



# IMPROVING HEALTH SYSTEM'S RESPONSIVENESS TO NON COMMUNICABLE DISEASES\*

Soewarta Kosen

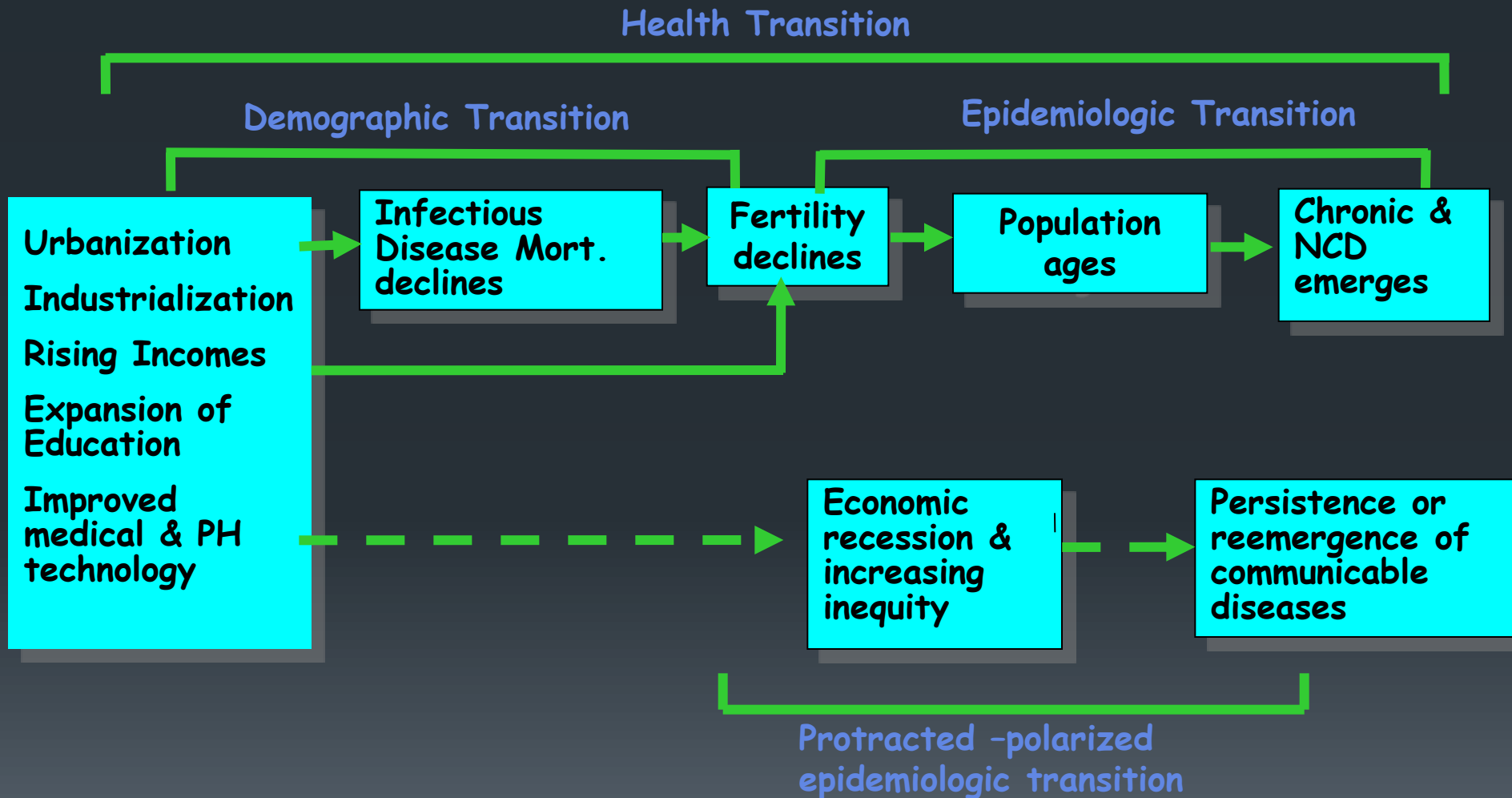
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Yogyakarta, 26-27 September 2013

# Background

- Indonesia shows good progress in reducing mortality from communicable diseases
- Shifting to lower fertility changes the age structure towards higher proportions of the elderly and middle age people (2010 Population Census)
- These combined trends lead to large increase of non-communicable diseases
- The response of health care system & public policies due to demographic transition & epidemiological transition affect amount, characteristics, distribution and burden of future diseases

# Relationships among Demographic, Epidemiologic, and Health Transition



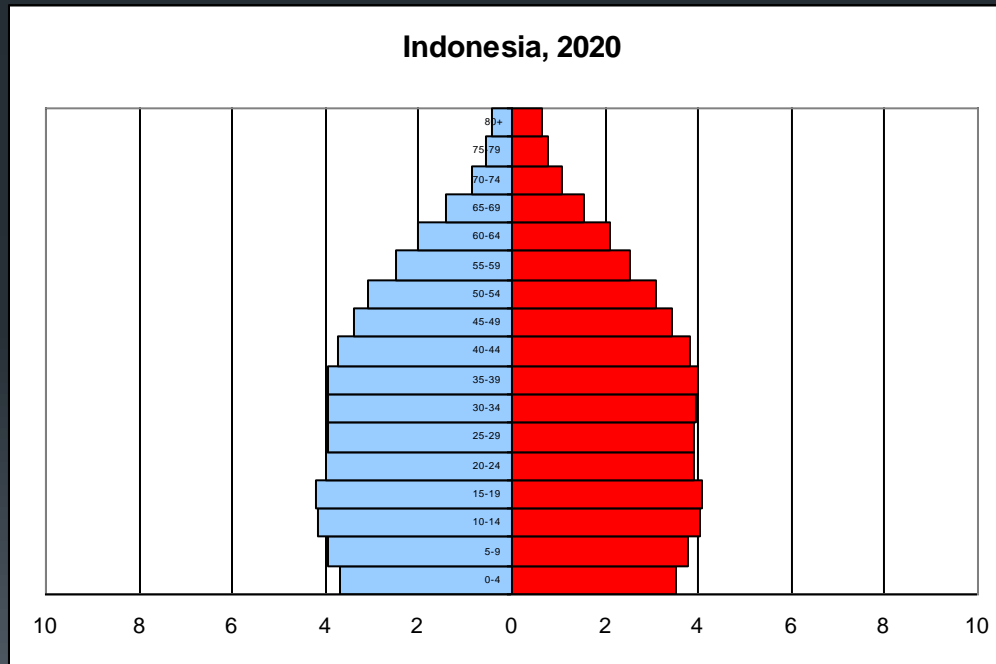
# Main Effects of Health Transition

- Indonesia: the fourth country with the largest elderly population (9,079,800 in 2010 and 29,047,600 in 2020)
- Changing pattern of BOD (due to NCD & injuries with disabilities)
- Greater demand for quality health services, disability management and long-term care
- Change complexity of required health care services (personnel, specialization, sophisticated medical equipment & technology)
- Increased expenditure for health care (primary, secondary and tertiary services)
- In general, the utilization rates of health services will increase significantly, it will affect the burden of health care facilities and the health systems as a whole

