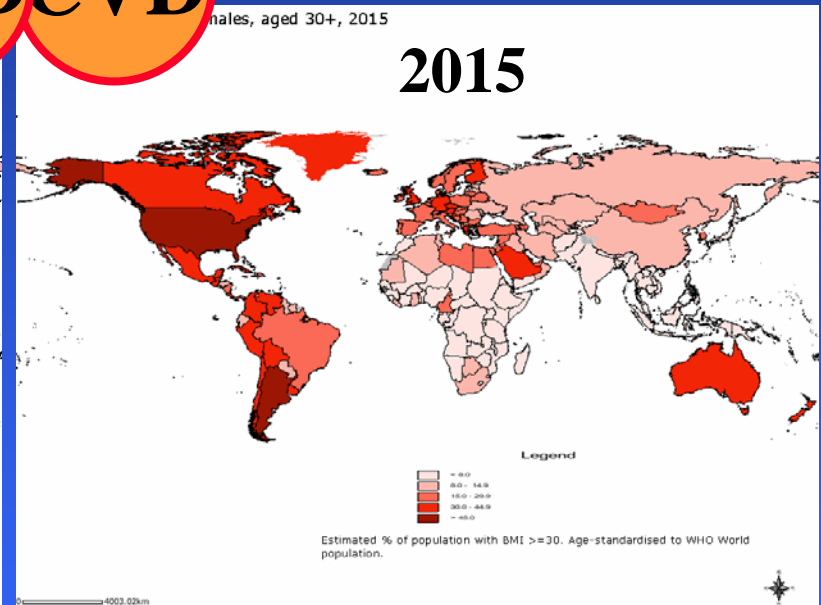
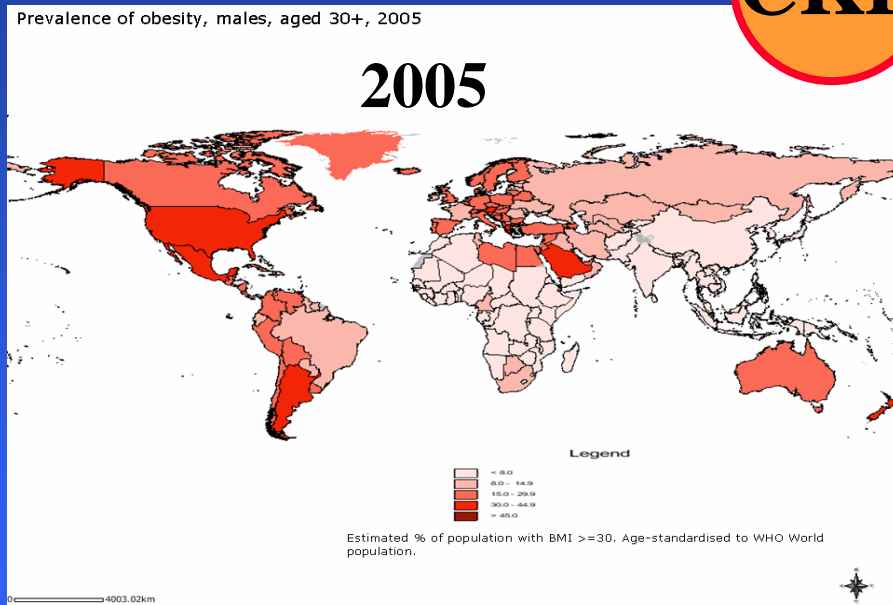


