

# Covid-19 and health system challenges in addressing NCDs in Indonesia

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# **Covid-19 and non-communicable diseases**

Covid-19 pandemic has disrupted the entire health services.

Disruptions may halt and reverse some of the progress made in the health sector.

Strong associations between Covid-19 and non-communicable diseases highlight the enormous burden NCD put on the health system.

Direct and indirect effects of the pandemic threaten to increase this burden.

Addressing NCDs must be a key part in any plan on health sector recovery.

## Context: increasing burden of NCDs

Between 1990 -2019, NCDs became major contributors to the burden of diseases in Indonesia

NCDs and comorbidities: increasingly burden on financial sustainability of the universal health care system

Economic costs of NCDs is likely to be high

At the same time: persistent issues of neonatal and maternal health, infectious diseases, nutritional diseases

All the above are on top of existing gaps in physical health infrastructure, health workforce, issues with inequities, and governance

*These are the challenges faced by Indonesian health system **before** the Covid-19 pandemic*

# Outline of the talk

Context

NCDs challenges in Indonesia: health outcomes

- Epidemiological transitions, prevalence and risk factors, socio-economic correlates

NCDs challenges in Indonesia: health systems

- health infrastructure, NCD management, finance, governance

Framework of analysis

Covid-19 and NCDs: direct and immediate effects

Covid-19 and NCDs: indirect, medium- and long-term effects

Insights and policy implications

# **NCD challenges prior to Covid19**

# Changing burden of diseases, Indonesia 1990-2017

In 1990 top three (DALYs):

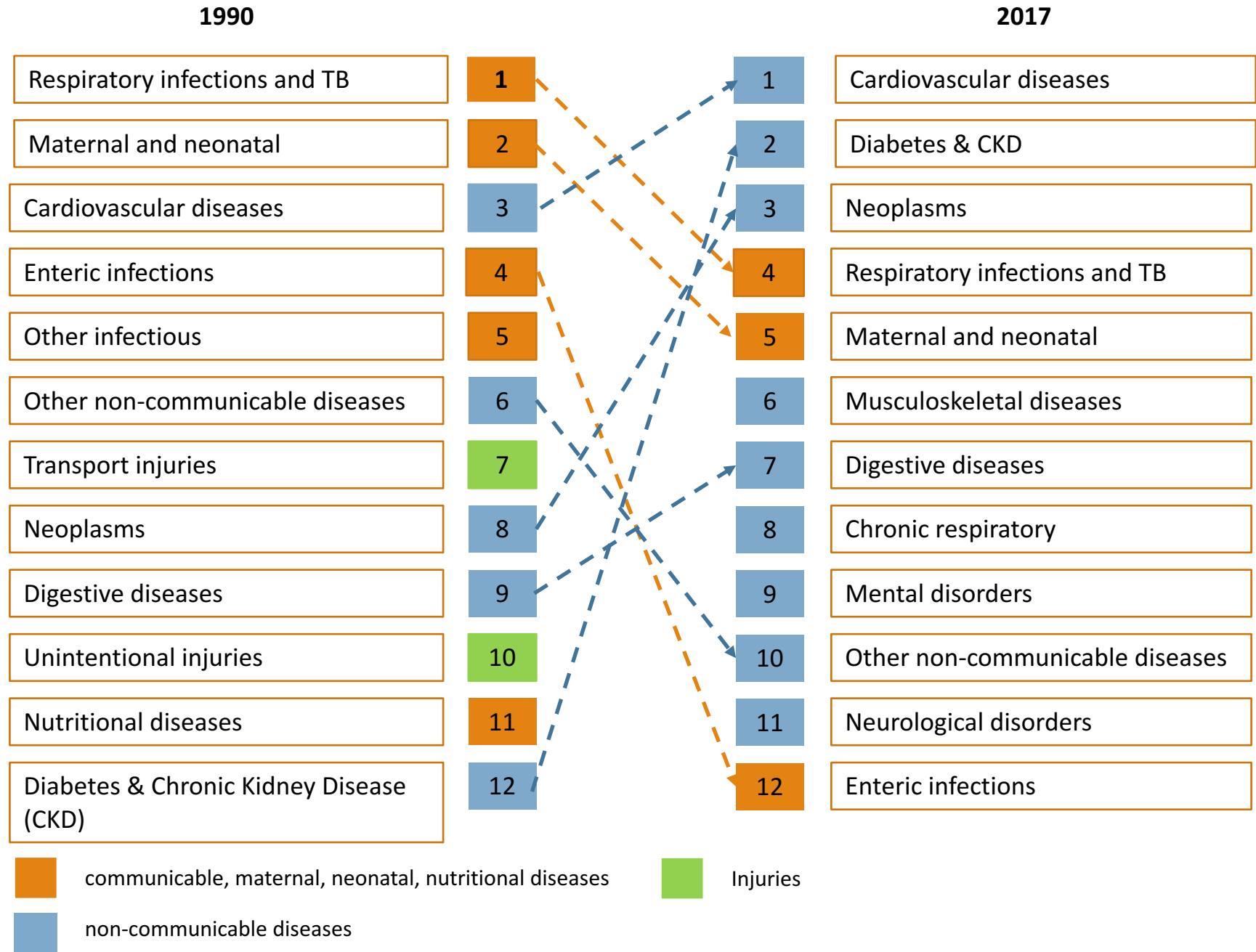
- respiratory infections TB
- maternal and neonatal
- cardiovascular diseases

By 2017, all top three are NCDs.

