Measuring Quality Outcome And Quality of Life in Cardiovascular Diseases

Anwar Santoso
National Cardiovascular Centre – Harapan Kita Hospital
Jakarta - Indonesia
Disclosure

• I have no conflict of interest for this presentation
Outline

> Stages of Epidemiologic Transition
> Risk factors and CVD in Indonesia
> Quality Outcome in CVD
> Quality of Life in CVD
> Summary
## Stages of Epidemiologic Transition

<table>
<thead>
<tr>
<th>Description</th>
<th>Life expectancy</th>
<th>Proportion of death due to CVD (%)</th>
<th>Dominant form of CVD death</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1 Pestilence and famine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Malnutrition</td>
<td>35 years</td>
<td>&lt;10</td>
<td>Infectious (RHD)</td>
</tr>
<tr>
<td>• Infectious diseases</td>
<td></td>
<td></td>
<td>Nutritional</td>
</tr>
<tr>
<td><strong>Stage 2 Receding pandemics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Improved nutrition and public health</td>
<td>50 years</td>
<td>10–35</td>
<td>Infectious (RHD)</td>
</tr>
<tr>
<td>• Chronic disease</td>
<td></td>
<td></td>
<td>Stroke—haemorrhagic</td>
</tr>
<tr>
<td>• Hypertension</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Omran: Milbank Mem Fund Q, 1971  
Olshansly: Milbank Mem Fund Q, 1986  
Gaziano: Circ, 2003  
Yusuf: Circ, 2005

### Stages of Epidemiologic Transition

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Life expectancy</th>
<th>Proportion of death due to CVD (%)</th>
<th>Dominant form of CVD death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 3</td>
<td>Degenerative and man-made diseases</td>
<td>&gt;60 years</td>
<td>35–65</td>
<td>IHD*</td>
</tr>
<tr>
<td></td>
<td>• ↑ fat and caloric intake</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tobacco use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Chronic disease deaths</td>
<td></td>
<td></td>
<td>Stroke — Haemorrhagic</td>
</tr>
<tr>
<td></td>
<td>&gt; infections, malnutrition</td>
<td></td>
<td></td>
<td>Ischaemic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 4</th>
<th>Delayed degenerative diseases</th>
<th>&gt;70 years</th>
<th>40–50</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Leading causes of mortality CV and cancer deaths</td>
<td></td>
<td></td>
<td>IHD**</td>
</tr>
<tr>
<td></td>
<td>• Prevention and Tx delays onset</td>
<td></td>
<td></td>
<td>Stroke — Ischaemic</td>
</tr>
<tr>
<td></td>
<td>• Age-adjusted CV death reduced</td>
<td></td>
<td></td>
<td>CHF</td>
</tr>
</tbody>
</table>

* Greater in high socioeconomic groups
** Younger patient—lower socioeconomic status
Elderly—higher socioeconomic status

Omran: Milbank Mem Fund Q, 1971
Olshansky: Milbank Mem Fund Q, 1986
Gaziano: Circ, 2003
Yusuf: Circ, 2005

Factors Contributing to Epidemics of CVD in Low-Middle Income Regions

- Hostile CV environment
  - Diet/lack of exercise
  - Tobacco incl. second-hand smoke
  - Ageing society
  - HIV survivors
  - Air pollution
  - Rural → urban migration
  - Psychosocial/economic stressors
  - Climate change?

- Pre-disposing factors
  - "The perfect storm"
  - Limited national resources
  - Economic constraints

- Genetic/phenotypic vulnerability?
  - Salt sensitivity
  - Insulin resistance
  - Lipid/fat metabolism
  - Low birth weights

Outline

- Stages of Epidemiologic Transition
- Risk factors and CVD in Indonesia
- Quality Outcome in CVD
- Quality of Life in CVD
- Summary
Prevalences of HTN in Indonesia
(Basic Health Research - 2007)
Recruited 19,114 persons across 438 districts

(percentage)

31.3 31.9 31.7
Male Female All

(Indonesia Ministry of Health Affair – 2007)
Prevalences of HTN across the ages in Indonesia (Basic Health Research - 2007)
Recruited 19.114 person-across 438 districts

(Indonesia Ministry of Health Affair– 2007)
Prevalences of Obesity (BMI) in Indonesia (Basic Health Research - 2007)

Recruited 19,114 person-across 438 districts

(percentage)

- Normal: 66.1%
- Overweight: 8.8%
- Obese: 10.3%

(Indonesia Ministry of Health Affair – 2007)
Prevalences of Central Obesity in Indonesia (Basic Health Research - 2007)