## Global obesity

*1.2 billion*

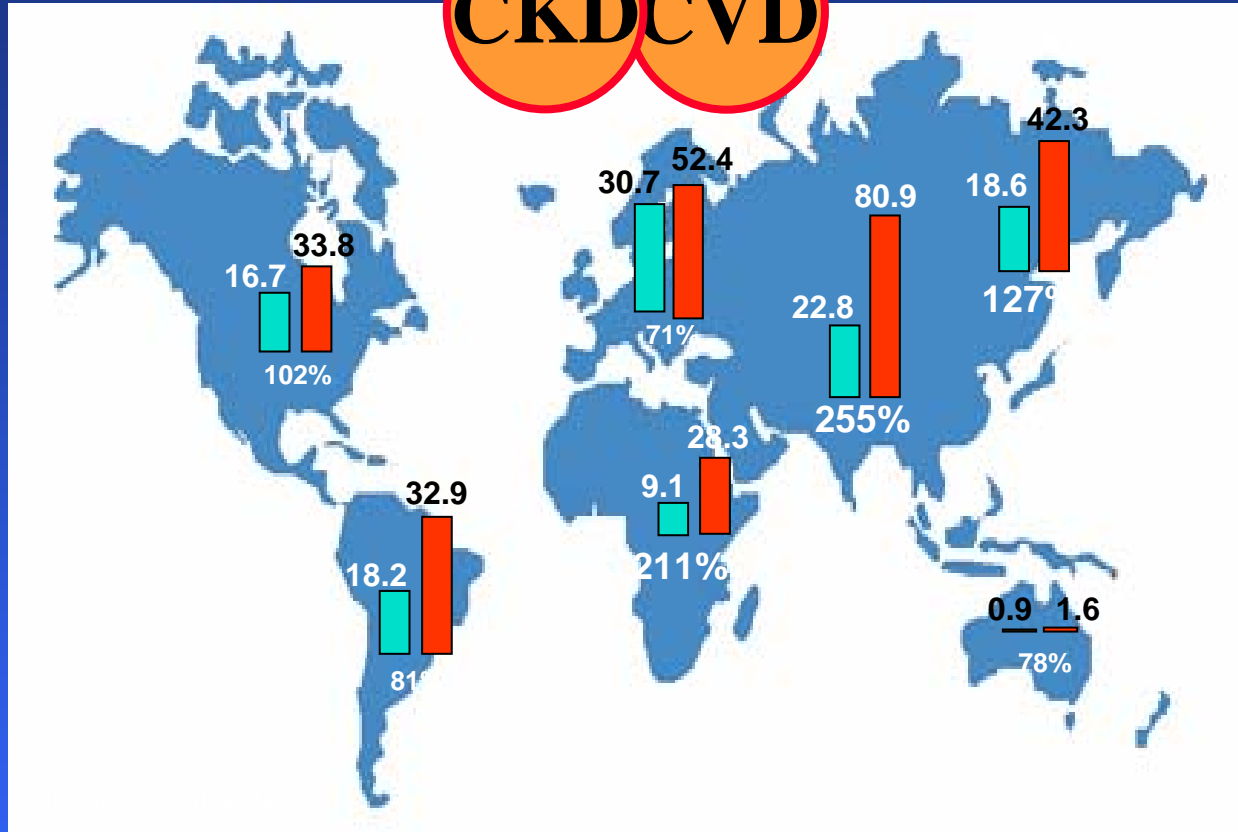
**CKD CVD**

*1.7 billion*



## Global Diabetes (2000-2030)

**CKDCVD**



**World**

154 m

**370 m**

**Developed**

55 m

**84 m**

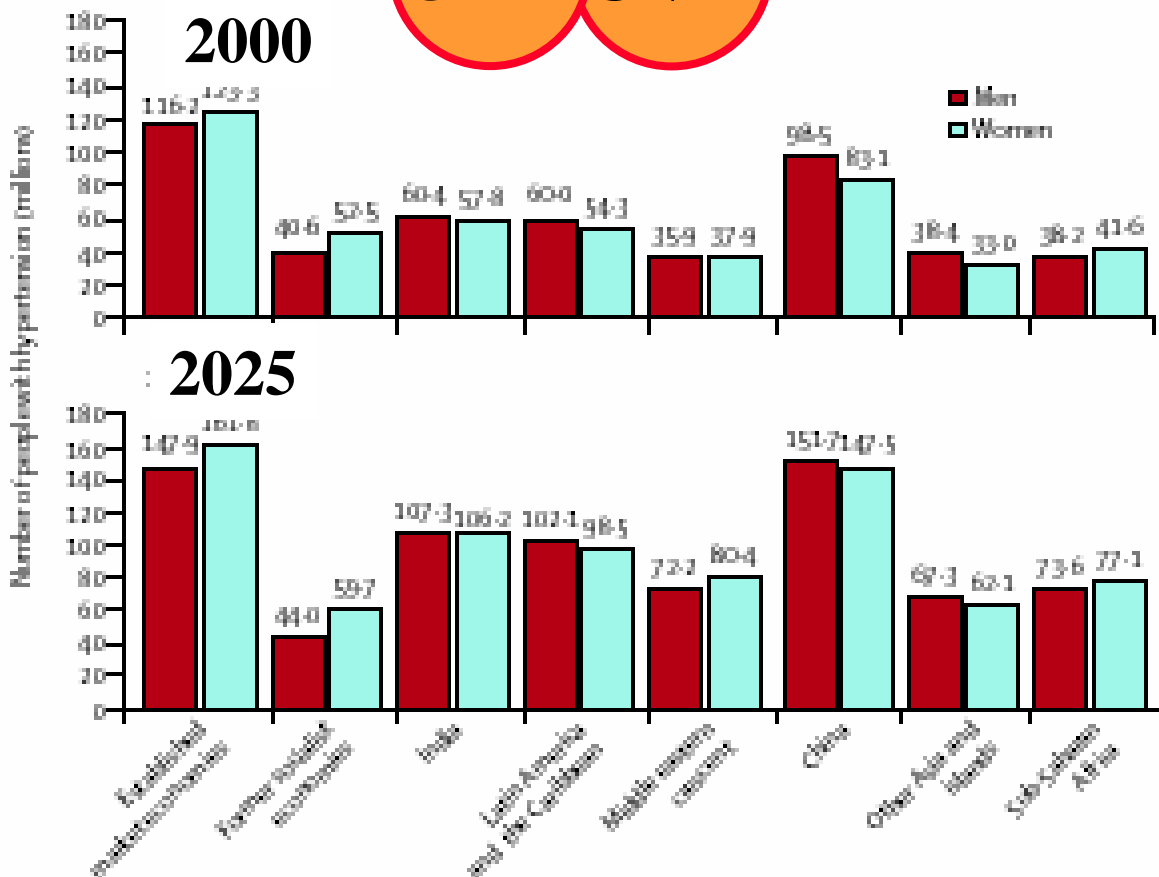
**Developing**

99 m

