Resilient and people-centred health systems: Progress, challenges and future directions in Asia

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Chapter 6. Indonesia

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6.1 Introduction

6.1.1 Economic context

Indonesia is a politically stable lower-middle-income country. It has achieved strong economic growth since the severe economic crisis in the 1990s, with a growing "fiscal space". Table 6.1 shows how the socioeconomic indicators improved in the past two decades following expansion of the economy. The GDP per capita has risen steadily from US$ 780 in 2000 to US$ 3847 in 2017 (World Bank, 2018). Indonesia is the fourth-largest economy in East Asia and the 15th largest economy in the world on a purchasing power parity basis. With decreasing inflation (from 12.6% in 2001 to 4.4% in 2017), Indonesia also has a relatively low debt burden at 31.4% of its GDP (Bank Indonesia, 2018) compared to both major economies and other East Asian countries.

The Indonesian Government aims to attain a range of large infrastructure development targets by 2019 and large-scale investment (worth around US$ 250 billion) between 2011 and 2025 (Coordinating Ministry for Economic Affairs, 2011). However, the current economic growth is still below the necessary sustainable rate of 7%–9% that is required to finance government plans and achieve the goal of becoming one of the 10 largest global economies by 2025 (OECD, 2012). Furthermore, while poverty rates have been falling steadily in both rural and urban areas, it is estimated that 25 million people still live below the poverty line or are vulnerable to falling into poverty (Priasto, 2016). From an equality point of view, the Gini coefficient has also risen, from 34.0 (2005) to 39.5 (2013) (World Bank, 2018), partly due to rapid urbanization and growing urban poverty. Macroeconomic growth has pushed Indonesia's unemployment rate steadily downward, from 6.1% in 2000 to 4.2% in 2017 (World Bank, 2018). However, it will be a challenge for the government to stimulate job creation so that the labour market can absorb the growing labour force. Vulnerable employment (unpaid workers and self-employed workers, mainly in the informal sector) is high compared to developed countries and regional peers.

Table 6.1 Indonesia: Socioeconomic indicators, 1980–2017

Indicators	1980	1990	2000	2010	2015	2017
Population, total (in millions)	147.5	181.4	211.5	242.5	258.2	264.0
Population density (people per sq.km of land area)	81.4	100.2	116.8	133.9	142.5	145.7
Fertility rate, total (births per woman)	4.4	3.1	2.5	2.5	2.4	2.4 (2016)
Birth rate, crude (per 1000 people)	33.4	25.8	21.8	20.9	19.4	19.0 (2016)
Death rate, crude (per 1000 people)	9.8	7.9	7.3	7.1	7.1	7.1 (2016)
Population growth (annual %)	2.4	1.8	1.4	1.3	1.2	1.1
Population ages 65 and above (% of total)	3.6	3.8	4.7	4.8	5.1	5.3
Age dependency ratio, old (% of working-age population)	6.5	6.3	7.3	7.3	7.6	7.9
Age dependency ratio, young (% of working-age population)	74.2	60.9	47.5	43.8	41.6	40.6
GDP (current US$, billions)	72.5	106.1	165	755.1	860.9	1015.5
GDP per capita (current US$)	491.4	585	780.1	3113.5	3334.5	3846.9
GDP growth (annual %)	9.9	7.2	4.9	6.2	4.9	5.1
Gross national expenditure (% of GDP)	91.7	98.3	89.5	98.1	99.6	98.8
Tax revenue (% of GDP)	21.8	19.1	..	10.5	10.8	10.3 (2016)
Central Government debt, total (% of GDP)	..	45.7	..	26.2	30.3	31.4 (2016)
Industry, value added (% of GDP)	..	39.4	42.0	42.8	40.0	39.4
Agriculture, forestry and fishing, value added (% of GDP)	..	21.5	15.7	13.9	13.5	13.1
Services, value added (% of GDP)	..	39.1	33.4	40.7	43.3	43.6
Labour force, total (in millions)	..	73.0	99.0	117.0	122.6	127.1
Unemployment, total (% of total labour force) (modelled ILO estimate)	..	..	6.1	5.6	4.5	4.2
Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)	..	58.8	39.3	15.7	7.2	5.7
Personal remittances, received (% of GDP)	..	0.2	0.7	0.9	1.1	0.9
Current health expenditure (% of GDP)	..	..	2.0	3.5	3.3	..

Key: GDP: gross domestic product; ILO: International Labour Organization; PPP: purchasing power parity

Source: World Bank, 2018

6.1.2 Political context

Indonesia is a presidential republic with a constitution and independent executive, judicial and legislative branches of government. It is a democratic country, marked by direct parliamentary and presidential elections that followed after the end of the country's authoritarian "New Order" era of former President Suharto (1965–1998). The latest 2014 parliamentary election was won by the Indonesian Democratic Party of Struggle (PDI-P), which was the main opposition party. The party's presidential candidate, Joko Widodo, subsequently won the Presidential election in the first round. In 2019, Indonesia will have another round of parliamentary and presidential elections.

Two sets of major policy processes at the national level include (1) regular development planning and budgeting, and (2) the development of ad hoc laws and regulations (Datta et al., 2011). Under a 2011 law, public consultation is set as a key element of Indonesia's regulatory framework. However, there is still a need to strengthen public participation in politics and the accountability systems of the government.

Since 1999, Indonesia has undergone a decentralization process, where large amounts of public expenditure and service delivery were transferred from the national level to provincial and district governments. The fall of the authoritarian regime and the ensuing democratization process in Indonesia led to the emergence of a discourse on good governance, accountability and transparency of public institutions. The civil society sector has grown rapidly due to the upholding of basic freedom of expression and association.