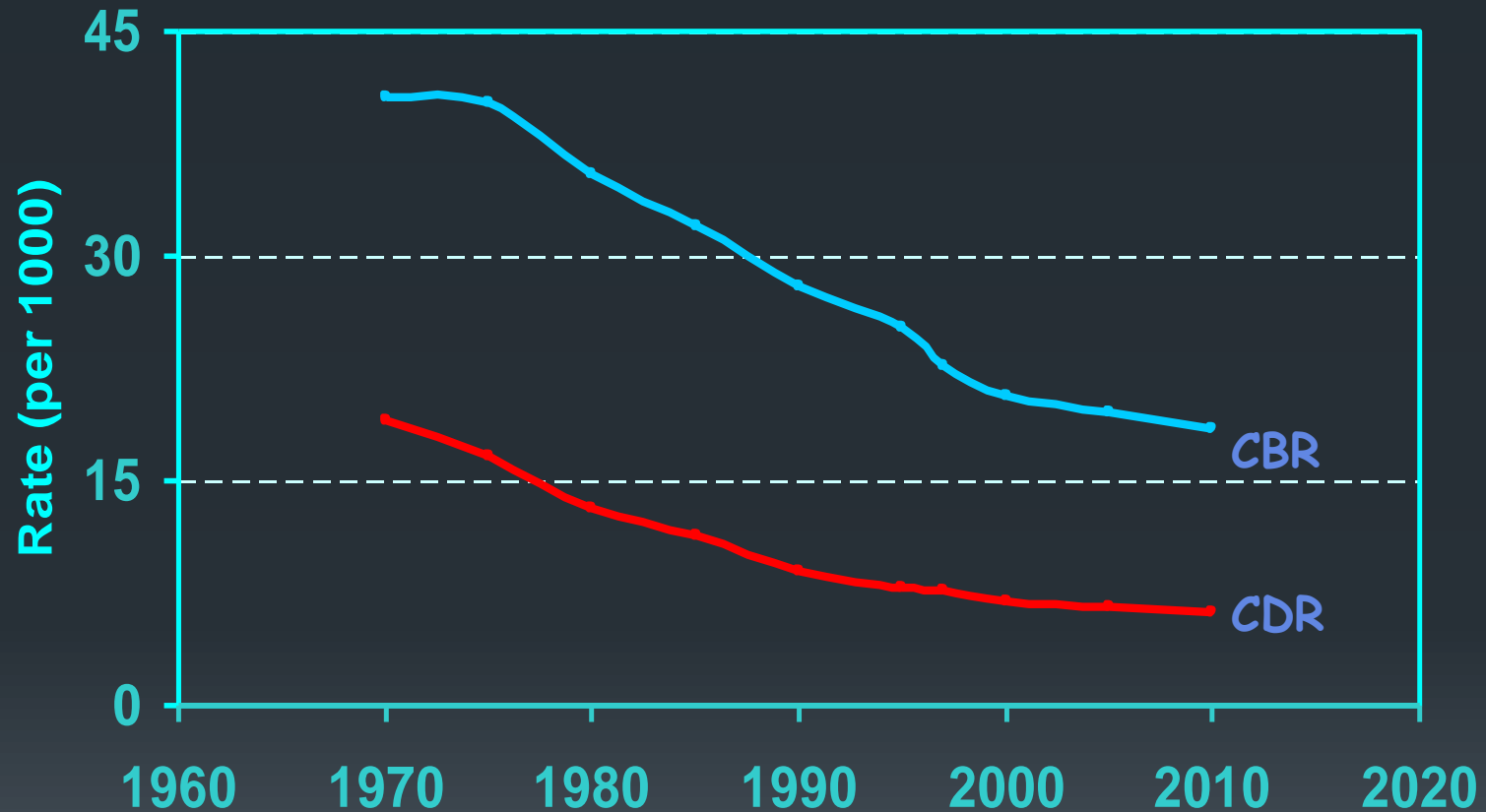
# Socioeconomic Impact of NCDs

- Developing countries including Indonesia, face elevated NCD level at earlier stages of development with shorter timeline to address the challenge
- Significant socioeconomic impact of NCDs includes: country productivity and competitiveness; fiscal pressures; health outcomes, poverty, inequity and opportunity loss.

# 2020



# Demographic Transition in Indonesia



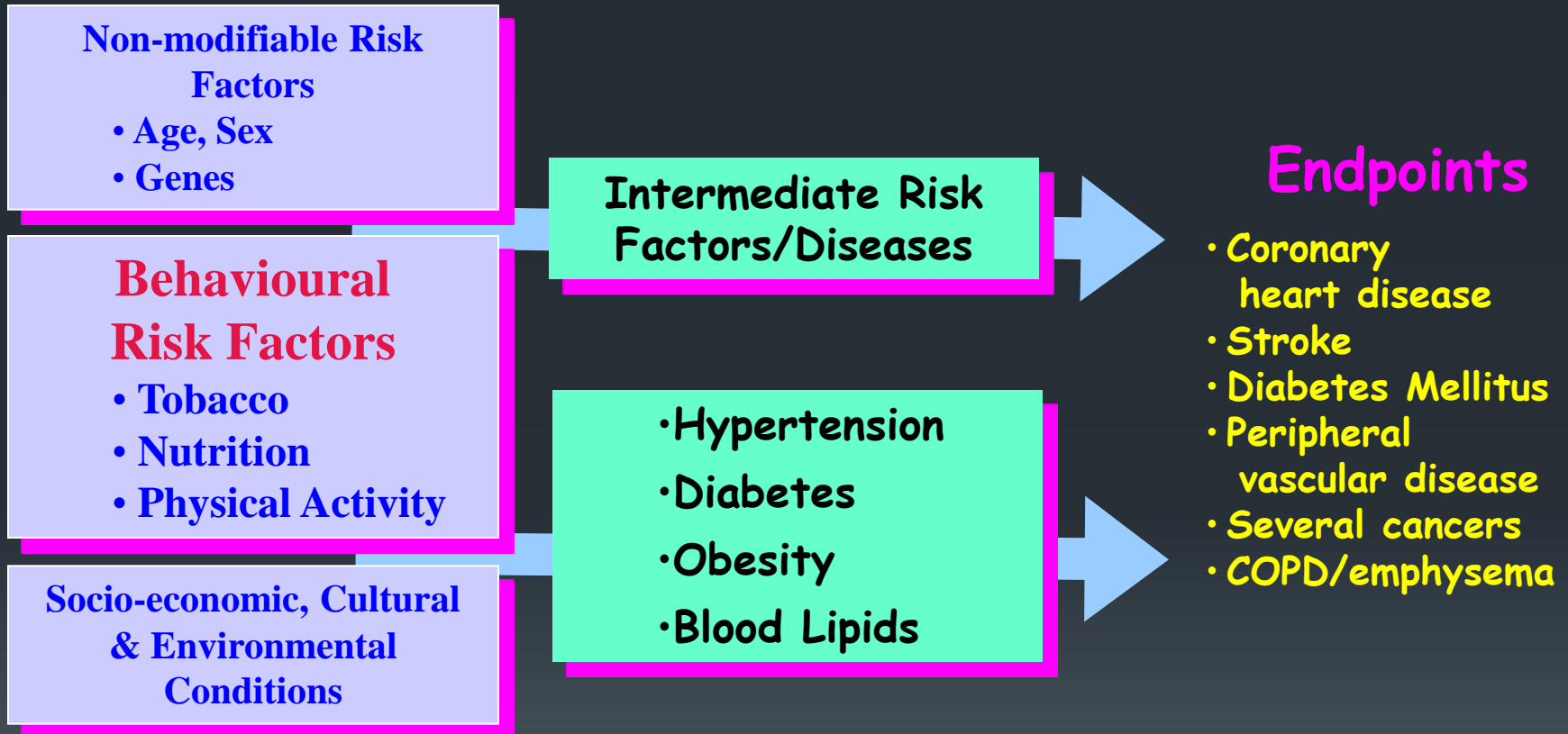
Source: Population Census 1970, 1980, 1990, 2000, 2010