**286 m**

## Global Hypertension

**CKDCVD**

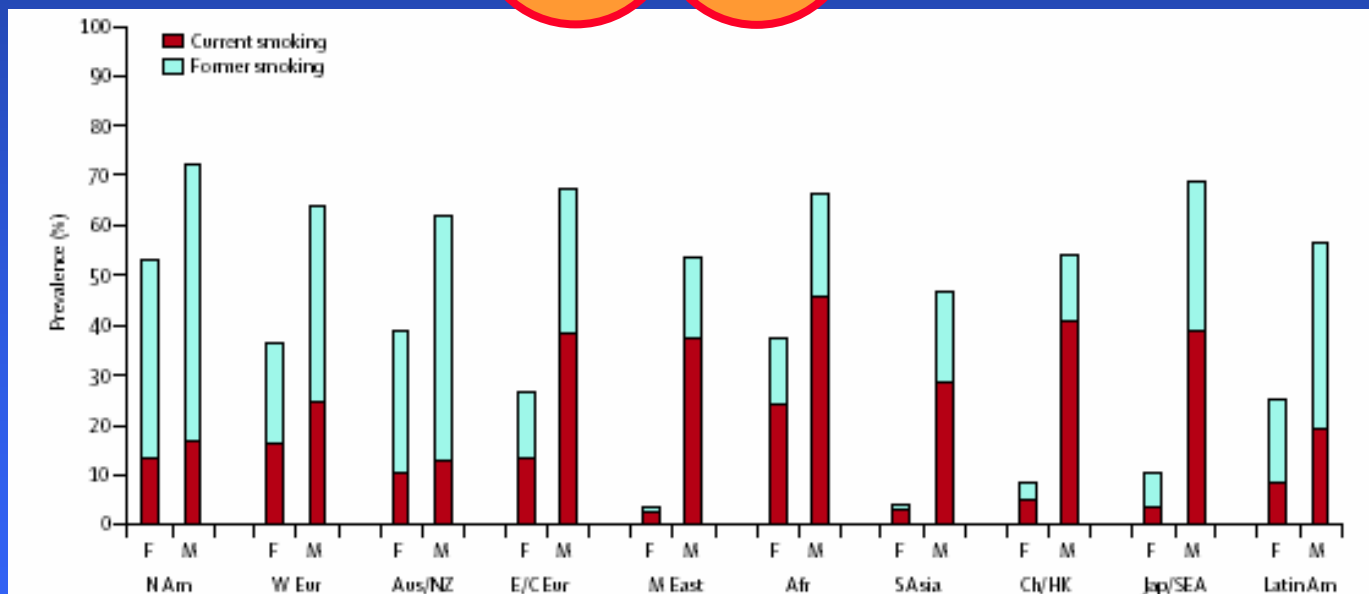


**972m**

**1.56b**

## Global Smoking *1.3 billion smoker*

**CKDCVD**



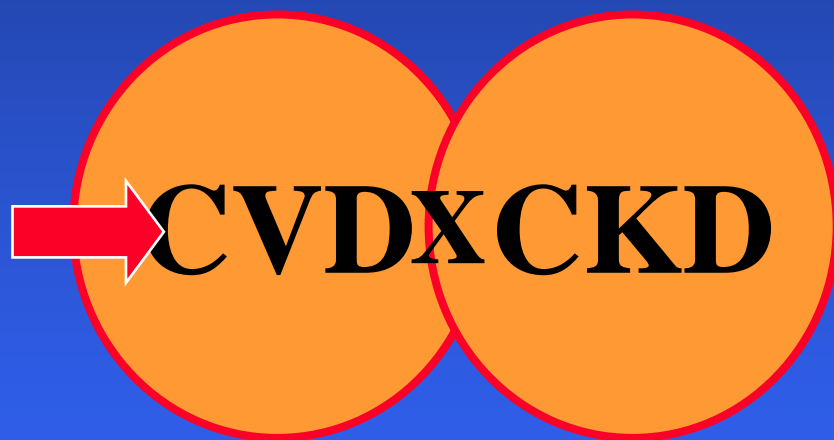


## WHO Global InfoBase

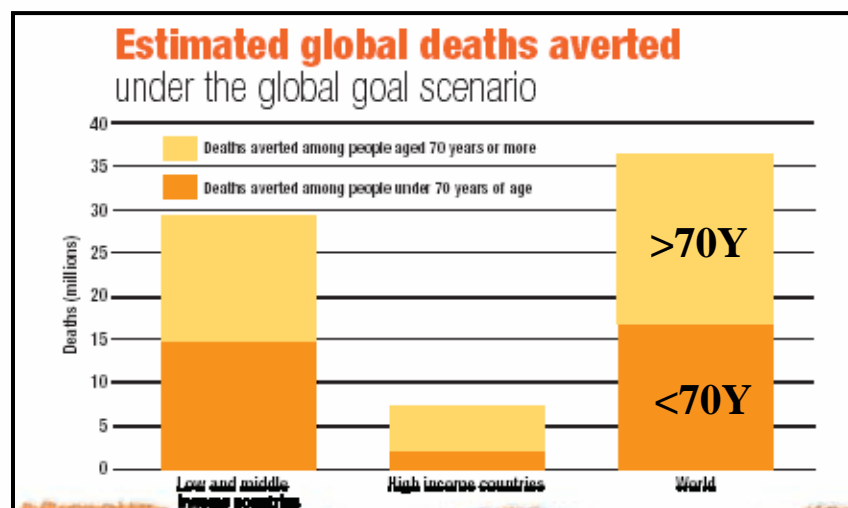
### Chronic Diseases and Health Promotion