NCD contribution to total DALYs:

- 2000: 52%
- 2017: 66%

Source: IHME



# Major risk factors affecting health status (DALYs)

Risk factors  
of NCDs

Risk factors	% of total DALYs lost					
	1990	1995	2000	2005	2010	2016
Dietary risks	5.2	8.3	10.2	9.6	10.7	13.6
High blood pressure	4.8	6.0	7.4	8.9	10.0	13.4
Smoking	6.3	6.3	6.0	6.2	8.3	8.1
Household air pollution	9.7	8.2	6.4	5.9	5.9	2.5
High fasting plasma glucose	2.8	3.3	3.9	4.4	4.7	10.1

Mahendradhata et al. (2018)

The WHO data also shows that and despite the prevalence of physical inactivity has been declining over the year there was still around one out of five adults Indonesians aged 18+ who has not been physically active in 2016

Potential policy implication?

# Geographical differences

% hypertensive (diagnosed or taking medication)



% hypertensive (measured)



Source: RISKESDAS 2018

Geographical differences in the prevalence of NCDs and risk factors

Hypertension – you would see regional clusters for example, in Java and Kalimantan

True for several other NCDs and risk factors.

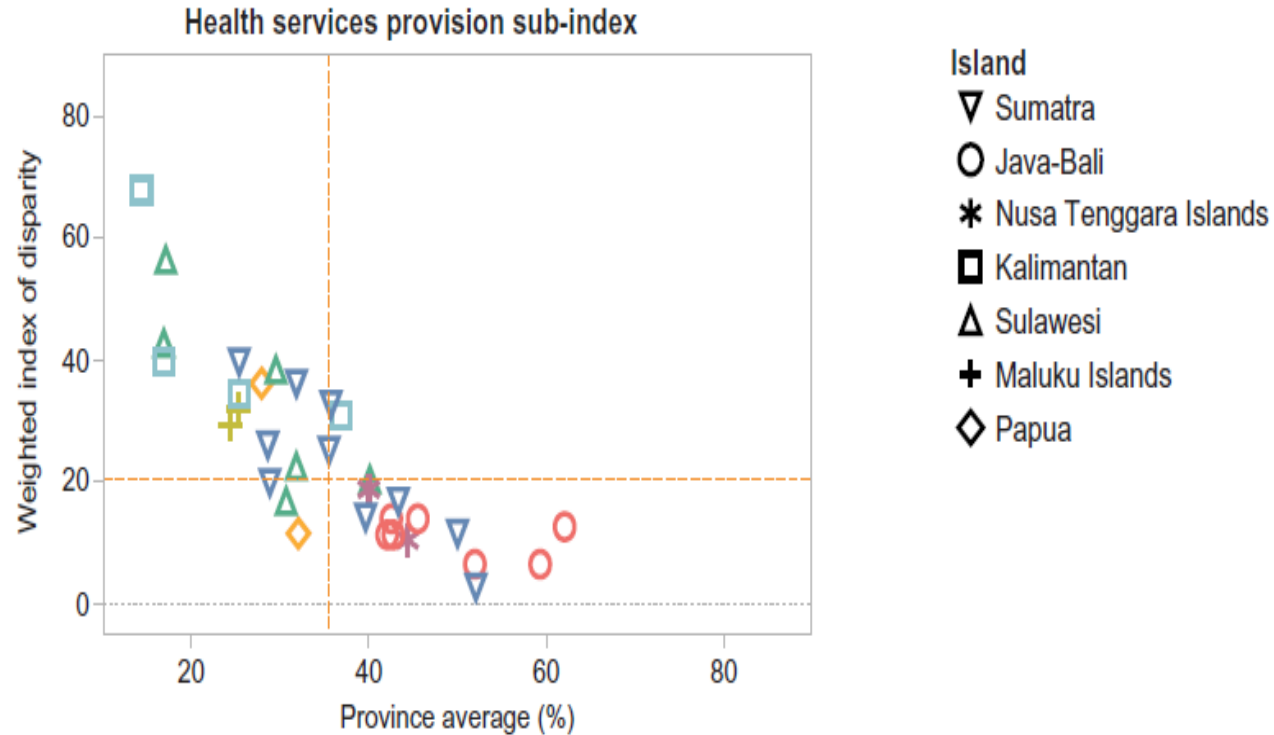
Geographically variation appears to be an influential factor, due to differences in ethnicity, food consumption, culture and lifestyle (e.g. Sutanegara et al., 2000) in addition to health infrastructure and disease environment

Notes:

under-diagnoses (difference between doctor-diagnosed and measured)



# Health capacity gaps: infrastructure and health workforce



Source: Suparmi et al. (2018)

Public Health Development Index (PHDI): a composite index of 30 indicators capturing public health infrastructure, services, behavioural risk factors and health outcomes (2013 RISKESDAS and the 2011 PODES).

National average PHDI index was 54.0 (out of a max 100); ranging from 43.9 in Papua to 65.0 in Bali.

Western provinces tended to have higher overall PHDI scores compared to eastern regions.

Health services provision: proportion of institutional delivery; sub districts with sufficient number of GPs; village with sufficient number of health posts; midwife sufficiency and health insurance ownerships

Universal health care, Supply side :

- by July 2017: 26,000 health facilities and providers serving 180.7 million total member
- by July 31, 2020, 27 036 health facilities and providers, serving 221.8 million total member

## **Socio-economic correlates**

Previous literature on socioeconomic differentials and incidence or prevalence of NCDs has suggested mixed findings on the association between socio-economic factors and NCDs or its risks (Allen et al., 2017; Schrodgers et al., 2017; Sommers et al., 2015).