## PROPORTION OF MORTALITY BY CAUSE, INDONESIA (NHHS 1980, 1985, 1992, 1995, 2001 and 2007)

Cause of Mortality	NHHS					Baseline Health Research (2007)
	1980	1985	1992	1995	2001	
Infectious Dis.	60,9	53,8	43,1	39,6	31,2	28.1
CVD	9,9	9,9	16,6	17,8	26,0	31,9
Neoplasm	3,4	4,3	4,5	4,9	6,0	5.7
Perinatal Disorders	2,9	5,3	7,2	8,3	4,9	6.0
Maternal Cond.	0,9	1,7	1,8	1,8	1,1	1,0
Injuries	3,5	4,8	5,0	5,0	5,6	6.5
Others	18,5	20,2	21,8	22,6	25,2	13,0
<b>Total</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>
<b>(N)</b>	<b>(905)</b>	<b>(2055)</b>	<b>(1213)</b>	<b>(3471)</b>	<b>(3320)</b>	



# Non-Communicable Diseases: Risk Factors and Endpoints



**Top Chart** Treemap

**Cause of Disease or Injury**  
B. Non-communicable di...

**Metric**  
DALYs (Disabilit...

**Place**  
Indonesia

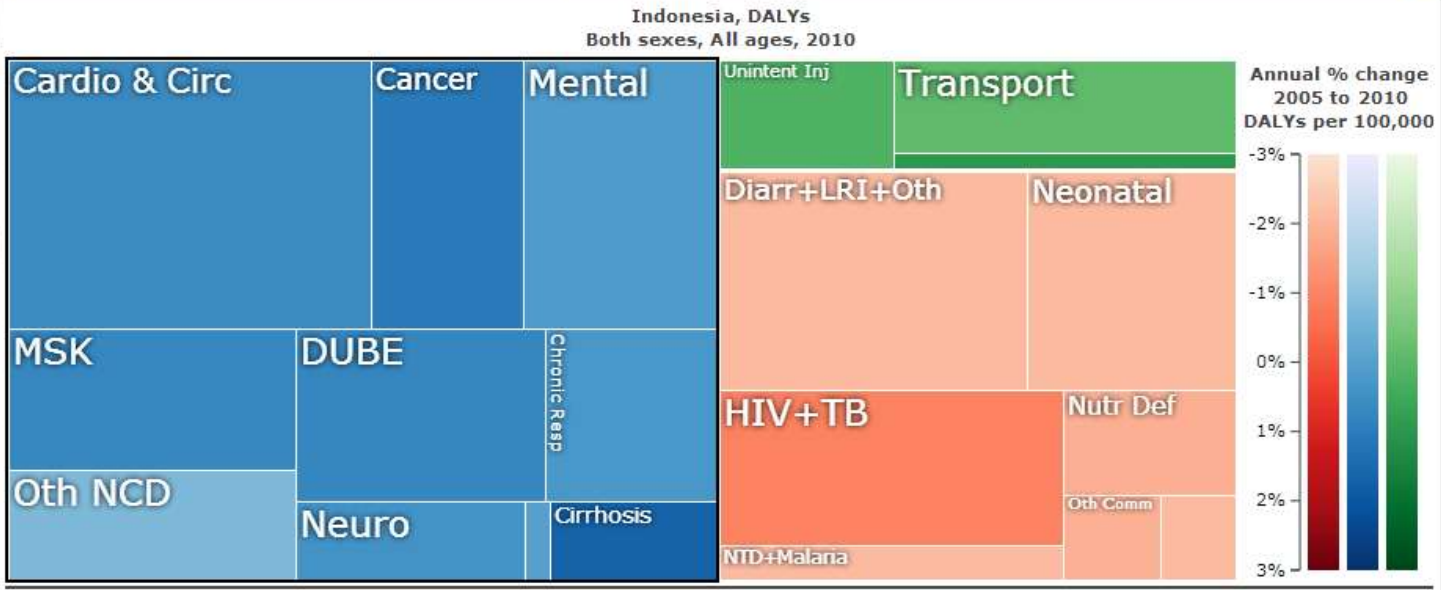
**Year** 2010

**Age** All ages

**Sex** Both Male Female

**Depth** 2

**Color** Rate of Change



**Bottom Chart** Map

**Display** Cause of Disease or Inj...  
B. Non-communicable di...

**Metric**  
DALYs (Disabilit...

**Place**  
Indonesia

**Year** 2010

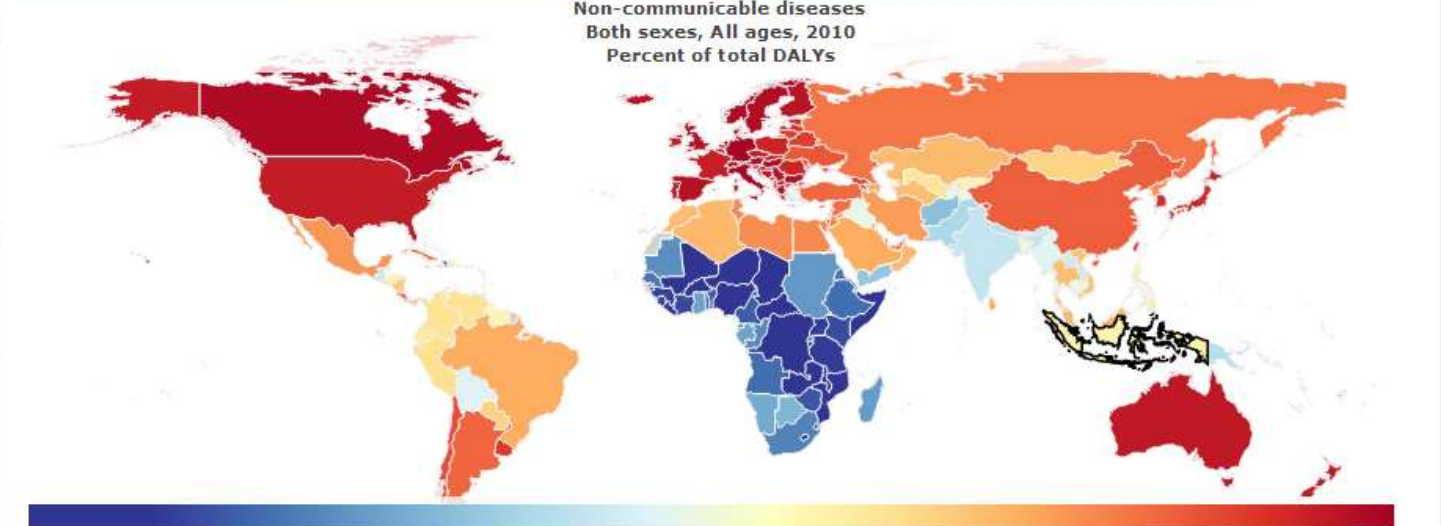