At the national level, health development efforts have been a political priority second only to the national education programme. The current government has continued to regard the health sector as one of the national interests through its *Nawacita* or the nine pillars of the national development agenda (Government of Indonesia, 2015) in which the National Health Insurance Programme was included as one of the visions.

In 2013, Indonesia stepped up its role on the global health diplomacy stage (Heibert, 2013), and held influential positions such as chairing the

Global Fund Board and co-chairing the United Nations panel that drafted the SDGs.

6.1.3 Natural and human-induced disasters

Indonesia is among the most disaster-prone countries in the world, and regularly experiences drought, flooding, volcanic eruptions, landslides and earthquakes. The islands of Sumatra and Java in particular are most at risk from multiple hazards (Djalante, 2018). High population density and rapid industrialization render Indonesia vulnerable to the likely effects of climate change (WHO, 2016a). Climate variability and climate change are already exacerbating many of the disaster risks that the country faces. The 2017 *World risk report* named Indonesia the 33rd most "at-risk" country for disaster (Bündnis Entwicklung Hilft, 2017). Other Asian nations with higher overall risk levels include the Philippines (ranked third), Bangladesh (ranked fifth), Cambodia (ranked eighth) and Timor-Leste (ranked tenth). Table 6.2 summarizes the disasters in Indonesia between 1997 and 2017.

Table 6.2 Indonesia: Natural disasters, 1997–2017

Disaster subtype	Events count	Total deaths	Total affected	Total damage ('000 US$)
Drought	3	683	1 080 000	89 000
Ground movement	51	8657	7 405 010	6 763 280
Tsunami	6	167 052	590 684	4 506 600
Bacterial disease	3	168	1024	0
Viral disease	11	2020	131 642	0
Other epidemic	3	704	984	0
Flash flood	30	1754	1 024 837	249 200
Riverine flood	72	1713	3 904 027	5 633 433
Other flood	18	161	507 420	108 000
Landslide	40	1362	331 037	98 404
Mudslide	4	162	56 215	54 600
Rockfall	1	12	55	0
Convective storm	3	25	12 950	1000
Tropical cyclone	2	11	3350	0
Ash fall	19	368	432 520	186 000
Forest fire	8	262	444 134	10 315 800
Other volcanic activity	1	0	133 349	0

Source: Center for Research on the Epidemiology of Disasters, 2018

Driven by its geographical position on the "Ring of Fire" and location at the boundaries of three tectonic plates, natural hazards are the most prevalent threat in Indonesia (CFE-DMHA, 2015). These geographical features essentially cause very high seismicity and proliferation of active volcanoes. Human-induced hazards can occur on a very large scale in some instances and are a persistent threat, even though natural hazards are generally more widespread and devastating in Indonesia (CFE-DMHA, 2015). In fact, forest fires accounted for greater economic damage than any other type of disaster between 1997 and 2017, with US$ 10.3 billion in direct costs (Center for Research on the Epidemiology of Disasters, 2018).

6.2 Health status and risk factors

6.2.1 Health status

Indonesia has made significant advances in recent decades in key population health indicators such as life expectancy and infant mortality, as well as considerable improvements in the general health status of the population.

Table 6.3 Indonesia: Mortality and health indicators, 1990–2016

Indicators	1990	1995	2000	2005	2010	2015	2016
Life expectancy at birth, total (years)	63.2	65.0	66.2	67.2	68.2	69.0	69.2
Life expectancy at birth, male (years)	61.9	63.5	64.6	65.2	66.1	67.0	67.2
Life expectancy at birth, female (years)	64.7	66.6	67.9	69.2	70.3	71.2	71.4
Total mortality rate, adult, male (per 1000 male adults)	216.4	211.2	213.8	217.6	213.2	205.5	203.9
Total mortality rate, adult, female (per 1000 female adults)	182.2	172.2	167.7	162.1	154.9	145.7	143.4

Source: World Bank, 2018

Ischaemic heart disease is the leading cause of premature death among Indonesians followed by stroke; these caused 17.8% and 13.8% of all deaths in 2016, respectively (Table 6.4). Common risk factors include hypertension, smoking and hypercholesterolaemia (Kusuma et al., 2009). Cancer ranked third as a cause of death in Indonesia with the most common cancers being lung, liver and colorectal cancer (Kimman et al., 2012). Among

communicable diseases, TB was the leading cause of death, causing 5.8% of all deaths in 2016.

Table 6.4 Indonesia: Main causes of death (%), 1990–2016

Causes	1990	1995	2000	2005	2010	2016
Communicable diseases	29.1	23.6	20.7	19.4	16.4	20.29
Tuberculosis	11.3	10.3	10.4	11.0	9.5	5.8
Lower respiratory infections	12.0	9.4	6.1	4.6	4.1	2.5
Diarrhoea	5.8	3.9	4.2	3.8	2.8	3.2
Non-communicable diseases	35.9	42.4	47.8	51.8	55.6	73.7
Cancer	7.5	9.1	9.9	10.4	11.3	9.58
Liver cancer	0.6	0.7	0.8	0.8	0.9	0.7
Colon cancer	0.5	0.6	0.7	0.8	0.9	0.7
Cancer of the trachea, bronchus and lung	1.2	1.6	1.8	1.9	2.1	0.9
Breast cancer	0.6	0.7	0.8	0.9	1.0	1.1
Cervical cancer	0.6	0.7	0.7	0.7	0.7	0.6
Diabetes	3.7	4.6	5.2	5.7	6.0	5.8
Ischaemic heart diseases	4.9	5.9	6.6	7.3	8.1	17.8
Stroke	12.4	14.0	16.5	18.4	19.5	13.8
Chronic respiratory diseases	3.9	4.5	4.8	4.9	5.1	3.2
External cause	3.3	4.3	4.5	4.0	4.2	2.7
Road injury	3.3	4.3	4.5	4.0	4.2	2.7

Source: Institute for Health Metrics and Evaluation, 2018

In terms of DALYs lost in 2016 (Table 6.5), the leading causes due to NCDs were ischaemic heart disease (9.0) and stroke (7.1). TB remained the leading cause of DALYs lost for communicable diseases (4.2).

