2003 World Health Organization (WHO) / International Society of Hypertension (ISH) Statement on Management of Hypertension

Background

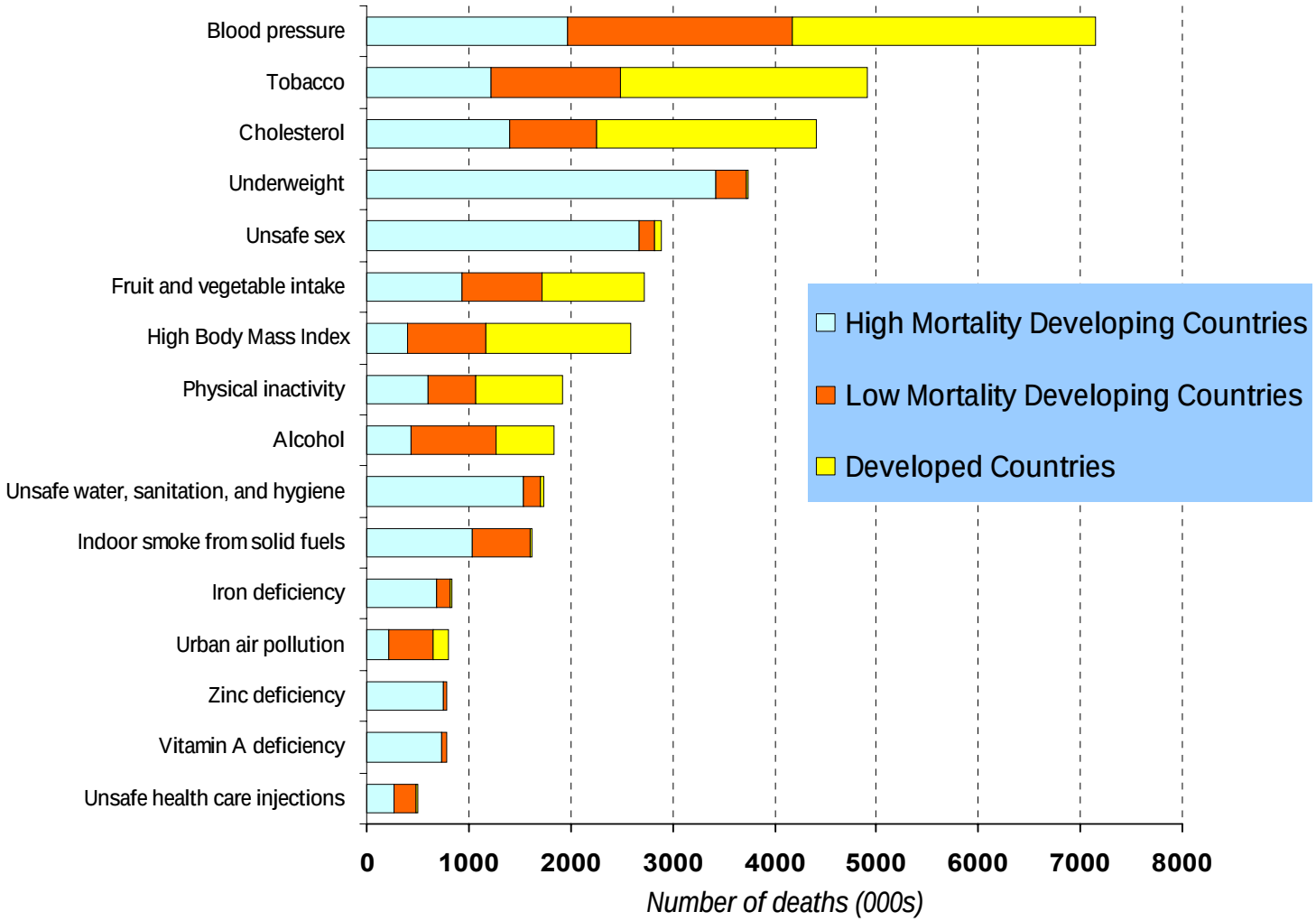
Hypertension worldwide causes

- 7.1 million premature deaths
- 4.5% of disease burden
- 64 million DALY's lost

World Health Report 2002

World

Deaths in 2000 attributable to selected leading risk factors



Factors influencing prognosis

Risk factors for cardiovascular disease

- Levels of systolic and diastolic blood pressure (grades 1-3)
- Males >55 years
- Females >65 years
- Smoking