annual death rate

- Raised blood pressure: 7.1 million
- Smoking: 4.9 million
- Raised cholesterol : 4.4 million
- Overweight and obesity: 2.6 million
- Fruit & vegetable intake: 2.7 million
- Physical inactivity: 1.7 million
- Diabetes: 1.2 million



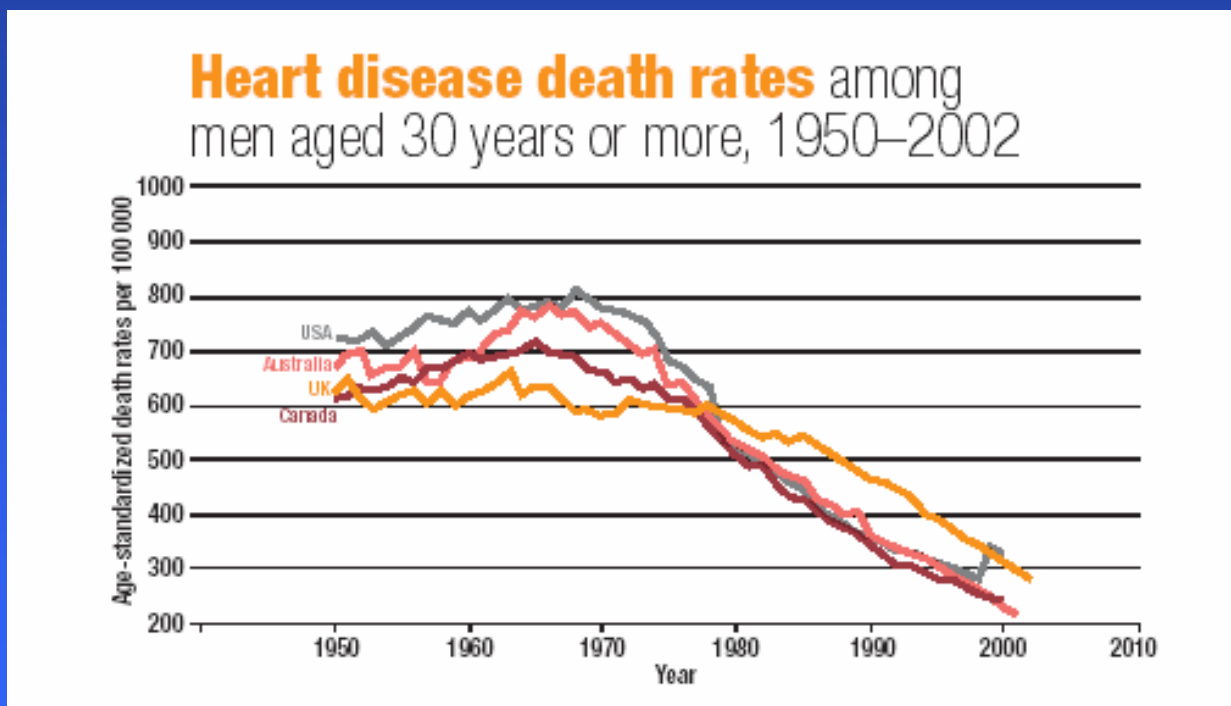
Preventing  
**CHRONIC DISEASES**  
 a vital investment  
**36,000,000 lives can be saved**