Recruited 19,114 person-across 438 districts

(percentage)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>18.8</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
</tr>
<tr>
<td>Male</td>
<td>7.7</td>
</tr>
</tbody>
</table>

(Indonesia Ministry of Health Affair – 2007)
Prevalences of IGT and DM in Indonesia
(Basic Health Research – 2007)
Recruited 24,417 person – across 438 districts

(percentage)

IGT: 10.2%
New-onset DM: 4.2%
DM: 1.5%
Total DM: 5.7%

(Indonesia Ministry of Health Affair– 2007)
Proportions (%) of smoking habits in people > 10 years
(Basic Health Research – 2007)
Recruited 972,989 person – across 438 districts

Smoking habit

- Non-smoker: 67.8%
- Ex-smoker: 23.7%
- Current-smoker: 5.5%
- Rare-smoker: 3%

(Indonesia Ministry of Health Affair– 2007)
Prevalence of sedentary life-style versus house-hold expenditure per capita/month

(Recruited 19.114 person-across 438 districts)

(Indonesia Ministry of Health Affair– 2007)
Proportion of Mortality Rate in Indonesia (Basic Health Research – 2007)

- Chronic Airway Disease: 9.2%
- IHD: 9.3%
- Cancer: 10.2%
- DM: 10.2%
- Hypertension: 12.3%
- Stroke: 26.9%

(Indonesia Ministry of Health Affair – 2007)
Major Causes of Mortality in Low-Middle Income Regions

Outline

- Stages of Epidemiologic Transition
- Risk factors and CVD in Indonesia
- Quality Outcome in CVD
- Quality of Life in CVD
- Summary
Improving Evidence Based Medicine

(Jones DW, et. al. Circulation 2008; 118: 687)
Bridging the Gap: Leadership Culture, and Systems

**EFFICACY**
- Outcomes associated with an intervention under ideal circumstances
  - Clinical trial reported in literature
  - Guidelines

**Systems**

**EFFECTIVENESS**
- Outcomes associated with an intervention in the real world
  - Hospital
  - Outpatient
  - Across Continuum

- Systems to Translate Efficacy → Effectiveness
Financial Value Propositions associated with Get With The Guidelines
Clinical Strings

The direct link between quality outcomes and improved financial performance.

<table>
<thead>
<tr>
<th>Quality Indicator</th>
<th>Operational Indicator</th>
<th>Financial Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Satisfaction</td>
<td>Average Length of Stay</td>
<td>Operating Margin</td>
</tr>
<tr>
<td></td>
<td>Cost per Discharge</td>
<td>Contribution Margin</td>
</tr>
<tr>
<td>Mortality Rates</td>
<td>Average Length of Stay</td>
<td>Operating Margin</td>
</tr>
<tr>
<td></td>
<td>Cost per Discharge</td>
<td>Contribution Margin</td>
</tr>
<tr>
<td>Reduced Operator Variability in Treatment</td>
<td>Average Length of Stay</td>
<td>Utilization of Medical Resources,</td>
</tr>
<tr>
<td></td>
<td>Cost per Discharge</td>
<td>Staff, and Supplies</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td></td>
</tr>
<tr>
<td>Improved Outcomes</td>
<td>Improved CMS and Commercial payer</td>
<td>Operating Margin</td>
</tr>
<tr>
<td></td>
<td>compliance</td>
<td>Contribution Margin</td>
</tr>
</tbody>
</table>
Value Propositions

Financial Indicators
1. Operating Margin
2. Contribution Margin

Quality Indicators
1. Patient Satisfaction
2. Mortality Rates
3. Rehospitalization within 72 Hours

Operational Indicators
1. Average Length of Stay
2. Cost per Discharge
3. FTE’s per Occupied Bed
Clinical String – Increased Volume

● Link between quality outcomes (patient satisfaction) and improved financial performance.
Calculated Cardiac and Stroke Baseline Net Income for each Hospital
Clinical String – Increased Volume

- Link between quality outcomes (patient satisfaction) and improved financial performance.

