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THE PRODUCTION, DISTRIBUTION, AND PERFORMANCE OF PHYSICIANS, NURSES, AND MIDWIVES IN INDONESIA: AN UPDATE

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WORLD BANK GROUP
Health, Nutrition & Population

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Health, Nutrition, and Population (HNP) Discussion Paper

The Production, Distribution and Performance of Physicians, Nurses and Midwives in Indonesia:
An Update

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Abstract: Indonesia launched the national health insurance program - Jaminan Kesehatan National (JKN) - on January 1, 2014, and aims to achieve universal health coverage (UHC) by 2019. Achieving UHC means not only increasing the number of people covered but also expanding the benefits package and ensuring financial protection. Although the JKN benefits package is comprehensive, a key challenge related to the capacity to deliver the promised services is ensuring the availability, distribution, and quality of human resources for health (HRH). Of Indonesia's 33 provinces, 29 do not have the WHO recommended ratio of 1 physician per 1,000 population, although Indonesia regularly produces 6,000 to 7,000 new physicians annually. The shortage of nurses in hospitals and health centers (*puskesmas*) is noticeable despite the large number of graduates. The government's health worker contract policy (PTT [Pegawai Tidak Tetap]) was the main policy lever to improve the distribution of physicians and midwives; it offered a shorter contract and higher monetary benefits for rural and remote postings. Nevertheless, evolution of the policy over more than two decades of implementation indicates that the outcome has not been totally satisfactory and that distribution problems remain. Physician maldistribution has been particularly affected by the number and concentration of hospitals in urban areas, as well as by government's policy of allowing dual practice. Aside from HRH production and distribution figures, key information on the quality of Indonesian physicians, nurses, and midwives is limited. The latest data from the 2007 Indonesia Family Life Survey (IFLS) vignettes, which measured diagnostic and treatment ability, showed low average scores across these three integral health worker categories. Indonesia is addressing the quality issue by improving the quality assurance system of health professional education through school accreditation and graduate certification and by strengthening health professional registration and recertification systems. With these issues in mind, if Indonesia is to attain UHC by 2019, significant and concerted effort to improve the availability, distribution, and quality of human resources for health is required.

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ACKNOWLEDGMENTS

PREFACE

In 2011, Japan celebrated the 50th anniversary of achieving universal health coverage (UHC). To mark the occasion, the government of Japan and the World Bank conceived the idea of undertaking a multicountry study to respond to this growing demand by sharing rich and varied country experiences from countries at different stages of adopting and implementing strategies for UHC, including Japan itself.

This led to the formation of a joint Japan–World Bank research team under the Japan–World Bank Partnership Program for Universal Health Coverage. The program was set up as a two-year multicountry study to help fill the gap in knowledge about the policy decisions and implementation processes that countries undertake when they adopt the UHC goals. The program was funded through the generous support of the government of Japan.

This country report on Indonesia is one of the 11 country studies on UHC that was commissioned under the program. The other participating countries are Bangladesh, Brazil, Ethiopia, France, Ghana, Japan, Peru, Thailand, Turkey, and Vietnam. A synthesis of these country reports is in the publication "Universal Health Coverage for Inclusive and Sustainable Development: A Synthesis of 11 Country Case Studies," available at http://www.worldbank.org/en/topic/health/brief/uhc-japan.

These reports are intended to provide an overview of the country experiences and some key lessons that may be shared with other countries aspiring to adopt, achieve, and sustain UHC. The goals of UHC are to ensure that all people can access quality health services; to safeguard all people from public health risks; and to protect all people from impoverishment due to illness, whether from out-of-pocket payments or loss of income when a household member falls sick. Although the path to UHC is specific to each country, it is hoped that countries can benefit from the experiences of others in learning about different approaches and avoiding potential risks.