**Age** All ages

**Sex** Both Male Female

**Units** # Rate %

**Mapping Level** Country

**Zoom** - Reset +





Both

Male

Female

#

Rate

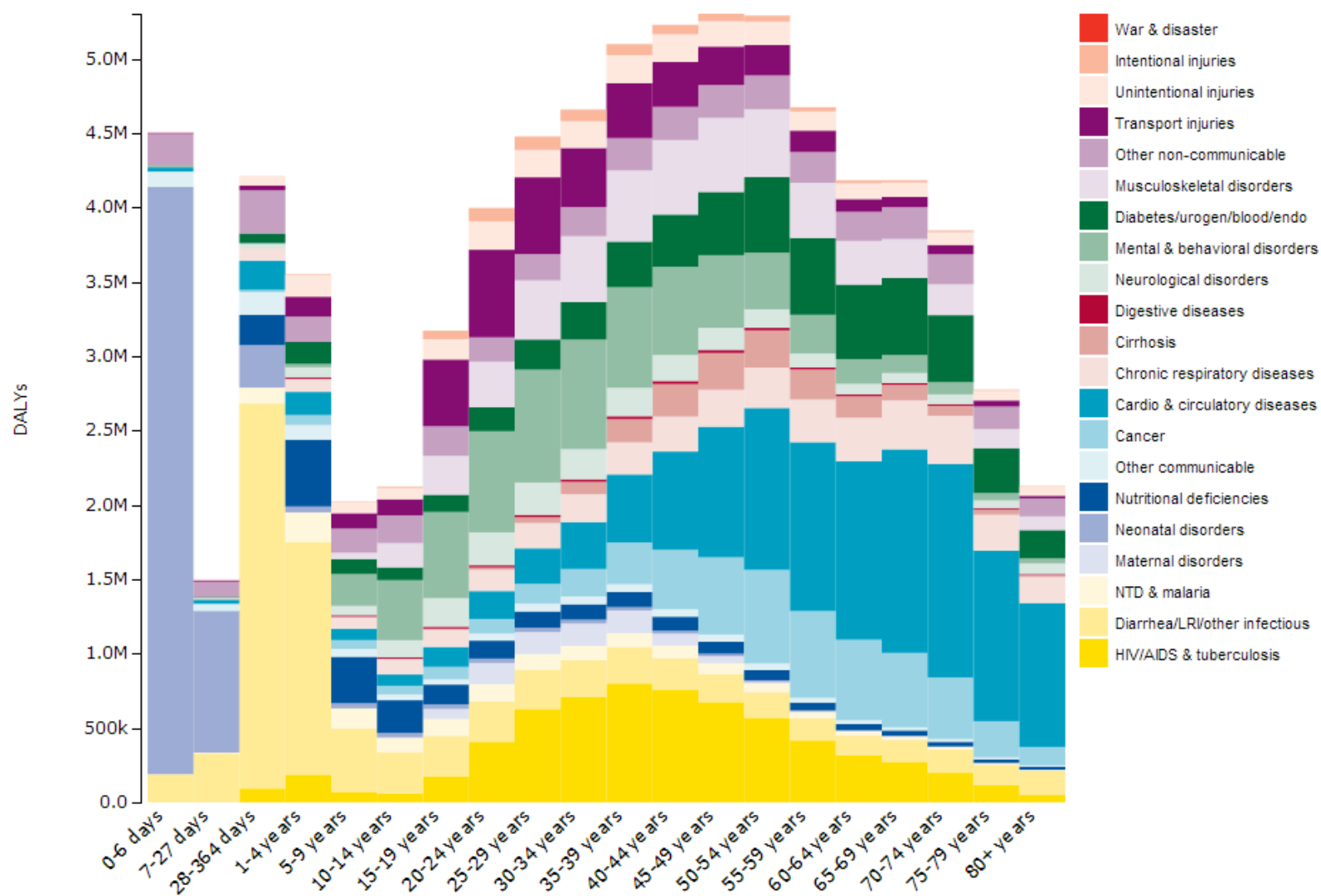
%

DALYs (Disability-...)

Indonesia

Overview

2010



Age

Location

Year

Sex



Indonesia

Top 20

Causes Risks

W

Both Male Female

YLL (Years of Life Lost)

All ages



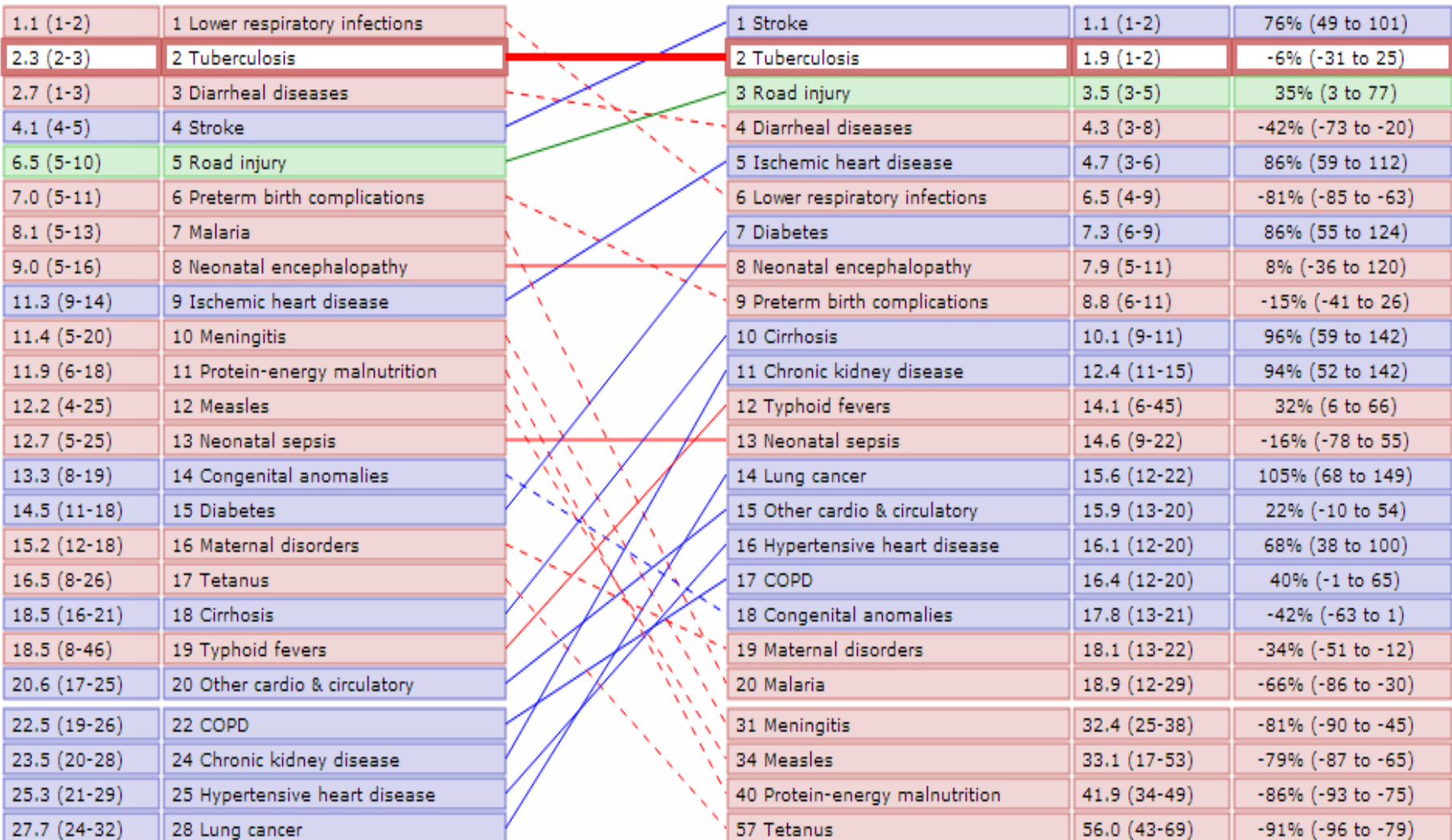
## 1990 Mean rank (95% UI)

1.1 (1-2)	1 Lower respiratory infections
2.3 (2-3)	2 Tuberculosis
2.7 (1-3)	3 Diarrheal diseases
4.1 (4-5)	4 Stroke
6.5 (5-10)	5 Road injury
7.0 (5-11)	6 Preterm birth complications
8.1 (5-13)	7 Malaria
9.0 (5-16)	8 Neonatal encephalopathy
11.3 (9-14)	9 Ischemic heart disease
11.4 (5-20)	10 Meningitis
11.9 (6-18)	11 Protein-energy malnutrition
12.2 (4-25)	12 Measles
12.7 (5-25)	13 Neonatal sepsis
13.3 (8-19)	14 Congenital anomalies
14.5 (11-18)	15 Diabetes
15.2 (12-18)	16 Maternal disorders
16.5 (8-26)	17 Tetanus
18.5 (16-21)	18 Cirrhosis
18.5 (8-46)	19 Typhoid fevers
20.6 (17-25)	20 Other cardio & circulatory
22.5 (19-26)	22 COPD
23.5 (20-28)	24 Chronic kidney disease
25.3 (21-29)	25 Hypertensive heart disease
27.7 (24-32)	28 Lung cancer