Consequences of hypertension

- Stroke
- Heart attack
- Heart failure
- Renal failure
- Cognitive impairment
- Dementia
- Prematurity
- Blindness

WHO/ISH Statement addresses

- Ascertainment of overall cardiovascular risk to establish thresholds of, and goals for treatment
- Treatment strategies
- Cost-effectiveness

Factors influencing prognosis

Risk factors for cardiovascular disease

- Total cholesterol >6.1 mmol/l (240 mg/dl) or LDL-cholesterol >4.0 mmol/l (160 mg/dl)*
- HDL-cholesterol M <1.0, F <1.2 mmol/l (<40, <45 mg/dl)
- History of cardiovascular disease in first-degree relatives before age 50
- Obesity, physical inactivity

* Lower levels of total and LDL-cholesterol are known to delineate increased risk but they were not used in the stratification table

Factors influencing prognosis

Target-organ damage (TOD)

- **Left ventricular hypertrophy (electrocardiogram or echocardiogram)**
- **Microalbuminuria (20-300 mg/day)**
- **Radiological or ultrasound evidence of extensive atherosclerotic plaque (aorta, carotid, coronary, iliac and femoral arteries)**
- **Hypertensive retinopathy grade III or IV**

Factors influencing prognosis

Associated clinical conditions (ACC)

- **Diabetes**
- **Cerebrovascular disease**
  - **Ischaemic stroke**
  - **Cerebral haemorrhage**
  - **Transient ischaemic attack**
- **Heart disease**
  - **Myocardial infarction**
  - **Angina**
  - **Coronary revascularization**
  - **Congestive heart failure**

Factors influencing prognosis

Associated clinical conditions (ACC)

- **Renal disease**

  Plasma creatinine concentration: females >1.4, males >1.5 mg/dl (120, 133 µmol/L) Albuminuria >300 mg/day

- **Peripheral vascular disease**

Stratification of risk to quantify prognosis

	Other risk factors and disease history	Blood pressure (mmHg) Grade 1 SBP 140-159 or DBP 90-99	Grade 2 SBP 160-179 or DBP 100-109	Grade 3 SBP ≥180 or DBP ≥110
I	No other risk factors	Low risk	Medium risk	High risk
II	1-2 risk factors	Medium risk	Medium risk	High risk
III	3 or more risk factors, or TOD, or ACC	High risk	High risk	High risk

Life-style modifications

Effective in lowering BP and reducing incidence of hypertension

- ♦ Weight loss in overweight
- ♦ Physical activity
- ♦ Moderation of alcohol intake
- ♦ Diet (fruit, vegetables, low saturated fat)
- ♦ Reduction of dietary sodium intake
- ♦ Increased dietary potassium

Life-style modification

- Smoking cessation reduces mortality
- Weight reduction, dietary manipulation and physical activity reduce incidence of type 2 diabetes
- Low saturated fat diet improves dyslipidemia

Choice of initial drug therapy

- **Multiple RCTs showing reductions in morbidity/mortality of placebo for**
  - **Diuretics**
  - **β-blockers**
  - **CCBs**
- **Meta-analyses of RCTs comparing ACEI or CCBs against older drugs show no convincing differences (but do not exclude small differences on specific outcomes)**

Choice of initial therapy

- **Trial data suggest benefits largely derive from BP reduction but strong evidence that specific agents benefit patients with compelling indications**

Choice of initial therapy

- For patients without compelling indications, on basis of comparative trial data, availability and cost, (low dose) diuretic should be considered for first line of therapy
- Monotherapy will be inadequate for the majority of patients