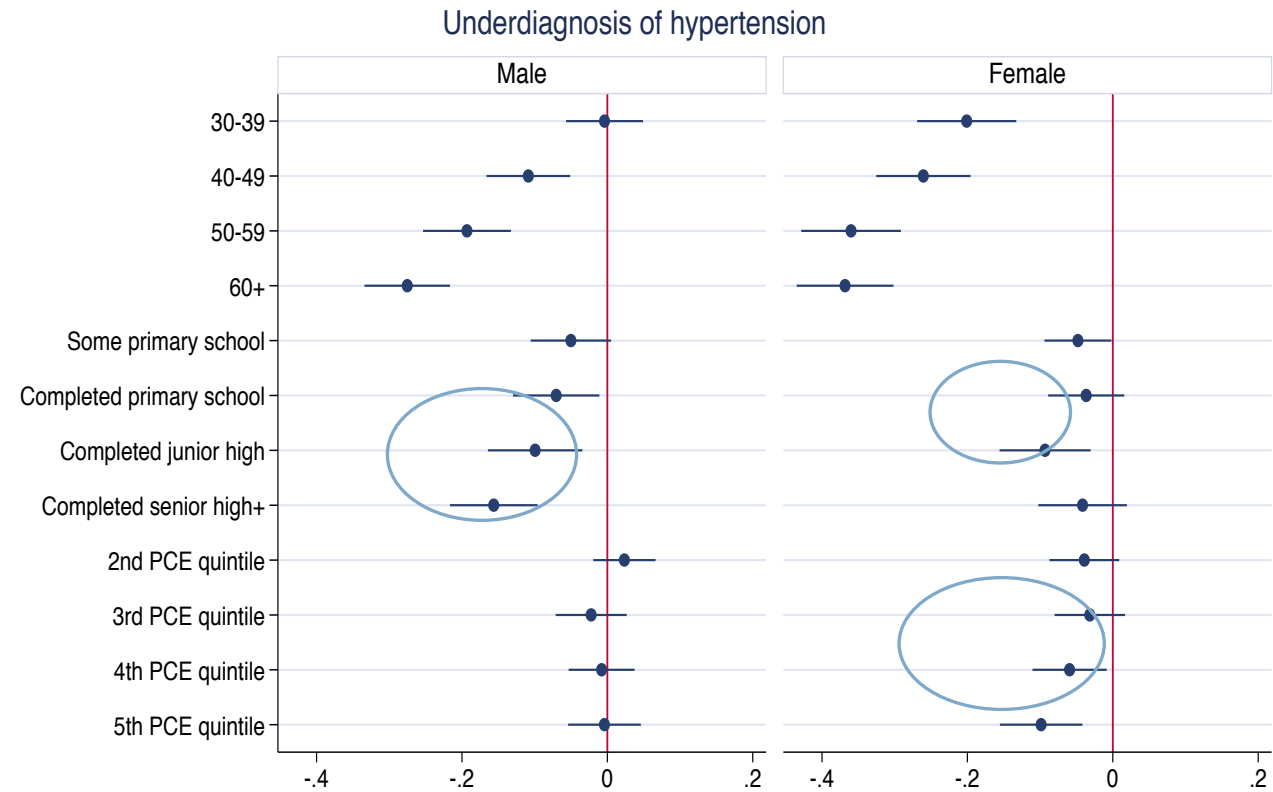
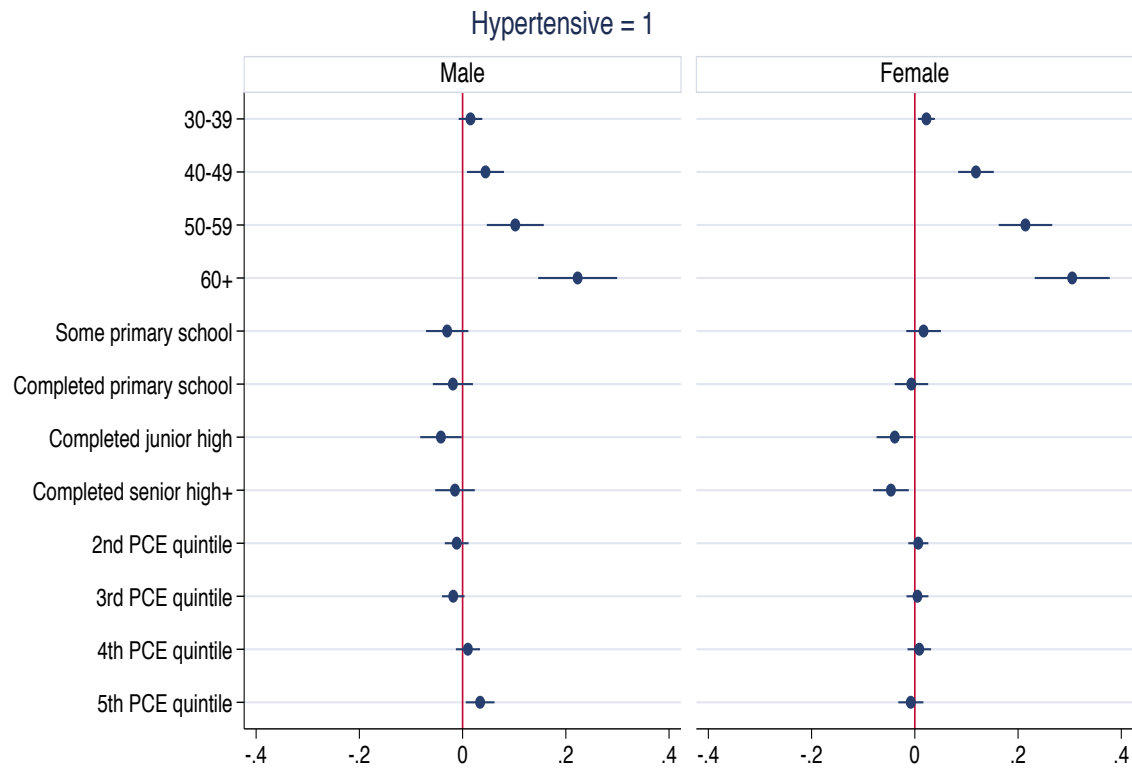
For example, Allen et al. (2017) through their systematic review, found that both low and high SES can have high risk factors of NCDs:

- Low SES groups have a higher prevalence of unhealthy habits such as consumed higher tobacco and alcohol, consumed less fruit, vegetables, fish, and fibre than those of high socioeconomic status.
- High SES groups - less physically active and consume more fats, salt, and processed food than individuals in low SES groups.

Miranti (2018) found mixed associations between socio-economic indicators and public health indicators at the regional level in Indonesia

# Underdiagnoses (and under-treatment) of NCDs and NCD risk factors are correlated with socio-economic status

- Underdiagnoses of hypertension is negatively correlated with education and per capita expenditure
- Similar findings with diabetes (HbA1c measured using dried blood spots)



Source: IFLS5 (2014)

# Financial burden of NCDs

Diabetes and stroke are predicted to have the largest proportional increase in UHC cost burden by 2020, at 56% for diabetes and 57% for stroke, followed by a 46% increase in costs for hypertension, and 34% increase in heart disease costs. This would possibly impose a burden of US\$5.8 billion on the system (Agustina et al., 2019)

Coverage is still not universal: large fraction of the "missing middle" who are without BPJS coverage still need access to NCD services → need to pay out of pocket for catastrophic diseases

Beyond financial burden borne by the health financing system and households, there are also economic costs in terms of labour supply and productivity lost.

# Mental health

Despite the stable contribution of mental health to around 8% of total NCD DALYs 2000-2016 in Indonesia, however a couple of challenges:

Mental disorders are the seventh biggest cause of disability in Indonesia, as of 2016 (Agustina et al. 2018)

Socio-economic characteristics correlates with mental health. Using IFLS data, Tampubolon and Hanandita (2014) found a significant relationship between poverty and depression in Indonesia, a 1% decrease of per capita household expenditure was associated with a 0.05% increase in depressive symptoms.

Miranti and Li (2020) found that jobs strain (a low-control-high-demand job) and job mismatch (overwork and underwork have a significant negative impact on reported mental health scores

Drawing lesson from Australia, in the context of COVID-19 where the nature of work has changed and affected+ stress, anxiety and uncertainties for accessing proper care , we may expect that mental health contribution to total NCD DALYs will increase

# NCDs management in Indonesia

Directorate of NCDs, established under MoH, focuses on preventive efforts, relies on community-based approach through Puskesmas and their networks

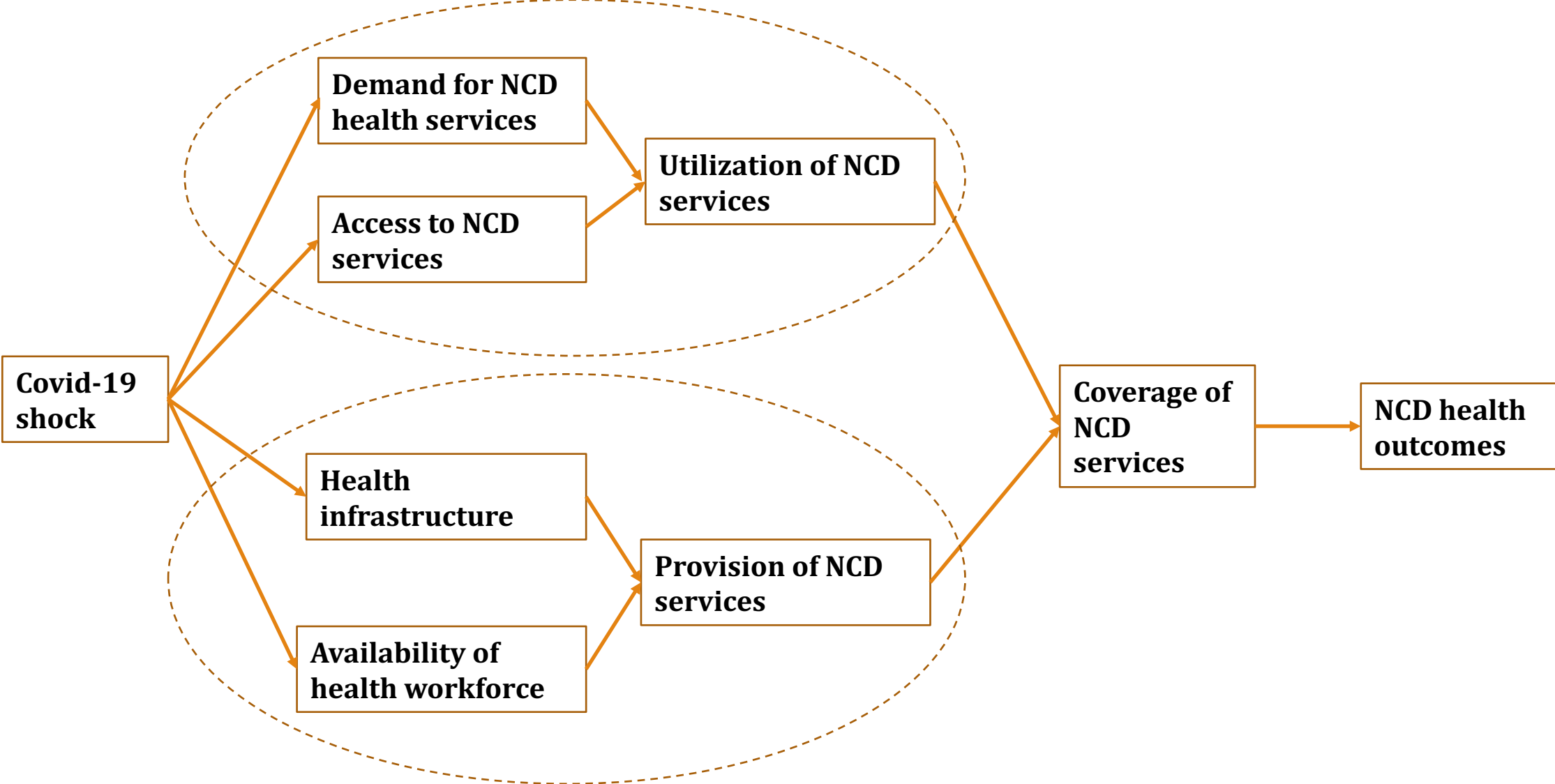
- Efforts to address NCD and behaviour risk factors, with a focus on diabetes mellitus and hypertension are framed as targets for the Sustainable Development Goals, a target set out in the Ministry of Health Strategic Plan.
- Priorities on NCDs include addressing mental health and behavioural risk factors
  - lowering smoking prevalence among males; improving low fruit and vegetable consumption universally; addressing high prevalence of hypertension in older adults; and reducing socioeconomic gaps in mental emotional disorders prevalence.