## 2010 Mean rank (95% UI)

1 Stroke	1.1 (1-2)	76% (49 to 101)
2 Tuberculosis	1.9 (1-2)	-6% (-31 to 25)
3 Road injury	3.5 (3-5)	35% (3 to 77)
4 Diarrheal diseases	4.3 (3-8)	-42% (-73 to -20)
5 Ischemic heart disease	4.7 (3-6)	86% (59 to 112)
6 Lower respiratory infections	6.5 (4-9)	-81% (-85 to -63)
7 Diabetes	7.3 (6-9)	86% (55 to 124)
8 Neonatal encephalopathy	7.9 (5-11)	8% (-36 to 120)
9 Preterm birth complications	8.8 (6-11)	-15% (-41 to 26)
10 Cirrhosis	10.1 (9-11)	96% (59 to 142)
11 Chronic kidney disease	12.4 (11-15)	94% (52 to 142)
12 Typhoid fevers	14.1 (6-45)	32% (6 to 66)
13 Neonatal sepsis	14.6 (9-22)	-16% (-78 to 55)
14 Lung cancer	15.6 (12-22)	105% (68 to 149)
15 Other cardio & circulatory	15.9 (13-20)	22% (-10 to 54)
16 Hypertensive heart disease	16.1 (12-20)	68% (38 to 100)
17 COPD	16.4 (12-20)	40% (-1 to 65)
18 Congenital anomalies	17.8 (13-21)	-42% (-63 to 1)
19 Maternal disorders	18.1 (13-22)	-34% (-51 to -12)
20 Malaria	18.9 (12-29)	-66% (-86 to -30)
31 Meningitis	32.4 (25-38)	-81% (-90 to -45)
34 Measles	33.1 (17-53)	-79% (-87 to -65)
40 Protein-energy malnutrition	41.9 (34-49)	-86% (-93 to -75)
57 Tetanus	56.0 (43-69)	-91% (-96 to -79)