ACRONYMS

Askeskin	Health insurance for the poor (now called Jamkesmas, see below)
HPEQ	Health Professional Education Quality Project (a World Bank–supported government of Indonesia project)
IMA	Indonesia Medical Association
IMC	Indonesia Medical Council/KKI
Jamkesmas	Health insurance for the poor and near-poor
LMICs	Lower-middle-income countries. Economies are divided according to 2011 gross national income per capita, calculated using the World Bank Atlas Method. The groups are low income, $1,025 or less; lower-middle income, $1,026–$4,035; upper-middle income, $4,036–$12,475; and high income, $12,476 or more
MoEC	Ministry of Education and Culture
MoH	Ministry of Health
PHO	Provincial Health Office
Puskesmas	Health center at the subdistrict level, part of the primary health care network (Pusat Kesehatan Masyarakat)
PPP	Purchasing Power Parity
PTT	Pegawai Tidak Tetap — government's health worker contract policy
PNS	Pegawai Negeri Sipil — Indonesian civil servant
UHC	Universal Health Coverage
UGM	University of Gadjah Mada, Yogyakarta, Indonesia
WHO	World Health Organization

GLOSSARY

Fiscal space is defined as "the capacity of a government to provide additional budgetary resources for a desired purpose without any prejudice to the sustainability of its fiscal position" (Heller 2005). Fiscal space exists "when a government has budgetary room to increase spending and can do so without impairing fiscal solvency: that is, the government's present and future ability to cover its recurrent expenditures and service its debt" (Tandon and Cashin 2010).

Universal health coverage is defined as "ensuring that all people can use the promotive, preventive, curative, rehabilitative, and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship" (WHO 2013b).

Purchasing power parity is a measurement that seeks to avoid distortions caused by market fluctuations in exchange rates. PPP recognizes that actual costs in a country may be lower than in another country, so that the actual purchasing power of the local currency may be higher than might otherwise be the case. PPP often uses a notional "international dollar" to distinguish it from exchange rate US$.

CURRENCIES

All $ are current United States dollars unless otherwise stated
One US$ = Indonesian rupiah (Rp) 10,200 in August 2013
One Indonesian rupiah = US$0.000098 in August 2013

EXECUTIVE SUMMARY

CONTEXT AND BACKGROUND

Health workers play a critical role in health service delivery but also in the economy more broadly. Despite significant progress in improving health outcomes, Indonesia still faces some important health sector challenges. The maternal mortality ratio (MMR) and stunting rates are still high, and there are health outcome disparities among the provinces and by socioeconomic characteristics. Indonesia aims to achieve universal health coverage by 2019. This major reform is an opportunity to address existing and future challenges, but also presents challenges of its own. On the supply side of health services, the production, availability, and distribution of the health workforce is an important challenge for Indonesia. Economic shocks and other developments have had implications for health financing, health workers, and the movement to UHC.

The World Bank in collaboration with the Center for Health Service Management, University of Gadjah Mada (CHSM-UGM) conducted a study in the period October 2012 to August 2013 to update the information on the production, distribution, and performance of health workers in Indonesia; particularly physicians, nurses, and midwives. The study comprised literature reviews and reviews of selected previous CHSM-UGM HRH studies, in depth interviews, and a survey of students from selected medical schools. Secondary data analysis includes the analysis of PODES (the Village Potential Statistics) 2011; SUSENAS (National Socioeconomic Survey) 2012; Ministry of Health data (Bureau of Personnel estimates (2008-2012), Board of Human Resources for Health Empowerment and Development [BPPSDM] estimates 2013, RS Online 2013); and was funded through the Japan–World Bank Partnership Program for Universal Health Coverage.

PRODUCTION, AVAILABILITY, DISTRIBUTION, AND PERFORMANCE OF HEALTH WORKERS IN INDONESIA

Production and Availability

Like most developing countries, Indonesia has the challenge of increasing the number of trained health workers to meet growing demands. Indonesia has been capable of regularly and reliably producing new physicians from both private and public medical schools. Around 60 percent of graduating physicians are female; an important characteristic in the context of international experience, but women may be facing particular barriers to deployment in rural and remote areas. Most of the increase in health workers is now from an expansion in the number of private medical schools. Despite increases in the supply of physicians, there are still substantial staffing gaps today. Greater progress has been made with respect to increasing the relative targets for midwives, but rapid increases are still needed to meet government targets. Ministry of Health (MoH) estimates that an additional 118,788 health workers were needed at hospitals in 2012. There are also significant gaps in key health worker positions at the puskesmas level. The shortage of nurses — despite large numbers of graduates — at hospitals and puskesmas is particularly noticeable and deserves more detailed analysis. Looking to the future, the current annual increase in the number of physicians seems unlikely to meet government's 2019 target of 1 physician per 1,000 population. Workforce numbers will need to adapt to changes in the size, age, and disease profile of Indonesian society; the movement to UHC; and changes in the economy over time. The changing disease profile in Indonesia has important implications for the skill mix of the health workforce, as well as other complementary investments if UHC is to be effective.