*Posbindu* (pos binaan terpadu): serves as early detection, monitoring and follow up of people with NCD/risk factors: hypertension, coronary heart disease, diabetes, currently under expansion

*Prolanis* (*Program Pengendalian Penyakit Kronis*), a chronic disease management program, first developed to address diabetes and hypertension developed in 2010 and accessible only to civil servant and military, expanded under JKN

# **Covid-19 and NCDs**

# Covid-19 and NCDs: a framework of analysis

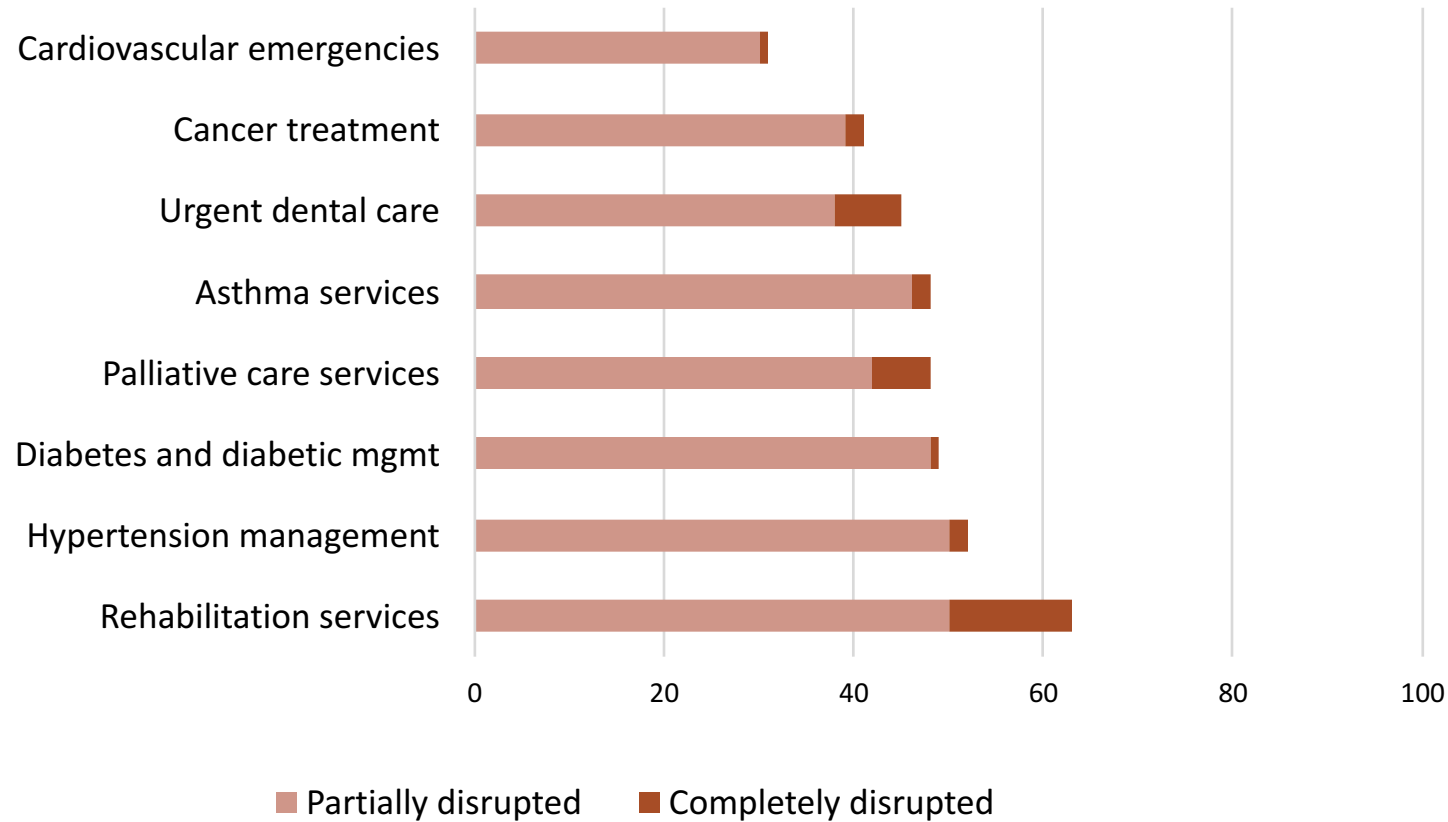




# Interaction between Covid-19 and NCDs and NCD risk factors

- Earlier findings from hospital-based data in Wuhan, New York, then, strengthened by findings in Italy, Spain and now many parts of the world:
  - severity of Covid-19 is correlated with older age and comorbidities most of them NCDs
  - also with NCD risk factors: hypertension, BMI/obesity, smoking (increasing evidence)
  - caveats: much is still unknown