**Global Goal: +2% mortality reduction/year**

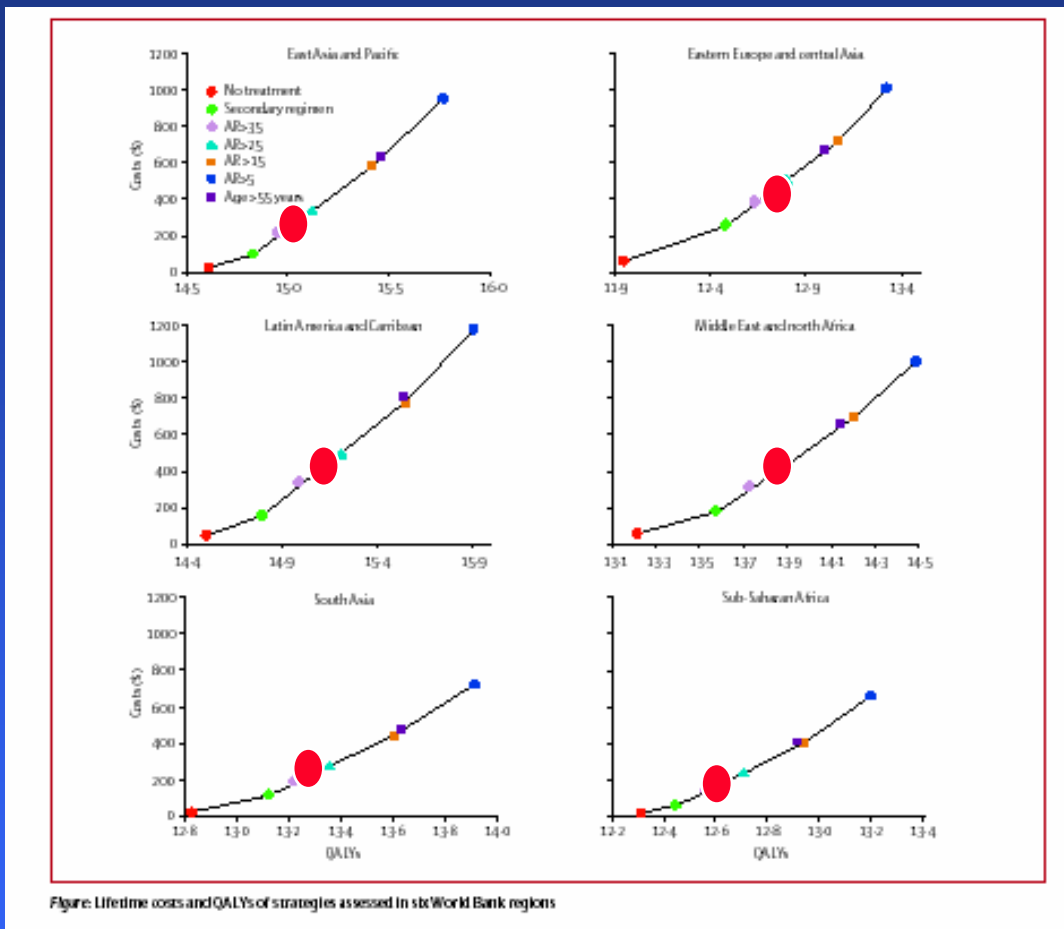
## Heart Disease Fall

*-70%/last 3 decades*



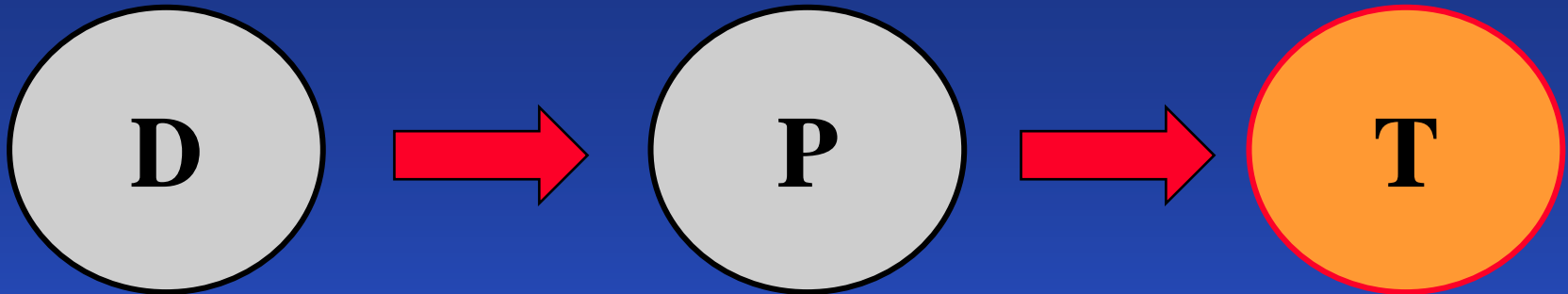
## Polypill Reduction of CVD

ACEi/ARB  
CCB  
 $\beta$ -blocker  
Statin  
Aspirin



~\$300/QALY

## CKD-CVD Detection, Prevention & Treatment



### Detection

#### *High Risk Groups*

DM/HT

CKD Relatives

Minorities

CVD

Infections

Aged

The poor

### Prevention

#### *Modifiable Factors*

Lifestyle:

Diet and exercise

Smoking

Obesity

Hypertension

Diabetes

Poverty

Infection

Inflammation

### Treatment

#### *Modifiable factors*

BP control

ACEi-ARBs

Proteinuria

Glycemia

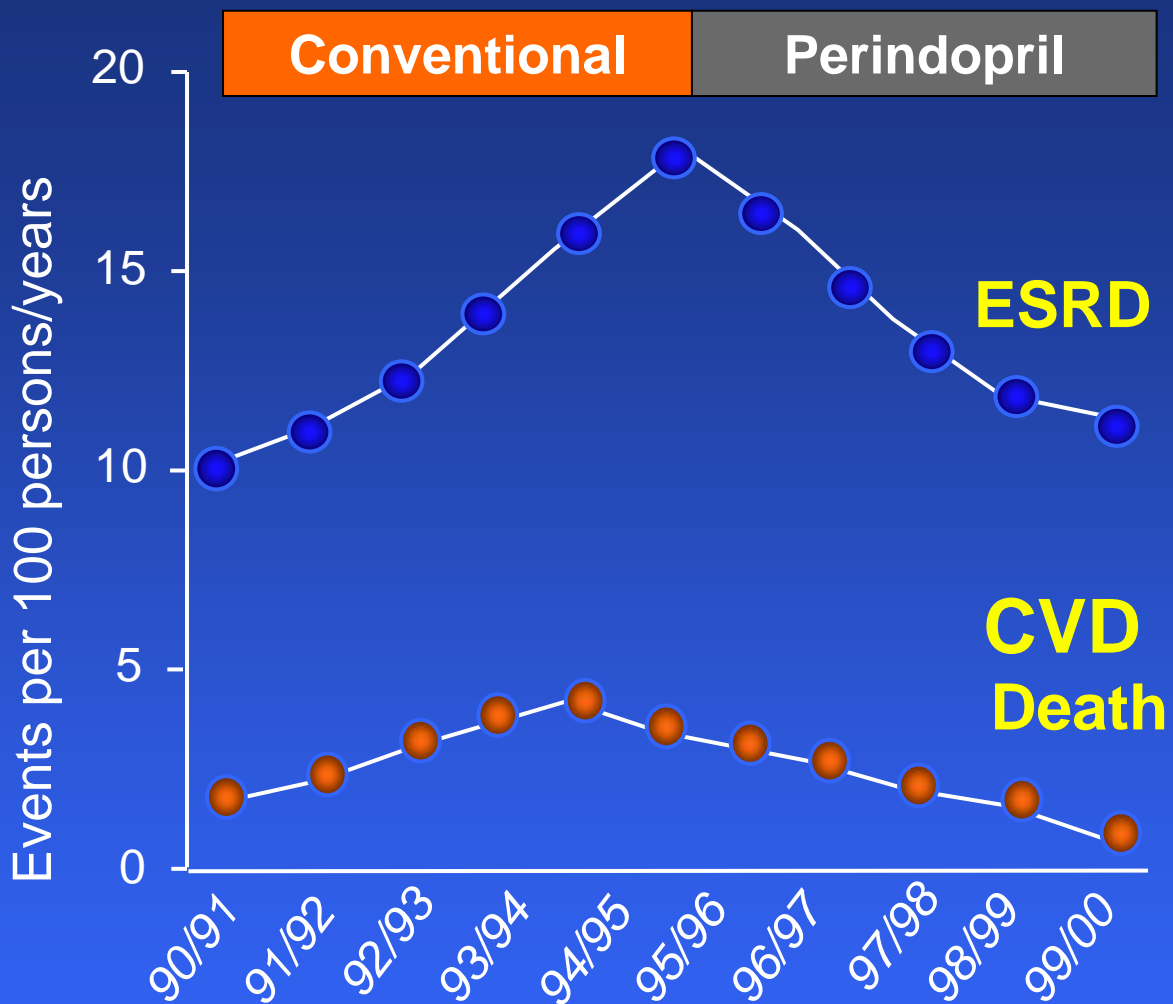
Lipids

Smoking

Nephrotoxins

## Chronic Disease Outreach Program in Australia







## National Programmes

### SPOTLIGHT CHINA'S NATIONAL STRATEGY FOR CHRONIC DISEASE CONTROL

China's Ministry of Health, with the support of WHO and the cooperation of relevant sectors, has been developing a national plan for chronic disease prevention and control, which focuses on cardiovascular diseases, cancer, chronic obstructive pulmonary disease and diabetes. It is expected to be applicable to both the medium and long term, and include an action plan for 3–5 years. This follows an earlier Programme of Cancer Prevention and Control in China (2004–2010) developed by the Ministry of Health.

The national plan aims to reduce the overall level of risk factors, to improve early detection and treatment and to provide accessible and affordable health services. It includes the development of a national system of prevention and control, which will require comprehensive financing, multisectoral cooperation and the establishment of expert committees at the national and local levels. It will also involve capacity building and the establishment of a national surveillance system, as well as periodic surveys of nutrition and health (2).

### SPOTLIGHT THAIHEALTH

The Thai Health Promotion Foundation (ThaiHealth) was established in 2001 as a statutory, independent public organization, following the success of Thailand's nationwide anti-smoking movement. Funding of approximately US\$ 50 million per year comes from a 2% excise tax on alcohol and cigarettes. Through policy advocacy and efforts by civil society groups, and with support from a series of studies managed by the Health System Research Institute, the Government and the Ministry of Finance became convinced

it would be beneficial to activities that reduce behaviour. ThaiHealth has a facilitating role, and that yield sustainable health benefits and expanded its role as possible. The community-based funding for their proactive grants specific objectives schools. ThaiHealth movement against prevent drink-driving and activities to pro-

### SPOTLIGHT INDONESIA'S NATIONAL POLICY DEVELOPMENT

For many years the scale of the chronic disease problem in Indonesia had been concealed by a lack of reliable information. Prevention and control activities were scattered, fragmented and lacked coordination. Periodic household surveys later revealed that the proportion of deaths from chronic diseases doubled between 1980 and 2001 (from 25% to 49%). The economic implications and the pressing need to establish an integrated prevention platform at national, district and community levels became clear.