Table 6.5 Indonesia: Major causes of DALYs lost, 1990–2016

Causes	% of total DALYs lost					
	1990	1995	2000	2005	2010	2016
Communicable diseases						
Tuberculosis	7.5	7.1	7.6	8.4	7.6	4.2
Lower respiratory infections	13.7	10.4	5.9	3.8	3.0	2.4
Diarrhoea	6.8	4.6	5.6	5.4	4.0	2.7
Noncommunicable diseases						
Lung cancer	0.5	0.7	0.8	0.9	1.0	0.5
Diabetes	1.7	2.2	2.6	3.0	3.4	4.6
Ischaemic heart diseases	1.9	2.4	2.8	3.3	3.8	9.0

Table 6.5 Indonesia: Major causes of DALYs lost, 1990–2016 (contd)

Causes	% of total DALYs lost					
	1990	1995	2000	2005	2010	2016
Stroke	4.3	5.0	6.2	7.3	8.0	7.1
Chronic obstructive pulmonary diseases	1.6	1.9	2.2	2.3	2.6	2.2
Low back pain	2.0	2.4	2.7	2.9	3.1	3.9
Major depressive disorder	2.3	2.7	2.9	3.0	3.2	1.3
External cause						
Road injury	3.2	4.2	4.6	4.4	4.6	3.0

Source: Institute for Health Metrics and Evaluation, 2018

The morbidity data for selected diseases (Table 6.6) show an increase in the incidence of TB, with a growing prevalence of MDR-TB (see section 6.3.5) as well as new HIV cases. There is also a marked increase in the prevalence of diabetes, with a significant jump from 3009 people living with diabetes per 100 000 population in 2011 to 10 276 per 100 000 in 2017. This is partly due to the increase in obesity and an ageing population in Indonesia (NCD Risk Factor Collaboration, 2016; Sutanegara and Budhiarta, 2000).

Table 6.6 Indonesia: Morbidity status of selected diseases, 2007–2016

Indicators	2007	2008	2009	2010	2011	2016
Incidence of tuberculosis (per 100 000 population)[a]	429	424	419	415	4107	391
Incidence of dengue (per 100 000 population)[b]	68	66	66	65	24	-
Number of lab confirmed malaria cases (per 100 000 population)[c]	69	108	80	91	98	-
Adults (age 15+) and children (age 0–14) newly infected with HIV (per 100 000 population)[a]	27.5	26.3	25.9	25.2	24.4	18.8
Number of people living with diabetes (per 100 000 population)[d]	1242	-	-	2903	3009	10 276 (2017)

Sources: [a]World Bank, 2018b; [b]WHO Regional Office for South-East Asia, 2011; [c]WHO, 2012; [d]International Diabetes Federation, 2017

Additionally, one of the most potent forces that currently traps Indonesia's poorest 111 million people in poverty and could eventually threaten Indonesia's economic potential is a group of neglected tropical diseases (NTDs) affecting the region (Tan et al., 2014). These people suffer from an extraordinary level of NTDs, led by widespread helminth infections, such as soil-transmitted helminth (STH) infections and lymphatic filariasis (LF), and neglected bacterial infections such as yaws and leptospirosis.

Moreover, Indonesia is the only country in the WHO South-East Asia Region with endemic schistosomiasis. Responding to this increasingly complex epidemiological pattern is a major challenge for the country's health system.

6.2.2 Risk factors

Table 6.7 Indonesia: Major risk factors affecting health status (DALYs), 1990–2016

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

Source: Institute for Health Metrics and Evaluation, 2018

Indonesia is in the midst of an epidemiological transition in which NCDs are becoming increasingly important while infectious diseases remain a significant part of the disease burden. Globally, Indonesia ranked second among countries with the highest TB disease burden in the world (WHO, 2018b), due to a combination of a large population and a high prevalence rate (Collins, Hafidz and Suraratdecha, 2013). Indonesia remains the only country in Asia and one of 10 worldwide not to ratify the WHO FCTC, which calls for stronger regulation of the production, sale, distribution, advertisement and taxation of tobacco products. However, several FCTC policies aimed at controlling tobacco use have been implemented. These policies cover the regulation on advertising, promotion and sponsorship of tobacco products; tobacco tax and its use for health financing (sin tax); and policies for supporting no-smoking areas that is mandated to the local governments.

6.3 The health system

6.3.1 Organization and governance

The Indonesian health system has a mixture of public and private providers, and public and private financing. The public system is administered in line with the decentralized government system, with

central, provincial and district government responsibilities. The central MoH is responsible for the management of some tertiary and specialist hospitals, provision of strategic direction, setting of standards, regulation, and ensuring the availability of financial and human resources. Provincial governments are responsible for the management of provincial-level hospitals, providing technical oversight and monitoring district health services, and coordinating cross-district health issues within the province. District/municipality governments are responsible for the management of district/city hospitals, and the district public health network of community health centres (*puskesmas*) and associated subdistrict facilities. There are a range of private providers, including networks of hospitals and clinics managed by not-for-profit and charitable organizations, for-profit providers, and individual doctors and midwives who engage in dual practice.

