Knowing numbers, knowing the problem

Non-communicable diseases

| 2/3 of deaths worldwide | 80% in Low-Medium income countries |

Cardiovascular disease

| High Incidence & Prevalence | Prevention strategies |

Hypertension

| 9.4 million deaths annually | More deaths than all the infectious diseases together. |

Is HTN the easiest NCD to treat?

GLOBAL HEALTH RISKS
Mortality and burden of disease attributable to selected major risks

Figure 6: Deaths attributed to 19 leading risk factors, by country income level, 2004.

- High blood pressure
- Tobacco use
- High blood glucose
- Physical inactivity
- Overweight and obesity
- High cholesterol
- Unsafe sex
- Alcohol use
- Childhood underweight
- Indoor smoke from solid fuels
- Unsafe water, sanitation, hygiene
- Low fruit and vegetable intake
- Suboptimal breastfeeding
- Urban outdoor air pollution
- Occupational risks
- Vitamin A deficiency
- Zinc deficiency
- Unsafe health-care injections
- Iron deficiency

Lancet 2015; 385: 825–27
Is HTN the easiest non-communicable to treat?

1) The measurement of the blood pressure is an easy technique.
2) There are a large and inexpensive variety of drugs available.
3) There are simple drug regimens administered once daily.
4) Many drugs do not need laboratory monitoring.
The Prospective Urban Rural Epidemiology (PURE) study: Examining the impact of societal influences on chronic noncommunicable diseases in low-, middle-, and high-income countries

Koon Teo, PhD, a Clara K. Chow, PhD, a Mario Vaz, MD, b Sumathy Rangarajan, MSc, a and Salim Yusuf, DPhil a, The PURE Investigators-Writing group Hamilton, Ontario, Canada; and Bangalore, India

Background Marked changes in the prevalence of noncommunicable diseases such as obesity, diabetes, and cardiovascular disease have occurred in developed and developing countries in recent decades. The overarching aim of the study is to examine the relationship of societal influences on human lifestyle behaviors, cardiovascular risk factors, and incidence of chronic noncommunicable diseases.

Conclusions The PURE study builds on the work and experience design and extensive data collection are geared toward addressing underlying determinants of cardiovascular disease in populations at risk. (Am Heart J 2009;158:1-7.e1.)

Results This report describes the design, justification, and methodology of the PURE study. The PURE study has been recruiting since 2002 and has enrolled 139,506 individuals by March 31, 2009.

Countries involved in the PURE study.
Table 2. Prevalence of Awareness, Treatment, and Control Among the Hypertensive Population in PURE According to 2 Definitions

<table>
<thead>
<tr>
<th>Variables</th>
<th>No. (%) of Participants</th>
<th>Proportion With BP &lt;140/90 mm Hg Among Those Receiving Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall</td>
<td>Aware</td>
</tr>
<tr>
<td>Self-reported hypertension with treatment or BP ≥140/90 mm Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIC</td>
<td>6263</td>
<td>3070 (49.0)</td>
</tr>
<tr>
<td>UMIC</td>
<td>18123</td>
<td>9516 (52.5)</td>
</tr>
<tr>
<td>LMIC</td>
<td>23269</td>
<td>10134 (43.6)</td>
</tr>
<tr>
<td>LIC</td>
<td>10185</td>
<td>4157 (40.8)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>32649</td>
<td>16440 (50.4)</td>
</tr>
<tr>
<td>Men</td>
<td>25191</td>
<td>10437 (41.4)</td>
</tr>
<tr>
<td>Regiona</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Asia</td>
<td>9751</td>
<td>3942 (40.4)</td>
</tr>
<tr>
<td>China</td>
<td>18915</td>
<td>7866 (41.6)</td>
</tr>
<tr>
<td>Malaysia</td>
<td>5321</td>
<td>2568 (48.3)</td>
</tr>
<tr>
<td>Africa</td>
<td>2160</td>
<td>743 (34.4)</td>
</tr>
<tr>
<td>North America and Europe</td>
<td>8682</td>
<td>4428 (50.0)</td>
</tr>
<tr>
<td>Middle East</td>
<td>2074</td>
<td>1088 (52.5)</td>
</tr>
<tr>
<td>South America</td>
<td>10937</td>
<td>6242 (57.1)</td>
</tr>
<tr>
<td>All included continents, countries, or regions</td>
<td>57840</td>
<td>26877 (46.5)</td>
</tr>
</tbody>
</table>
Prevalence, Awareness, Treatment, and Control of Hypertension in Rural and Urban Communities in High-, Middle-, and Low-Income Countries
HIPERTENSION: Global Economic Burden

- In the USA, achievement of control rates of HTA about 65% could avert tens of thousands of deaths per year.
- Direct health-care costs and productivity losses could amount to as much as US$20 trillion globally over two decades.

How treatment of HTN should be done

Global Standardized Hypertension Treatment (GSHT) Project
1. Antiretroviral treatment for **HIV/AIDS** has been successfully scaled up to reach at least 37% of HIV-infected and eligible people.

2. The **tuberculosis** control program is accountable for every person diagnosed and measures quality by assessing outcomes through cohort analysis of all people diagnosed.

**HTN: the benefits would be substantial.**
Coping programs...
Philosophical and practical approaches

- Minimization of lab monitoring requirements.
- Monitoring to appropriately track patients and outcomes, including assuring treatment effectiveness.
- Decrease costs.
- Program assessment.

Lancet 2015; 385: 825–27
Reducing Cardiovascular Disease Through Treatment Of Hypertension

Define HTN according to guidelines

Increased access to diagnosis and treatment

Improved treatment quality

Lancet 2015; 385: 825–27
Reducing Cardiovascular Disease Through Treatment Of Hypertension

- Effective blood pressure drugs including *generic versions*.
- Standardization of *regimens* and care.
- Core set of drugs.
- Facilitate acquisition of the drugs in all the countries.
- *Simplification* of treatment protocols.
- Specification of drugs and *dosages*.

Lancet 2015; 385: 825–27
May, 2013 World Health Assembly:
Global voluntary target 25% reduction in the prevalence of high blood pressure by 2025.

Treating half of people with uncontrolled HTN, would avert 10 million cardiovascular events worldwide/10 years.