In 2001, inspired by the WHO Global Strategy on the Prevention and Control of Noncommunicable Diseases, Indonesia's Ministry of Health initiated a broad consultative process that resulted in a national consensus on chronic disease policy and strategy. A collaborative network for chronic disease surveillance, prevention and control was established, involving health programmes, professional associations, governmental agencies,

### SPOTLIGHT WORKPLACE HEALTH IN THE UNITED STATES

Johnson & Johnson's Health & Wellness Program seeks to reduce behavioural and psychosocial risk factors, increase healthy behaviours, detect disease early, and manage chronic diseases. The programme provides preventive services as well as services during and after a major medical event.

### SPOTLIGHT REDUCING SALT INTAKE IN THE UNITED KINGDOM

In November 2003 a "Salt Summit" in the UK brought together departmental health ministers, the Chief Medical Officer, the chair of the Food Standards Agency, food retailers, producers, caterers, and health and consumer groups to discuss plans to reduce salt in foods to meet the government's target of reducing salt consumption in the population from 9.5 g to an average of 6 g per person per day by 2010.

### SPOTLIGHT PROMOTING FRUIT AND VEGETABLE INTAKE IN ENGLAND

Current average consumption of fruit and vegetables in the United Kingdom is around three portions per day. The 5 A DAY Programme aims to increase this to the recommended daily level of around five portions, thereby contributing to the achievement of national targets on reducing mortality rates from cardiovascular disease and cancer, halting the year-on-year rise in obesity among children, and reducing inequalities in life expectancy.

The programme consists of several areas of work underpinned by an evaluation and monitoring programme. The 5 A DAY communications programme provides information and advice for consumers through

television and radio advertising, leaflets, posters, booklets, a web site and magazine adverts and articles, and a 5 A DAY logo has been developed. Local and national partners include industry, government departments and other agencies. The School Fruit and Vegetable Scheme has led to nearly 2 million children aged four to six years receiving a free piece of fruit or vegetable each school day. A survey in October 2003 found that over a quarter of children and their families reported that they were eating more fruit at home after joining the scheme, including in lower socioeconomic groups. Research from December 2004 indicated that 37% of people claimed to have eaten "a lot more" or "a little more" fruit and vegetables over the previous 12 months. There was a year-on-year increase in awareness of the 5 A DAY message from 43% in October 2000 to 58% in October 2004.



## CKD Programmes

### US Healthy People 2010

- **NKF-Kidney Early Evaluation Program (KEEP)**
- **National Kidney Disease Education Program (NKDEP)**
- **NIH-NIDDK Chronic Renal Insufficiency Cohort Study (CRIC)**
- **CDC: “CKD A public health problem that needs public health action”**

### Latin America Nephrology Associations

- **The “Sustainable and Tenable Renal Health Model”**

## Chronic Disease Prevention Programmes Regional Networks

### SPOTLIGHT CARMEN

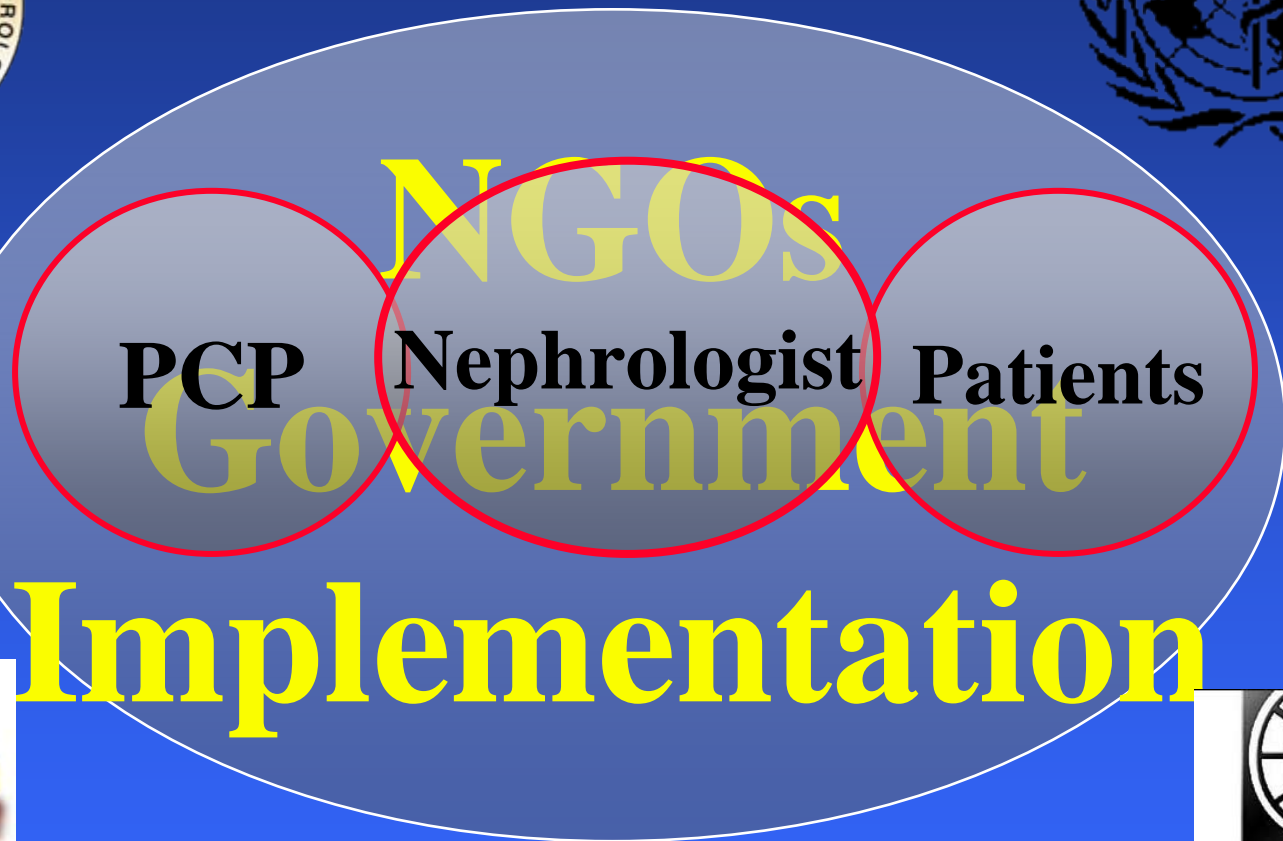
The CARMEN (Conjunto de Acciones para la Reducción Multifactorial de Enfermedades No transmisibles) initiative aims to improve health in the Americas by reducing risk factors for chronic diseases. The main focus has been primary prevention of risk factors such as tobacco use, poor diet and physical inactivity.