- Higher Quality
- Increased Market Share
- Higher Volume
  Increased Margins
Clinical String- Reduced ALOS

- Link between quality outcomes (quality means that a better and standardized process of care often leads to shorter average length of stay) and improved financial performance.
Clinical String- Improved Reimbursement (Pay-for-Quality)

- Clinical String: Link between quality outcomes (patient satisfaction, reduced mortality and rehospitalization) and improved financial performance.
Get With The Guidelines as a Culture

GWTG is about improved communication and developing better processes. Be sure to include all staff positions both directly and indirectly involved in these patient care. Examples of these positions are:

- Administrators
- Physicians
- Nurses
- Cardiology/Neurology Unit Coordinators
- QI Staff
- Pharmacists
- Discharge Planners
- Patient Education
- Case Managers
- Nurse Practitioners
- Cardiac Rehab Staff
GWTG as a Culture
Outline

- Stages of Epidemiologic Transition
- Risk factors and CVD in Indonesia
- Quality Outcome in CVD
- Quality of Life in CVD
- Summary
Knowledge and skills (health care team)

Patients empowerment (education)

Q of C

Prevention

↓ Complications

Better quality of life

Accessibilty (care, drugs and control devices)

J.J. Gagliardino
Quality Construct

The best care for every patient every day...

**Culture**
- Roles and expectations
- Transparency
- Leadership training—CALD III
- Champions training
- Safety competency/training
- Business Case
- Teamwork/Communications
- Rapid Response Teams
- Social Capital

**Engineering**
- Enterprise Accountability
  - Warfarin, SII, VAP-II, Pressure Ulcers, PQRI, Insulin, Surgery + Opioids, Semi-urgent Results, RFs
- Department Accountability
  - Medication Reconciliation, Universal Protocol, Hand Hygiene, Sentinel Events, Teamwork

**Execution**
- Active visible leadership
- Frontline empowerment
- Process owners
- Common scorecard and targets
- Horizontal infrastructure
- Adverse event oversight group
- 100-day discipline

**Infrastructure**
- Quality Academy
- Quality Data Management System
- Health Sciences Research
- AHRQ patient safety indicator analysis

Exercise Tolerance and Quality of Life in Elderly Patients with Chronic Atrial Fibrillation

Christopher J. Howes, MD,*† M. Carrington Reid, MD,*‡ Cynthia Brandt, MD,* Bernice Ruo, MD,‡ Michael W. Yerkey, MD, Bhargavi Prasad, MD,§ Carol Lin, MS,* Peter Peduzzi, PhD,* and Michael D. Ezekowitz, MD, PhD*‡

Conclusions: Despite a higher level of comorbidity, elderly, ambulatory patients with chronic atrial fibrillation demonstrate similar exercise tolerance and report similar quality of life to a group of age-matched control patients in sinus rhythm. There is a cohort of patients in chronic atrial fibrillation in whom a strategy of rate control and anticoagulation may be appropriate.

Key words: atrial fibrillation, chronic atrial fibrillation, elderly, exercise tolerance, quality of life.

# Core Measures of Quality for Acute Myocardial Infarction

**Indicator**

<table>
<thead>
<tr>
<th>Acute myocardial infarction process-of-care measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Percentage of heart attack patients given aspirin at arrival</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given aspirin at discharge</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given angiotensin-converting enzyme inhibitor or angiotensin receptor blocker for left ventricular systolic dysfunction</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given smoking cessation advice/counseling</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given β-blocker at discharge</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given β-blocker at arrival</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given fibrinolytic medication within 30 minutes of arrival</td>
</tr>
<tr>
<td>• Percentage of heart attack patients given percutaneous coronary intervention within 90 minutes of arrival</td>
</tr>
</tbody>
</table>

Quality of care for 233,336 people with Coronary Heart Disease

Guthrie et al 2007
Correlation between credit spread of 20-year bonds and composite core measure scores

Figure 1. Mean Scores for Clinical Quality at the Practice Level for Coronary Heart Disease, Asthma, and Type 2 Diabetes, 1998 to 2005.
Strategies for Prevention of CVD

Public health (community based) vs. High-risk clinic-based strategies

- Smoking cessation — effective
- Diet/salt reduction — effective
- Exercise — probably effective
  
  Relatively low cost
  
  - Smoking prevention: role of taxation, advertising bans, and labelling?
  - Reduction in saturated fats and elimination of trans fats?

- Lipid lowering
- BP control
- Platelet inhibitors
- Polypill — ?*

Effective

Impact of new technologies and generics
Cost efficacy may be country specific

*TIPS — The Indian Polycap Study

Identify and treat those beyond a threshold for risk factor

- Resource intensive
- Provable in RCT
- Large effect in small number of people

Shift the whole population distribution of risk factor lower

- ? Less resource intensive
- Less amenable to RCT
- Small effect in large number of people
Indonesia has been on the stage-3 (degenerative & man-made diseases) in epidemiologic transition

Prevalence of hypertension, obesity, DM in Asia (Indonesia) have been significantly increasing across the region

Quality Outcome and Quality of Life measures should be implemented in hospital and primary health care

Prevention against CVD should be based on community based and clinic-based strategy