Indonesia has a hierarchy of interrelated long-term, medium-term and annual plans, from central to provincial and district level. The planning process combines top–down direction, with bottom–up participation from communities and local agencies.

While Indonesia has established a national information system (SIKNAS) that links to district-level health information systems (SIKDA), communication between the systems has been weakened by decentralization, and by multiple separate reporting systems. Vital registration is not complete, and is supplemented by regular national sample surveys.

The function of regulation is divided between the central, provincial and district governments. Regulations are arranged in a hierarchy, from laws to different levels of regulation at different levels of government. Regulation of providers includes requirements for individual providers to be registered and gain a licence to practise, while hospitals require a licence to operate and must participate in the hospital accreditation scheme. There is also a variety of regulations relating to the manufacture of pharmaceutical products, their advertising, distribution and sale. However, there remains a high rate of illegal sale of pharmaceuticals by unlicensed drug vendors and self-medication is common.

6.3.2 Patient-centredness

Decentralization allows for local involvement at both the district and municipality levels by linking *pukesmas* and associated subdistrict facilities. The process of bottom–up participation from communities in the planning of health systems can in theory also help in creating a more patient-centred health system. However, this process needs to improve, especially since the changing epidemiological landscape will demand refocusing the current health service facilities towards management of more chronic diseases rather than of acute cases.

6.3.3 Financing

Regardless of the significant increase in the past eight years, Indonesia's proportion of health spending to GDP remains below the average of LMICs, at only 3.3% of the GDP in 2015 (WHO, 2018a; World Bank, 2018). This is due to low government contribution to health fund allocation, where the public share was only 37.8% of the total health expenditure while private contribution (primarily in the form of OOP payment) was up to 62.2%. In effect, high OOP has also resulted in a significant risk of catastrophic health-care expenditure.

The Indonesian Government has increased its health budget since 2004, as a result of refocused financing to reduce the financial risk due to health-care spending, especially for the poor population. A budget increase was also stipulated in the 2004 law on health, which stated that the public budget allocation for health must be at least 5% of the total central budget and 10% of the subnational government budget. Based on that legal requirement, the Indonesian Government has managed to increase its central budget allocation for health to 5% since 2016 (Ministry of Finance, 2018). However, the share of GDP allocated to the health sector is still 3.3%, as stated above.

A national health insurance programme (*Jaminan Kesehatan Nasional* or JKN) was introduced in January 2014, which combined all existing public health insurance programmes. Premium contributions were derived from the government budget (for the poor population receiving subsidies for the premiums) and insurance members, which are pooled under a single health insurance scheme implemented by a parastatal agency BPJS-K. The JKN programme is also a major contributor to the increase in government

expenditure on health. The JKN programme is planned to cover all of the Indonesian population by 2019 with a comprehensive benefit package and minimal co-payments. Under the JKN scheme, a capitation payment system is implemented for primary health care providers while hospital-level care is reimbursed using an Indonesian version of DRG called INA-CBG (Indonesia Case Based Group). However, due to the small amount of contributions collected from non-subsidized members and high expenses of medical costs, deficits in the BPJS have been observed, amounting to US$ 230 million in 2014 and US$ 628 million in 2017 (Ministry of Finance, 2018). At facility and district levels, there is growing concern that the high expenses of curative care and health infrastructure to support medical care is absorbing most of the JKN funds, while allocation for public health and preventive care remains low compared to curative services. This trend will continue under the current laws on social security.

Indonesia remains challenged with a high proportion of OOP expenditure, complex funding transfer channels from the national to subnational governments, expanding insurance coverage to the informal sector and ensuring equitable access to quality health-care services across Indonesia. Furthermore, the currently weak tax collection mechanisms should also be balanced with cost-sharing payment from higher-income communities.

6.3.4 Physical and human resources

In the past two decades, Indonesia has experienced an increase in health infrastructure at both the primary and secondary levels. Inpatient beds in both public and private facilities have also increased (Table 6.8), but the bed-to-population ratio remains low and lags behind other Asia Pacific countries. In addition, there is unequal distribution of health facilities across geographical regions, resulting in inequitable access to health-care services.

Table 6.8 Indonesia: Number of beds in acute care settings, 1990–2014

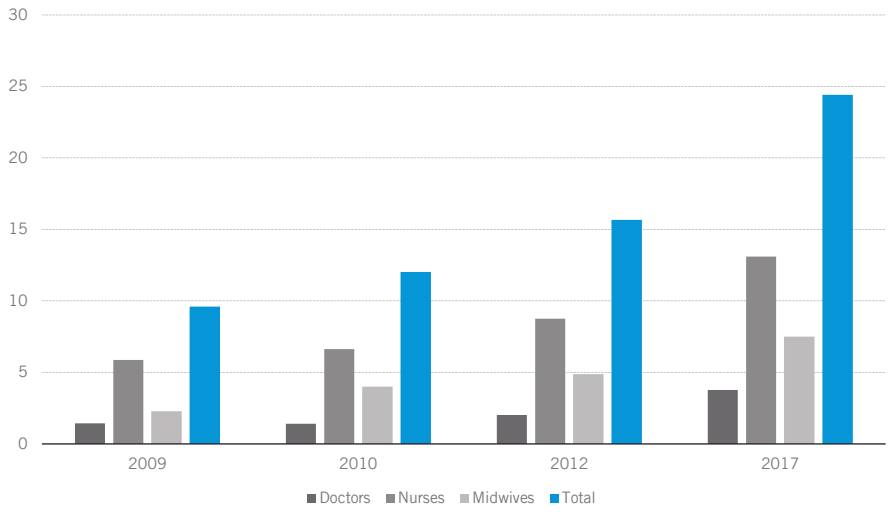
Category	1990	2000	2005	2010	2014
Hospital beds, excluding *puskesmas*	158 179	181 945	196 748	242 670	282 923
Hospital beds, including *puskesmas*	173 460	201 264	218 469	274 273	318 855
Mental hospital beds	8745	9163	9359	10 011	10 464
Total inpatient beds per 1000 population	0.97	0.96	0.97	1.14	1.26