- Covid-19 and comorbidities → excess deaths due to Covid-19
- We may observe a decline in deaths due to NCDs post pandemic because of premature deaths due to Covid-19 during the pandemic (“mortality displacement”)
- For survivors with existing NCDs: progression of NCD/worse health outcome

# Disruption of NCD services around the world



## WHO rapid assessment survey May 2020:

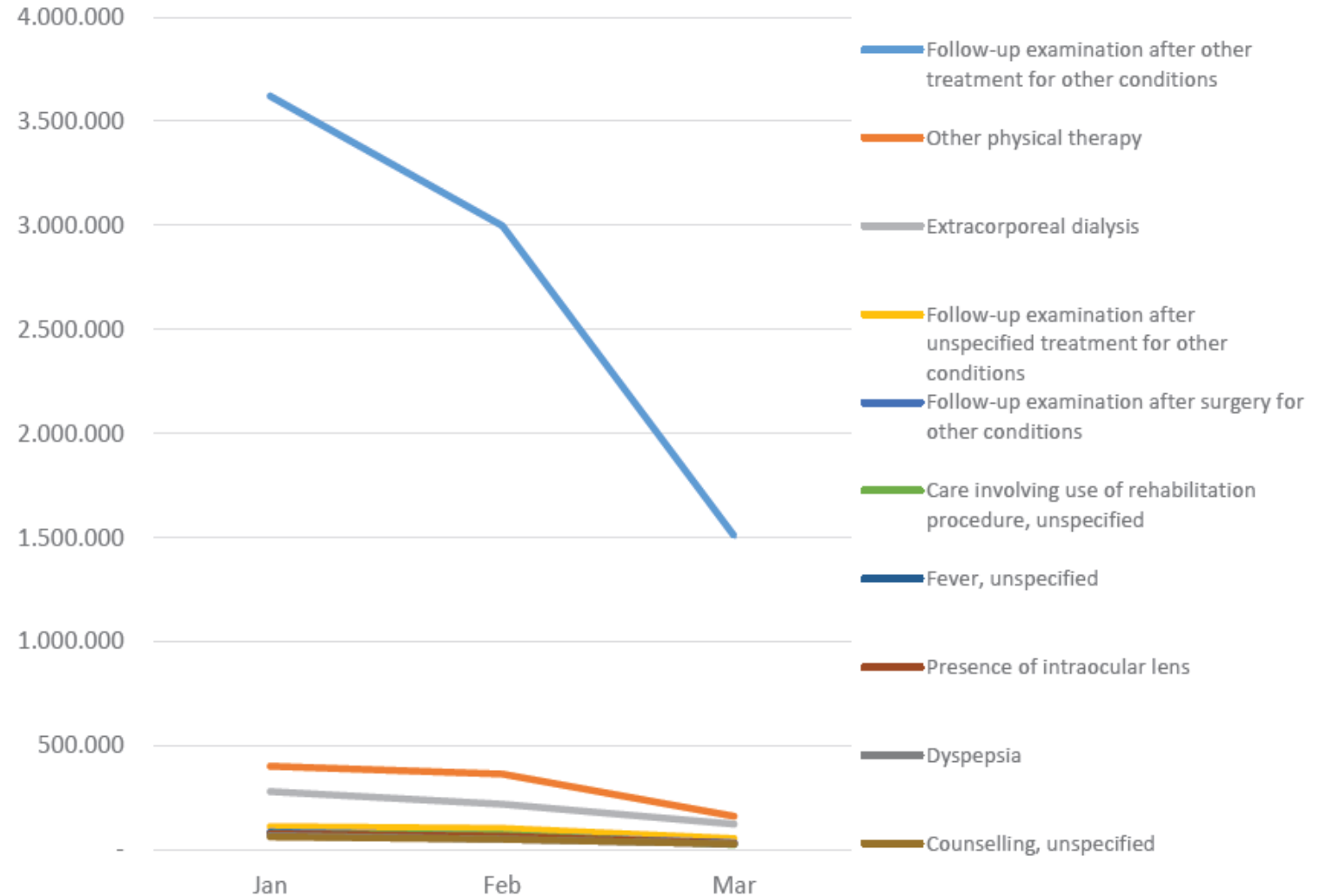
155 countries (122 responded)

NCD services disrupted:

- 53% hypertension management
- 49% diabetes

# Disruption of health services, Indonesia:

- Early government responses with respect to NCD: cancellation of NCD services at primary care
- Decline in neonatal/maternal services (case studies in 5 kabupaten, SMERU 2020)
- Decline in inpatient and outpatient services (BPJS data, Sparrow, Dartanto, Hartwig, 2020)
- BPJS Kesehatan data: largest decline in follow-up examination after other treatment for other conditions (Dartanto, et al 2020).