- **CARMEN:** Americas
- **CINDI:** EU  
“Countrywide Integrated NCD Intervention Programme”
- **EMAN:** Eastern Mediterranean
- **SEANET:** South East Asia
- **NANDI:** African Region
- **MOANA:** Western Pacific  
“Mobilization of Allies in Noncommunicable Disease”





## Partnerships



## Awareness

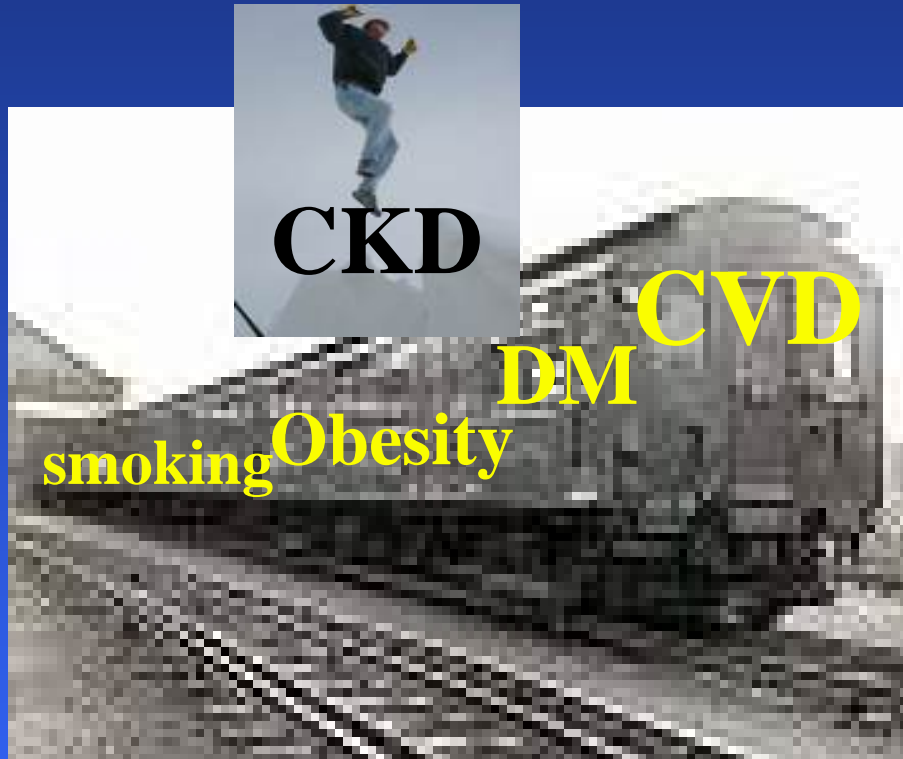
### SPOTLIGHT WORLD HEART DAY AND WORLD DIABETES DAY

One of the ways in which nongovernmental organizations draw attention to issues is by means of annual health days. The World Heart Federation, for example, initiated the World Heart Day programme in the year 2000 to increase awareness of cardiovascular disease prevention a

World He  
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language  
Similar

Diabetes Day annually on 14 November. The day is marked worldwide by the 185 member associations of the Federation in more than 145 countries, as well as by other associations and organizations, health-care professionals and individuals with an interest in diabetes. The Federation produces a variety of support materials for its member associations which in turn distribute them to people with diabetes and their families, the general public, health-care professionals and the media, as well as to local and national decision-makers.

## Chronic Disease Surveillance Programmes



Preventing  
**CHRONIC DISEASES**  
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**“The lives of far too many people in the world are being blighted and cut short by chronic diseases such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes.”**

Think  
**CKD**