Source: Mahendradhata et al., 2017

At the primary care level, *puskesmas* (public primary health centres) are important, particularly in the JKN context, as a gatekeeper for clinical cases as well as for public health-care services. Financing for primary care centres is mainly through the different channels of the government budget, including from the capitation fund of the JKN programme. At the secondary care level, public hospitals can now finance their own capital investment by acquiring a BLU status (*Badan Layanan Umum* or Public Service Entity) that would enable public hospitals to arrange their budget and invest revenues received from the health-care services provided. Private institutions can also be sources of funds, including from foreign investment, with the latter limited only to hospital-level investment.

Mobile technology is widely used in Indonesia; it is the eighth-largest Internet user globally. However, the use of information technology in the health sector is still limited, as seen by the limited growth in the use of electronic medical records, both at the primary and secondary levels of care.

Fig. 6.1 Indonesia: Trends in health worker density per 10 000 population, 2009–2017



Note: The recommended density of health workers (physicians, nurses and midwives) per 10 000 population is set at 44.5 (WHO, 2016b).
Source: WHO Regional Office for South-East Asia (2018)

The number of health-care workers has also been increasing in the past two decades, with a significant increase in the population-to-health-care worker ratio (Fig. 6.1). However, the physician-to-population ratio is still lower than other South-East Asian countries, with marked inequality in its geographical distribution across Indonesia. In addition, there is also a significant shortage of nurses and midwives, despite an increase in absolute numbers. At mainly the primary care level, formal health-care workers are supported by CHWs. CHWs work on a voluntary basis and are recruited based on the needs of *puskesmas*. Based on the programme or target population that they serve, there are nine main types of CHWs at the *puskesmas* level: for programmes for under-five children; the elderly; nutrition programmes; maternal, neonatal and child health (MNCH); family planning; larvae monitoring for dengue fever; occupational health; health promotion and school health. CHWs mainly assist in various health-care services including during patient registration at the *puskesmas* or *posyandu*, help in weighing and recording the weight of under-five children and infants, assist during health promotion activities and refer sick patients to health-care professionals. The professional mobility of health workers has been modest, but there has been growing outmigration of nurses to the Middle East. Health training institutions have grown in number, with various changes in the curriculum aimed to improve the quality of the graduates, but significant investment is still needed to meet the needs of the population.

6.3.5 Provision of services

Management of NCDs

As a response to the increasing burden of NCDs, a Directorate of Noncommunicable Disease was established by the MoH. Under the lead of this Directorate, NCD programmes are mainly preventive efforts, including health promotion to improve public awareness and community-based health awareness groups, early screening and detection. In addition, with the assistance of the Indonesian Cancer Foundation, the MoH established a pilot hospital-based cancer registry in Cipto Mangunkusumo, the national general hospital in Jakarta in 2005, before scaling up the project to a further 39 hospitals in Jakarta in 2006. Currently, there are 10 districts/

cities contributing to a cancer registry nationwide that covers 5–10% of the population in each district/city.

At the village level, *puskesmas* have developed community-based integrated coaching posts named *posbindu* (*posbinaanterpadu*). The *posbindu* was established before JKN and enables independent and continuous community participation in the activities of early detection, monitoring and follow up of people with NCD risk factors. This activity was developed as a form of early warning system. Specific NCD risk factors that are controlled in *posbindu* services include hypertension, coronary heart disease, diabetes, cancer, COPD, osteoporosis, gout, asthma, stroke, obesity (overweight) and kidney stones. The *posbindu* programmes can be integrated into other community activities, such as those in schools, workplaces and residences. The operational costs of *posbindu* come from national-level earmarked public funds with some funding help from local governments. The *puskesmas* refer residents who require further treatment. The MoH is facing huge challenges in ensuring the responsiveness and readiness of its public health network, especially in terms of skills and knowledge of health personnel, and availability of diagnostic equipment and medications. This highlights the need to involve the private sector not only in providing treatment but also, more importantly, in public education and early detection of NCDs.

Management of communicable diseases including emerging diseases

Communicable disease control and environmental health is led by the Communicable Disease Control Directorate along with the Directorate for Surveillance, Immunization, Quarantine, and Directorate for Environmental Health within the MoH. Implementation is jointly done with provincial health offices (PHOs) and district health offices (DHOs) (MoH, 2015).

- ***Tuberculosis control***

At the national level, TB control programmes are conducted through the National Integrated Movement for the Control of Tuberculosis (TB Gerdunas), a cross-sectoral partnership under the coordination of the Ministry of Social Welfare with the MoH as the leading technical agency. The national programme is implemented by the MoH. At the provincial

and district levels, TB Gerdunas is implemented by the PHO and DHO, respectively. TB health services, including detection and treatment, are provided by *puskesmas*, private clinics, as well as public and private hospitals (MoH, 2015).