# Government responses related to NCD

- Puskesmas activities are diverted to help with fighting the pandemic, NCD services were cancelled
- On 14 April 2020, the MoH issued a memo on management guidelines for NCDs and their risk factors
  - Mobility restrictions, hygiene, and masks
  - Recommend use of digital health platforms
  - People with NCDs to self-test, monitor and evaluate signs of risks
- People with NCDs who are under JKN coverage are allowed to fill two months of prescription during the pandemic
- Virtual roadshow to promote guidelines on NCD prevention and control under a new normal
- Directorate of NCD (PTM) started health promotion to increase awareness of NCD as comorbidities of Covid-19

# Intermediate effects through demand channel

- Lower income, high food prices → households shift to less-nutritious but cheaper food, → potentially long-term impacts of NCD risk factors management
  - Suryahadi et al (2020): increase in poverty
  - Food security issue (J-PAL 2020, World 2020)
- Loss of jobs, lower income → missed payments for insurance premium , drop out from coverage altogether (increasing the “missing middle” group) → no access to health care
- Mobility restriction → physical activity becoming more difficult.
- Increasing evidence: recovered patients infected with Covid-10 continue to have health issues esp. respiratory and cardiovascular problem → new burden of NCDs

## **Indirect effects on NCDs: increased in mental health disorders**

International evidence is mounting on the effects of Covid-19 on the mental health of different sub-populations: patients, health workforce, students, general population.

Mental distress due to the immediate health impacts, physical isolation, economic downturn

Range of mental health and wellbeing outcome:

- anxiety, distress, and psychological trauma
- unhealthy behavior (such as unhealthy eating, physical inactivity during lockdown period)

Affect different sub-group differently

In Indonesia: limited but growing number of studies on mental health (mostly using non-probabilistic sample)

Likely to be long-term increase in the number and severity of mental health problems

## **Supply side: impacts on health workforce**

The prolonged crisis has deeply impacted health workforce around the world.

### **Illness and deaths:**

A study looking at 166 countries (Bandyopadhyay et al 2020) shows that by May 2020, among health care workers: 153,000 infected, 1,410 died

Indonesia: 112 doctors and 86 nurses (Amnesty International, September 7 2020)

### **Mental health toll on health workers**

Meta-analysis of 13 studies (combined n=33,000 health care workers): increase in depression, anxiety, and insomnia (Pappa et al 2020)

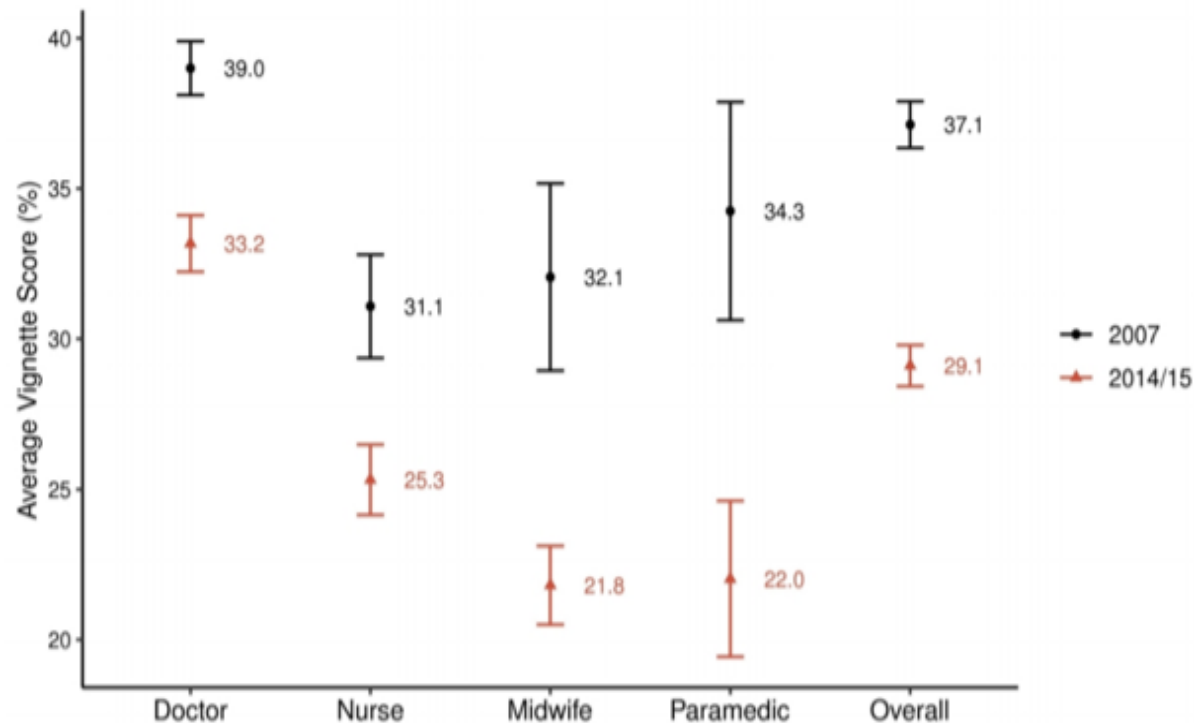
Indonesia: a study on 644 health workers shows 55% are suffering from anxiety, 24% from depression (Irwandy 2020)

# Supply side: impacts on health workforce

Depleted health workforce → takes time to recruit, retrain, new health workforce.