## Median % change (95% UI)



**Top Chart** Stacked Bar Ch...

**Risk Factor Category**  
Overview

**Metric** DALYs (Disabilit...

**Place** Indonesia

**Year** 2010

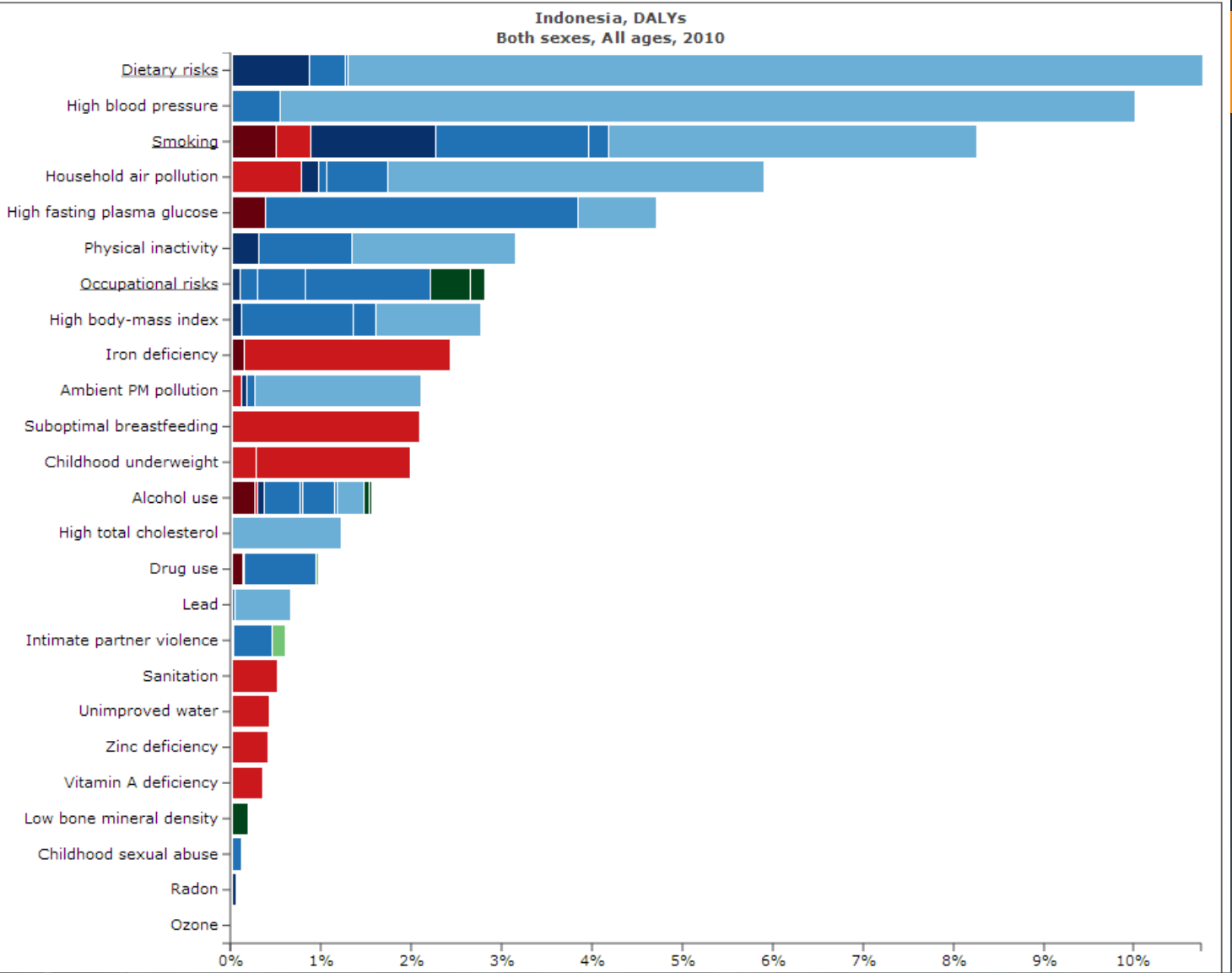
**Age** All ages

**Sex** Both Male Female

**Units** # Rate %

**Bar Order** Rank Alphabetical

**Bottom Chart** None selected

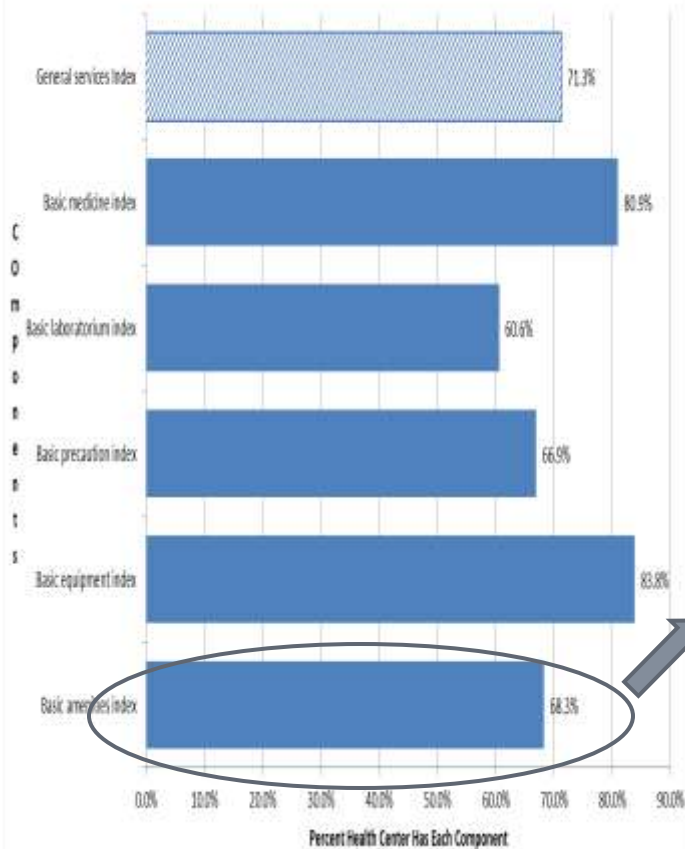


# Prevalence of Active Smokers Aged 15 years and above by sex, Indonesia 1995 - 2011

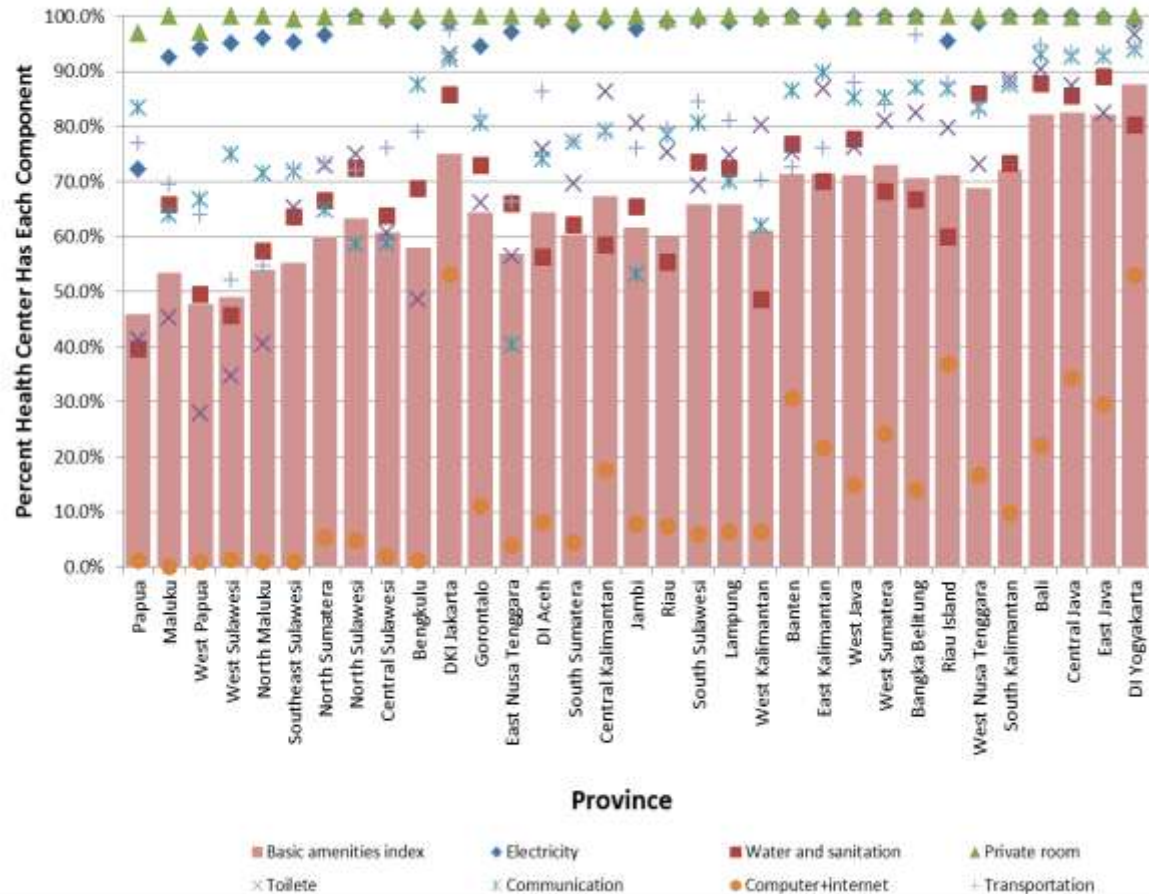
Year	Male	Female	Total	Source of Data
1995	53.9	1.7	27.2	Susenas
2001	62.9	1.4	31.8	Susenas
2004	63.0	5.0	35.0	Susenas
2007	65.3	5.6	33.4	Baseline Health Research
2010	65.9	4.2	34.7	Baseline Health Research