In order to address the TB burden in Indonesia, hospital-based TB treatment was replaced with ambulatory treatment in 1972. Under this approach, the programme is mainly emphasized at the *puskesmas* level, leading to the requirement of all *puskesmas* to have at the minimum one medical doctor and TB programme staff as well as a trained laboratory technician. Although public health facilities are the backbone of Indonesia's TB programme, private clinics and hospitals also provide TB treatment, with some using the directly observed treatment, short-course (DOTS) strategy. To enhance coordination and data-sharing between the public and private sectors, TB control is supervised by a vice supervisor at the district level, who is in charge of collecting data on new cases for *puskesmas* and the private sector, and ensuring sufficient supplies of TB drugs.

Indonesia is included in the 30 high-burden countries for MDR-TB. In 2017, it was estimated that 2.8% of all new TB cases were MDR/rifampicin resistant (RR)-TB cases or 16% of previously treated TB cases. The incidence rate of MDR/RR-TB was around 12/100 000 population with 68% being MDR-TB (WHO, 2018b).

- ***HIV/AIDS control***

The National Strategy for HIV and AIDS was formulated in 1994, and guides all government sectors, local governments, NGOs, and all private and donor agencies working on HIV and AIDS programmes. The Strategy focuses on (1) prevention; (2) care, support and treatment; (3) impact-mitigation programmes; and (4) programmes to improve the enabling environment.

- ***Malaria control***

Malaria is endemic in the rural and remote parts of Indonesia. The MoH provides guidance and supervision for implementation of the malaria elimination programme to health offices in provinces/districts. Treatment

of malaria using artemisinin-based combination therapy (ACT) is provided free of charge at *puskesmas* and government hospitals.

The majority of programme funding for TB, malaria and HIV is derived from the Global Fund, which has provided support since 2002. The Global Fund has committed to providing a budget of US$ 693 million for the eradication of these three infectious diseases in Indonesia. Thirty-five per cent of the Fund is allocated for TB, 34% for HIV/AIDS, 29% for malaria and 2% for health systems strengthening (The Global Fund, 2015).

- ***Antimicrobial resistance***

Data on AMR in Indonesia is limited and sporadic, but AMR is thought to be high and increasing. From the previous AMRIN (Antimicrobial Resistance in Indonesia: Prevalence and Prevention) study, it was found that 73% of *E. coli* from rectal samples were resistant to ampicillin, 56% to sulfamethoxazole and 22% to ciprofloxacin (Severin et al., 2010). The proportion of β-lactamase-producing bacteria was also high, and a 2005 survey in one hospital in East Java found a prevalence of extended-spectrum β-lactamases (including CTX-M) of 20% and 28% among patients with confirmed *E. coli* and *Klebsiella pneumoniae*, respectively (Lestari et al., 2008).

The challenges to AMR control in Indonesia include misuse and overuse of antibiotics in humans and livestock, which are related to high rates of self-medication and over-the-counter purchase of antibiotics. Although there is an AMR working group at the national level, there are no national action plans. The National Regulatory Authority has developed tools for quality assurance and registration of antibiotics but inspection is limited. In the animal sector, there is no policy addressing awareness of AMR in the animal husbandry sector (Parathon et al., 2017).

Management of MCH

Maternal and child mortality in Indonesia is among the highest in the region and has been improving the least compared to other important health indicators. Indonesia has made significant strides in reducing child mortality. The under-five mortality rate decreased from 52 per 1000 live

births in 2000 to 27 per 1000 live births in 2015; the IMR decreased from 41 per 1000 live births in 2000 to 23 per 1000 in 2015.

The MMR decreased from 265 per 100 000 live births in 2000 to 126 in 2015; however, this is still considerably higher than the 2015 target of 102 set by the government.

Basic childhood immunization covers hepatitis B, BCG, DPT, *Haemophilus influenzae* type b (Hib), polio and measles. In order to eliminate measles, the government aims to achieve a 95% coverage rate for measles immunization by 2020. In 2016, the national coverage was at 93% but some provinces had rates as low as 57.8% (MoH, 2016).

Regulations and guidelines for MCH services are issued by the Minister of Health, and are adapted at the provincial and district levels, including the minimum service provision related to MCH. The three main funding channels for the MCH programme are direct funding via the MoH, general budgetary transfers from the Central Government to provincial and district governments, and through national health insurance funds. There are still some vertical programmes for MCH.

Within the public sector, the patient pathway for MCH services typically commences at *puskesmas* and their networks. Patients who need MCH services are referred to district hospitals. Within the private sector, clinics serve as the primary gatekeepers of patients, including for MCH services. Under the current JKN scheme, private providers who collaborate with BPJS-Kare are also under the tiered referral system, in which they can refer MCH patients to either designated public or private hospitals. Midwives are responsible for a large portion of MCH services and are legally authorized to open private practices (MoH, 2016).

Regardless of the regulations and different efforts to optimize MCH services, the quality and adequacy of basic and comprehensive MCH services are impeded by the lack of human and physical resources, especially in areas outside Java and Bali islands. This is compounded by the low quality of MCH care that is provided by health-care facilities, including hospitals; in Java and Bali islands alone, 98% of maternal deaths occurred in a hospital setting (Anderson et al., 2014).

6.4 Performance of the health system

6.4.1 Effectiveness and quality

While anecdotally the quality of care is considered poor, there are few sources of data. The quality of ANC was measured in the Indonesian Family Life Survey (IFLS) and IFLS East surveys. As Table 6.9 demonstrates, quality scores on vignettes in both public and private services were low.