Increase in physicians have been outpaced by the growth in the number of nurses and paramedic

Quality of services at the primary care will still be an issue: e.g. quality to provide diabetes services *decline* between 2007 and 2014 (Stein et al, forthcoming)



Survey-based assessment using vignettes administered at 1,000+ health providers 2007 - 2014



# Insights and Policy Implications

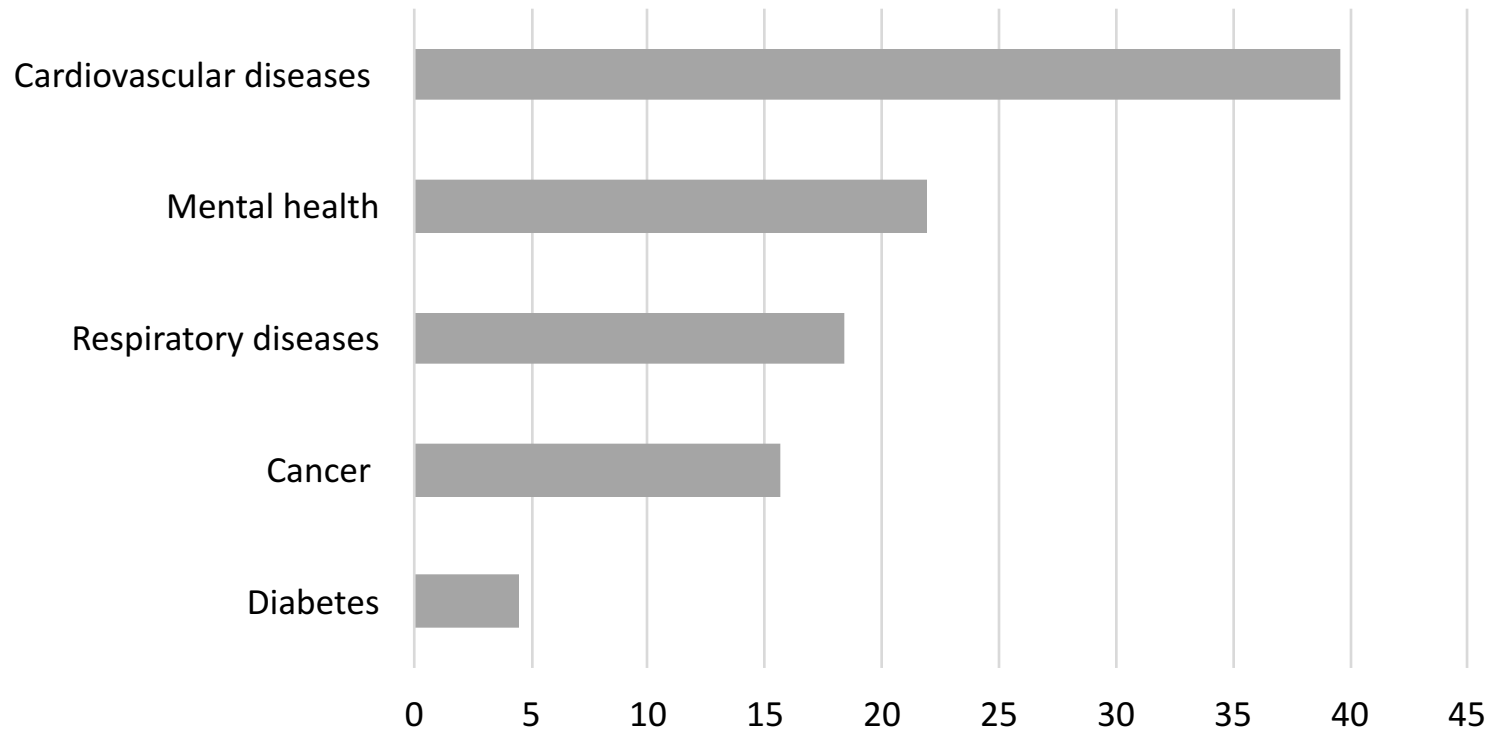
# Economic implications

Increase in burden of diseases from NCDs lead to

- likely increase in claims for NCDs in JKN, straining the financial sustainability of the universal health coverage further
- "missing middle" group may increase, drop in coverage
- Covid-19 does not treat everyone equally: those who are already at risk to their socio-economic status are likely to be affected more severely
- increase in economic costs of NCDs in terms of labour supply and productivity loss
  - DALYs add up
  - macroeconomic consequences

# Economic burden of NCD

Contribution of each disease to overall loss of GDP output, Indonesia 2012-2030



(Bloom et al 2015)

- Impact of NCDs on aggregate output based on an augmented Solow economic growth model
- Labour supply channel by reduction in terms of number working age individuals.
- Model is based on assumptions labor productivity growth, burden of diseases and no Covid-19

# Implications for policy

Recovery, when it starts, will entail difficult trade-offs even within the health sector

Probably smart to focus on addressing market failures in terms of lack of information on the costs and benefits of health-related behaviour, negative externalities of smoking

- Continue public health communications on health promotion addressing modifiable risk factors:
  - hypertension, obesity
  - **smoking**
  - physical activity
- Tools required to fight the pandemic similar to those designed to fight NCDs, examples:
  - Community-based disease surveillance and management
  - Innovations in telemedicine
  - Health workers database

Addressing NCDs has to be a key part in any plan on health sector recovery

End of presentation