# General Service Readiness at Health Center

## Supply Side Readiness for General Services

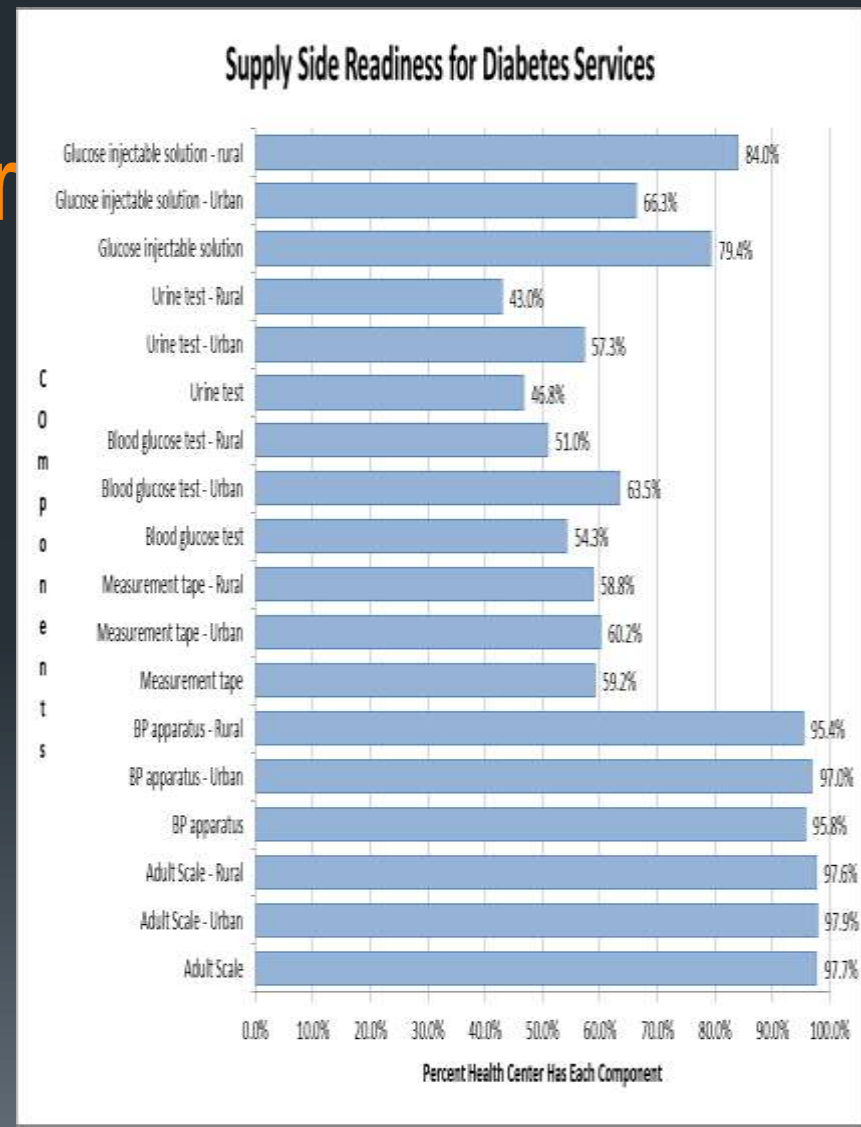


## Basic Amenities



# Provision of diabetes-related care at health center

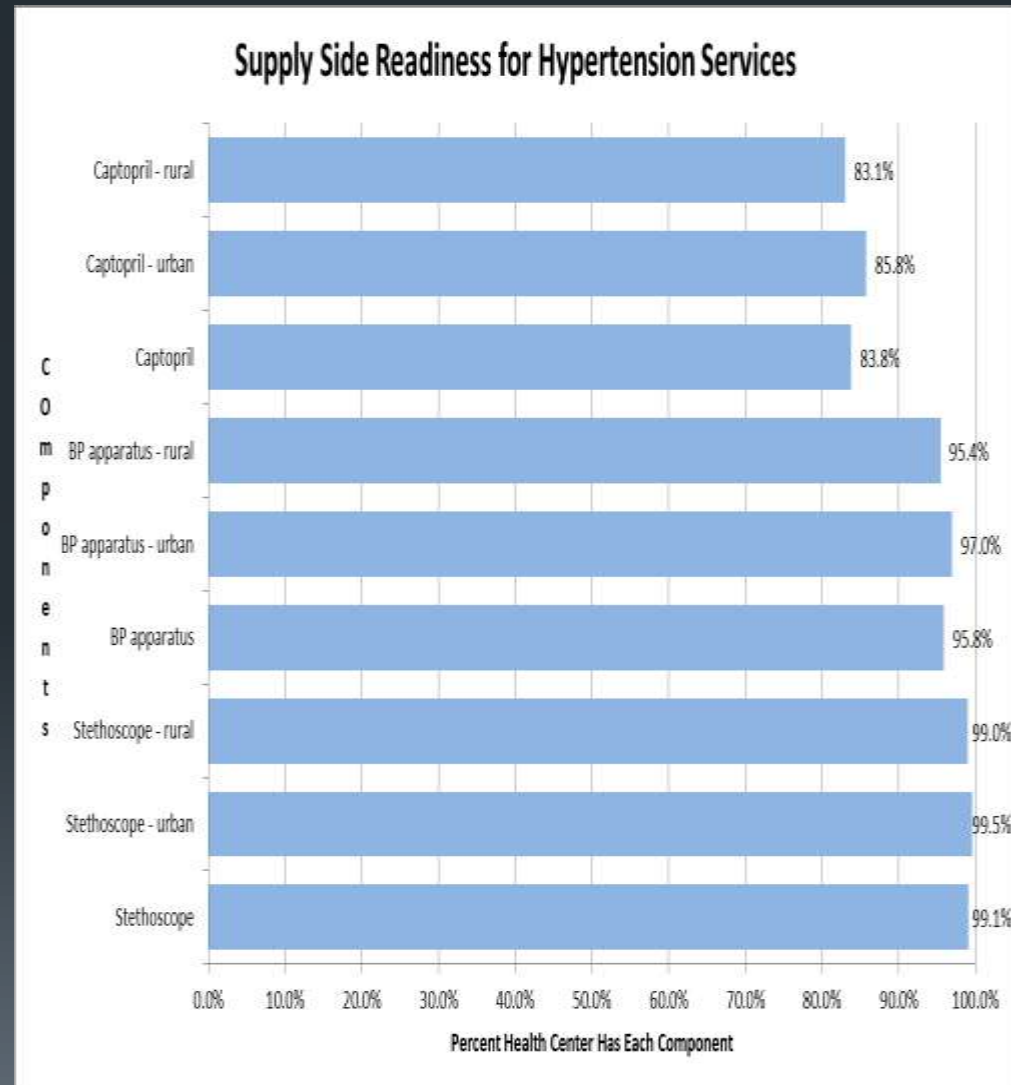
Domain	Puskesmas basic service standard guidelines	WHO SARA guidelines	Indicators used for assessment
Staff & Training		Guidelines for diabetes diagnosis and treatment.	
Equipment	Blood pressure apparatus; adult scale; measuring tape (height board/stadiometre); glucometer.	Digital blood pressure machine or manual sphygmomanometer with stethoscope; adult scale; measuring tape (height board/stadiometre).	Blood pressure apparatus; adult scale.
Diagnostics	Urine test (protein); urine test (ketones).	Blood glucose; urine dipstick (protein); urine dipstick (ketones).	Blood glucose; urine dipstick (protein); urine dipstick (ketones).
Medicines & Commodities	Metformin cap/tab; glibenclamide.	Metformin cap/tab; glibenclamide.	





# Supply-side implications for provision of hypertension-related care at health centers

Domain	Puskesmas basic service standard guidelines	WHO SARA guidelines	Indicators used for assessment
Staff & Training		Guidelines for hypertension diagnosis and treatment	
Equipment	Blood pressure apparatus.	Digital blood pressure machine or manual sphygmomanometer with stethoscope.	Blood pressure apparatus
Medicines & Commodities	Hydrochlorothiazide; reserpine; propranolol; captopril; nifedipine.	Atenolol; captopril.	Captopril.



# Changes of the health sector profile in Indonesia

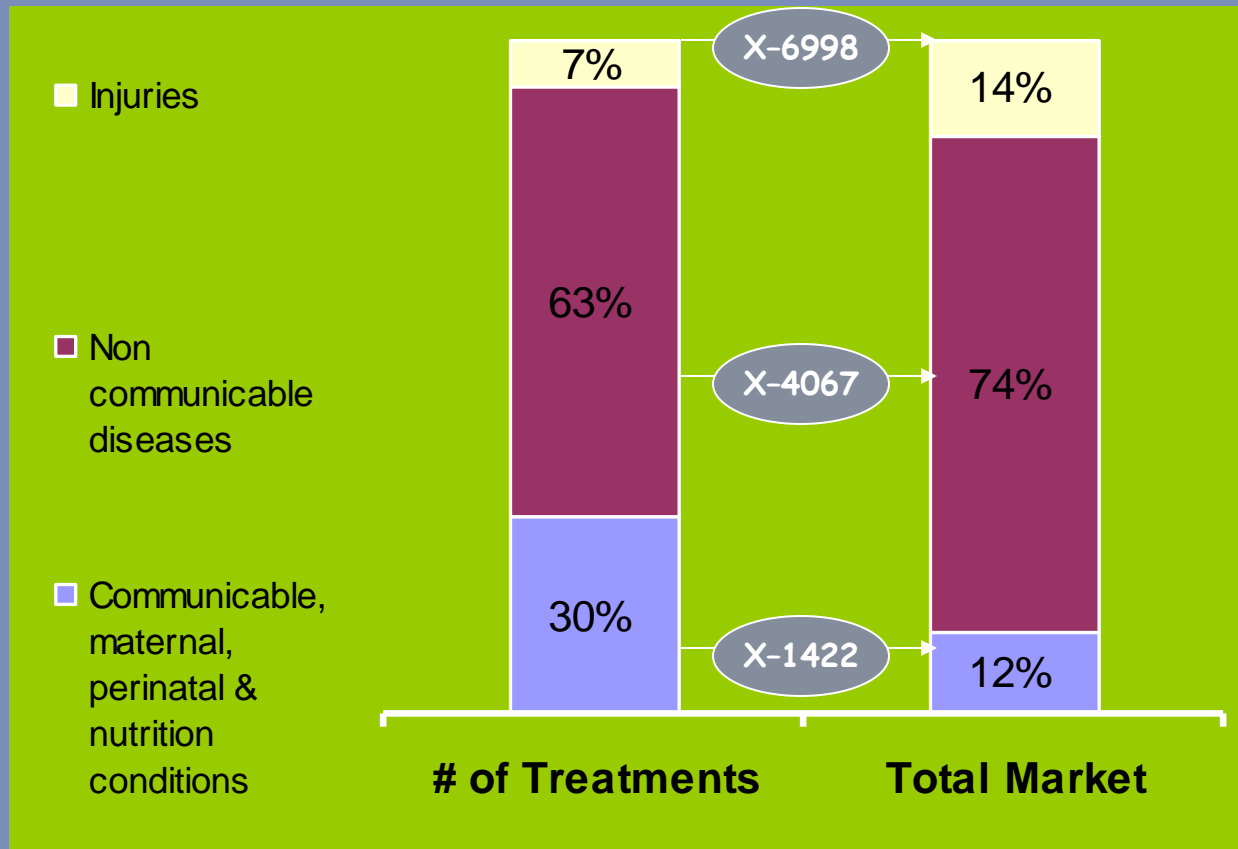
- The mix of diseases is changing due to the epidemiological and demographic transition
- The private sector has become more important in meeting community demand for health services
- These changes are set to continue in the future
- Overall health spending (both private and public) is low by international standards, and much of current public sector health spending is devoted to curative care