Table 6.9 Indonesia: Quality of ANC services score based on vignette responses

ANC vignette	*Puskesmas*		Private clinics	
	Urban	Rural	Urban	Rural
Java–Bali (2007)	34.8%	34.1%	21.4%	21.4%
Sumatra (2007)	33.8%	27.6%	21.1%	21.9%
IFLS East provinces (2012)[a]	38.9%	33.3%	20.4%	18.5%

Note: Scores are given out of 100 based on the response to specific vignettes. Higher scores indicate better quality.

Sources: Strauss et al., 2009; [a]Sikoki et al., 2014

Although national routine childhood immunization coverage is good, less than 80% of *puskesmas* in the eastern provinces such as Papua, West Papua and Maluku reported the availability of the measles, DPT, polio and BCG vaccines. This shows poor service readiness for routine childhood immunization (Ministry of National Development and Planning, 2014a). Furthermore, service readiness in private clinics in the eastern provinces is also poor. Table 6.10 shows that the availability of key vaccines at private clinics in those provinces is below 10%.

Table 6.10 Indonesia: Availability of key vaccines at private clinics

Facility survey	Availability of vaccines			
	Measles	DPT	Polio	BCG
IFLS[a]	23.4%	24.8%	25.5%	22.6%
IFLS East[b]	9.7%	9.7%	9.7%	9.7%

Sources: [a]Strauss et al., 2009; [b]Sikoki et al., 2014

The quality of curative services for children was also found to be low in the IFLS (Table 6.11), with private providers generally of lower quality than public providers at *puskesmas*.

Table 6.11 Indonesia: Quality of child curative services score based on vignette responses

Child health vignette	*Puskesmas*		Private clinics	
	Urban	Rural	Urban	Rural
Java–Bali (2007)	38.6%	37.8%	33.5%	34.5%
Sumatra (2007)	32.9%	35.3%	30.1%	30.9%
IFLS East provinces (2012)[a]	43.4%	38.1%	31.7%	31.9%

Note: Scores are given out of 100 based on the response to specific vignettes. Higher scores indicate better quality.

Sources: Strauss et al., 2009; [a]Sikoki et al., 2014

Capacity for providing quality care for NCD management, particularly diabetes, is also limited. IFLS data showed that only 54% of all *puskesmas* were able to test blood glucose, and only 47% reported the ability to test urine. The capacity of *puskesmas* to undertake diagnostic testing also varied among urban and rural areas, and across provinces. Urban capacity was higher than rural, unsurprisingly. Again, the eastern provinces had a lower capacity compared with the western provinces. This creates a concern that where the prevalence of diabetes is high, diagnostic capacity is weak. For example, in Gorontalo and North Sulawesi, where the urban prevalence of diabetes among those above 15 years of age was estimated at around 8%, the proportion of *puskesmas* able to conduct diagnostics was reportedly less than 20%. Only in Yogyakarta and East Java provinces was there a high (more than 75%) diagnostic capacity for diabetes among *puskesmas*. The capacity of rural *puskesmas* and private providers for diagnosing and testing for diabetes to high standards was generally low (Ministry of National Development and Planning, 2014a).

The government has established policies on the quality and safety of health care. National strategies on quality and safety have been developed in a wide range of legislations and directives (Table 6.12). Additional policies have also been developed by local governments.

Table 6.12 Indonesia: Examples of policy documents on quality and safety

	Year that it came into use
Laws	
Medical practice	**2004**
Compulsory hospital accreditation	**2009**
Health Ministry regulations	
Accreditation medical laboratory	**2008**
Accreditation linked to licensing	**2010**
Hospital medical committee functions	**2011**
Safety of patients in hospital	**2011**
Medical Practice guidelines PHC	**2014**

Source: Ministry of National Development and Planning, 2014d

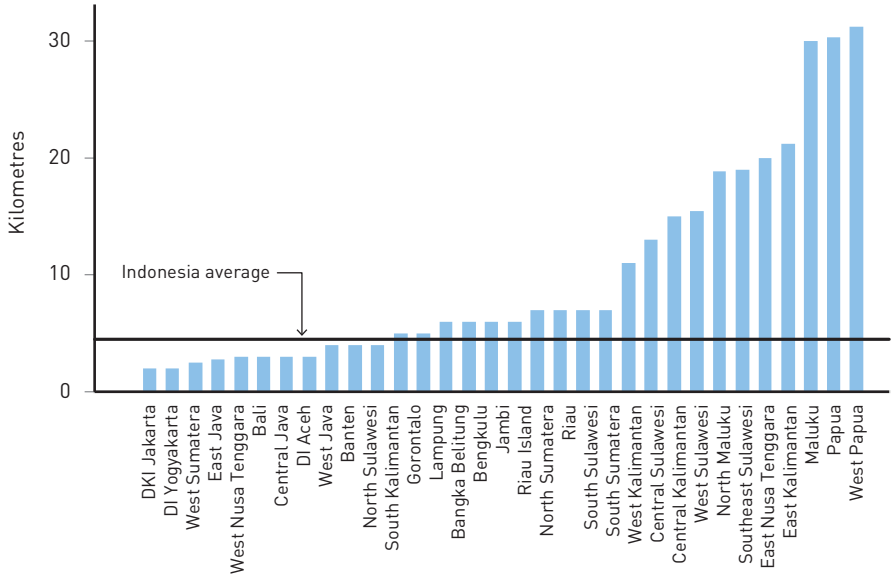
Regulations and directives relate to many dimensions of health care quality. The national hospital accreditation agency (KARS) was set up within the MoH in 1995 and re-launched in 2014 as an independent legal entity. This agency is the main vehicle for improving hospital quality and safety in Indonesia. In 2012, development of accreditation for *puskesmas* commenced within the MoH. Designated commissions for patient safety and HTA also started to operate in 2012 and 2014, respectively. In general, the government remains the main agent; however, civil society, the private sector and professional institutions are also included as partners in the formulation of policies and guidelines (Ministry of National Development and Planning, 2014a).

Although a number of regulations and directives have been developed, implementation as well as monitoring and evaluation of their impact remain weak. These legislative instruments do not clearly define roles and relationships between units, agencies, or even between national, provincial, district and facility levels. Dissemination and mapping of functions in an operational form are needed. Furthermore, accountability and reporting structures could be clarified (Ministry of National Development and Planning, 2014b).

6.4.2 Accessibility

The average distance to a health facility in Indonesia is only 5 km (National Institute of Health Research and Development, 2013). However, eastern provinces such as West Papua, Papua and Maluku have average distances of more than 30 km. This wide variation is correlated with the time ranges to reach public health facilities. While on average over 18% of Indonesians took more than one hour to reach a public hospital, over 40% of people in Maluku, West Sulawesi and West Kalimantan faced this barrier (National Institute of Health Research and Development, 2013). *Puskesmas* are more easily accessible than public hospitals. Even so, the population in several provinces in the eastern region has to travel for a long time to reach *puskesmas* (Papua 27.9%, East Nusa Tenggara 10.9% and West Kalimantan 10.9% have travel times of more than 60 minutes) (Ministry of National Development and Planning, 2014c) (Fig. 6.2).

Fig. 6.2 Indonesia: Median distance to the nearest public hospital and *puskesmas* by province, 2013



Source: Ministry of National Development and Planning, 2014c

Personal health-care access and quality in Indonesia, as measured by the Healthcare Access and Quality (HAQ) Index, improved from 37.2 in 1990 to 49.2 in 2015 (Barber et al., 2017). Among countries in South-East Asia, 2015 HAQ Index values ranged from 44.9 in Lao People's Democratic Republic to 75.5 in the Maldives. Despite overall gains in personal health-care access and quality, the gap between the highest and lowest levels increased from 1990 to 2015. The gap between Indonesia's HAQ Index versus expected frontier score for its resource level was 23.4 in 1990 and 25.2 in 2015, reflecting a widening difference between health-care access and quality, and what Indonesia could achieve given its current resources and level of development.

6.4.3 Resilience

Concerns about rising health-care expenditure and the sustainability of the national health insurance system relate to the increase in utilization of high-cost medical services, including for cardiovascular diseases, cancers and other chronic diseases. As was stated in section 6.3.3, the current JKN programme already suffers from a major deficit in funding. To maintain rational use of hospitalization and other high-cost services, it is important to strengthen promotive and preventive health services. Indonesia's recent efforts include enhancing primary care capacity through regulatory efforts and deployment of human resources for health. From the regulation perspective, it is now becoming mandatory to manage more diagnosed illnesses at the primary care level, in part to assist with cost containment of the insurance programme. However, there is a need to ensure that the medical curriculum can adapt to the higher competencies that are now required by medical professionals at the primary care level.

The ageing population will also create pressure around the capacity and financial sustainability of the health system. Although the population projections for 2030 predicts that Indonesia will continue to enjoy a "demographic dividend", there will be a rise in the elderly population, given the declining fertility rates over recent decades. Chronic conditions and other diseases requiring long-term care are increasing, demanding more investment in palliative care and also stronger preventive–promotive health services. One of the efforts to strengthen the latter is

the introduction of *posbindu*, which enables the community to participate under the coordination of *puskesmas* in the early detection of NCDs and prevention activities. From the curative care aspect, a back-referral system was introduced under the JKN system, in which patients with chronic illnesses such as hypertension and diabetes would be referred back to the primary health care system for long-term supervision and monitoring. The back-referral system also aims to reduce overutilization of hospitals for chronic diseases that can be managed at the primary care level.

6.5 Conclusions

The health system in Indonesia needs to reorient itself to the changing epidemiological landscape. The increasing burden of NCDs highlights the need to develop the capacity to deliver care for chronic conditions that require continuous long-term interaction between health providers and patients. The Central Government also needs to take into consideration the growing interregional disparity in terms of resources, services and health outcomes, and develop a comprehensive strategy to address this. With a large, widespread area and population, and with the commencement of a UHC system, the need for a reliable and integrated information system to support the planning and decision-making process is becoming even more urgent.

With the existing limitation of the public sector supply side for services, the JKN provides an opportunity for further collaboration with private health-care providers. However, there is a risk of fraud through overcharging of JKN and currently, there is no system for prevention of and prosecution for fraud. An overall accountable JKN system is needed as people need to see measures to ensure public reporting on performance and avoid corruption. Given the complexity of the health challenges in Indonesia, health financing reform is not a panacea for its health system. JKN alone will not and cannot be expected to solve the long list of health issues in the country. However, JKN provides a momentum to move towards more coordinated policies and strategies to achieve national health system goals, as well as towards a more equitable distribution of the burden of funding the system.

Thus, the government needs to take stock of this momentum to progress and make the necessary adjustments so that the health system can be more responsive to the ongoing epidemiological transition. It should function in a way that provides quality, efficient and equitable services while at the same time provides sustainable financial protection to the people. In doing so, Indonesia has the opportunity to harness the prospects of continuing economic growth and shift towards middle-income status, and the demographic dividend arising from the large proportion of a relatively young population to obtain the resources needed to invest in health. The progressive transition to a more stable and democratic government, and the development of a better aligned decentralized division of authority and responsibility, provides a basis for Indonesia to build the governance, regulatory and oversight systems to ensure that investments benefit the whole community, and reduce wastage and inefficiency.

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