# Strategy of the Indonesian Health Sector to respond to the changes

- Estimate the future demand for health services
- Assess implications for the role of the public sector and of the private sector (better regulated)
- How to finance the changes?
- How to ensure equity?
- How to ensure efficiency?
- Articulate a health sector strategy to address these implications
- “Strengthening the health systems to be able to respond appropriately and to protect the poor”

# 74% of inpatient spending is on treatment of non-communicable diseases in Central Jawa, 2005

100% = 858,000 100% = Rp. 2.91 trillion



The high cost of non-communicable disease treatment drives the total inpatient spending in Jateng

# In the near future: the need for beds and skilled manpower will increase significantly

## Forces at work

- Increase in demand for treatments, especially for hospitalisation
- Shift in demand to expensive diseases, e.g., cancer, heart diseases
- Increased demand for high quality inpatient and outpatient care

## Requirements in tangible assets: beds

- Increase of at least 100% in overall number of bed days required
- High likelihood of even greater increase in number of tertiary beds required

## Requirements in tangible assets: manpower

- Increase in number of physicians per population from current low rate
- Corresponding increase in number of nurses and other health care personnel

# POLICY IMPLICATIONS<sup>22</sup>

- Indonesia needs to enhance efforts to improve the population health status.
- To accelerate reduction of the Burden of Non Communicable Diseases, special efforts should be prioritized, planned and implemented; especially control of major risk factors of Non-Communicable Diseases: unhealthy diet including reduction of salt consumption and avoiding high total cholesterol food, controlling high blood pressure and smoking behavior

# POLICY IMPLICATIONS

- Beside controlling major risk factors for Non-Communicable Diseases, controlling Communicable Diseases with big “burden” also need to be prioritized; this include among others: Tuberculosis, Diarrheal Diseases, Pneumonia, Typhoid Fever, Malaria and HIV/AIDS
- Further research should be conducted to investigate etiologies and determinants of high incidence of blood hypertension, Diabetes Mellitus, Cirrhosis Hepatis, Chronic Kidney Disorders

# Tackling Stroke

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1. Stroke is not only the #1 cause of burden it is also the disease with the biggest gap between Indonesia and comparator countries.
2. Key factors include high levels of hypertension, tobacco consumption, and diet especially high sodium consumption and low fruit consumption.
3. Two key strategies to tackle high stroke rates.
  - First, risk factor reduction through public health campaigns, taxation and legislation.
  - Second, blood pressure management through effective diagnosis, treatment and follow up in primary care.



# Massive Rise of Diabetes and Chronic Kidney Diseases <sup>25</sup>

1. Diabetes and Chronic Kidney Disease have risen by 86% and 90% respectively since 1990.
2. Disease burden and cost on these conditions will steadily grow. In most countries, cost per case is very high
3. Prevention strategies such as encouraging physical activity and weight reduction are important, but given experience in other countries, Indonesia needs to aggressively manage complications such as retinopathy, nephropathy, neuropathy and cardiovascular complications through improved primary care.

# Tobacco Control

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1. Tobacco consumption is high in Indonesia. Rising burden in men (now the highest prevalence in the world) means that tobacco's toll in Indonesia is nearly equal to the United States in 1990.
2. Burden will continue to rise for decades on current patterns of consumption.
3. Future cost in terms of cardiovascular diseases, stroke, respiratory diseases (COPD), cancers and other outcomes will be very large.
4. Aggressive tobacco control efforts following the FCTC and WHO - MPOWER are urgently needed.

# Household Air Pollution

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1. Declining since 1990 but still fourth leading risk factor and third leading contributor to potential burden reduction.
2. Poverty related agenda as burden is concentrated in poor households using solid fuels for cooking, e.g. In East Indonesia
3. Important contributor to child and adult female mortality because of increased exposure in both groups.
4. Changes in cooking technology or shifts to clean fuels (LNG) can accelerate reduction in this risk factor.

# Transforming the Ministry of Health

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1. Pace of epidemiological change is very rapid. The rise of non-communicable diseases and behavioural risks requires a different type of training and skill set than managing communicable diseases.
2. Often difficult for Ministries of Health to transform their staff and structure to cope with the new challenges.
3. This transformation will continue and likely accelerate with continued development in Indonesia; the Ministry of Health should consider ways to ensure that it has the work force needed to tackle these problems.

# Needed Actions of Health Systems to Address NCD

- Universal coverage of health care to improve access to essential drugs and technologies
- Increase allocation of budget for management of NCD, curbing the related risk factors and promote healthier life styles
- Strengthen the promotive & preventive roles of primary health care program
- Integrate the health services for NCD with the continuum of care
- Embrace action beyond the health sector: Education, Public Works, Industry, Transportation, Agriculture
- Curbing key risk factors: improved tobacco control efforts, salt reduction, promotion of healthy diets and physical activity, reduction in harmful use of alcohol

# Implications for Jaminan Kesehatan Nasional (JKN)

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- Results of the burden of disease in terms of incidence and prevalence of disease along with information on likely costs per case treated should be used to forecast the financial burdens that should be expected due to the epidemiological transition
- Instituting disease expenditure tracking and linkage to ongoing updates of the burden of disease should be undertaken to aid in anticipating high cost areas of care delivery.

# CONCLUSIONS

- A good leadership is needed to engage stakeholders across the public and private
- The assessment of epidemiologic situation in Indonesia in the last decade shows the rapid shift in the distribution of diseases from Communicable Diseases, Maternal, Perinatal and Nutritional Conditions to the relatively expensive Non-Communicable Diseases of the adults and the elderly
- This shift and the epidemiologic diversity due to differences in the pace of transition and level of development are reflected in morbidity and mortality pattern
- Beside changing of the disease profile, changing in health care costs due to sophisticated medical technology and demand for quality health services by the growing middle and high socioeconomic groups, should be early anticipated by national and local governments Good leadership that engages stakeholders across the public and private

# CONCLUSIONS

- Comprehensive and intelligent calculation of the health care budget and other health resources (including health personnel, drugs, medical equipment, infrastructures) are needed in each administrative level of government to anticipate changes in health care needs
- Activities to define and quantify the future burden of disease and injury to estimate future health scenarios, are important in shaping national and local public policy
- Efforts to control important risk factors (such as tobacco, diet and physical activity) of NCD, should be intensified to reduce the future burden of health care and to avoid experience of developed countries
- Enhance the role of the public sector:
  - Oversight and stewardship
  - Implement Essential public health functions (UW-SPM)
  - Regulation
  - Ensuring equity
  - Ensuring quality
  - Ensuring access – physical and financial (universal coverage)



*TERIMA KASIH*