Distribution

Maldistribution of health workers is a challenge in virtually all developing countries, including Indonesia. The central government has implemented an HRH contract policy (PTT, Pegawai Tidak Tetap) to improve the distribution of health workers, mainly of physicians and midwives. Although the PTT policy has evolved over time, the distribution problems have remained. Of Indonesia's 33 provinces. 30 do not have the WHO recommended ratio of 1 physician per 1,000 population. According to PODES (2011), virtually all villages in Java have a physician. However the situation is different — and often even reversed — when physicians are mapped per 100,000 population rather than per village. The wealth and fiscal capacity of a province is not a good predictor of availability of physicians. The number and location of hospitals is a "pull factor" influencing

the distribution of physicians and specialists in favor of Java. Geographical location of medical schools can reinforce the urban bias and maldistribution of health workers. Workforce distribution does not appear to be well aligned to the current national health challenges such as the high MMR. There is also a wide dispersion in the MMR for a similar availability of midwives. Strengthening the evidence base will help Indonesia plan its expansion of UHC in a rational and efficient way. Private health providers create both opportunities and risks for health outcomes and the expansion of UHC. On the other hand, a UGM study found that dual practice also presents policy and practical challenges, especially when the dual practice system remains largely unregulated and unsupervised. Furthermore, a UGM study shows that specialist physicians tend to be associated with private hospitals.

Quality Issues and Performance

Since Indonesia does not have enough health workers, it must ensure it is getting maximum benefit from those that it does have. The rapid growth of schools raises questions about standardizing the schools' quality. Indonesia through the Ministry of Education and Culture (MoEC) is addressing the issue by improving the quality assurance system of the health professional schools. The recently introduced internship program for new medical school graduates can potentially enhance the quality of their services, while also improving the geographical distribution of health workers. Regarding the introduction of national health insurance (JKN) to attain UHC, the UGM study found that there is a low level of training about UHC in medical schools or discussion about the implications of UHC for health workers. One UGM study found that the current sources of income for physicians are fragmented, and income from insurance payment is the smallest.

Government oversight on the private sector is limited despite the growing number of private providers. There is little knowledge on their number and distribution, and about the scope and quality of their services. The Indonesian Medical Council (Konsil Kedokteran Indonesia, KKI) has recently set up a comprehensive system for setting and maintaining the quality assurance of existing physicians, but it would be useful to test this independently as part of the scale-up of UHC.

The study analyzed immunization patterns as an indicator for assessing health workforce performance and found negative correlation between immunization coverage and midwife and nurse density per 100,000 population, although midwives/nurses are the main immunization providers at the primary level. This suggests the need to strengthen workers who do strategic planning to ensure scarce resources are allocated where they will meet the greatest need; strengthen frontline and supporting health workers who provide the immunization; and strengthen health workers responsible for supervision, monitoring, evaluation, and accountability.

Policy Implications

In the lead-up to UHC, Indonesia needs to consider moving from norm-based approaches to a labor market approach to address human resources for health (HRH) issues and to broaden the scope of health workforce deployment approaches responding to the differing circumstances in Indonesia. The evolution of the PTT policy indicates that Indonesia has not been totally satisfied with the contract arrangements; changes have been made quite frequently. The changes and evolution of policy demonstrate Indonesia's determination to make improvements and achieve better, fairer results for its people. Decision making to solve complex HRH issues would benefit from an understanding of health labor market dynamics influencing health worker supply and demand. Most policy implications illustrated in the paragraphs below are pieces relevant for a labor market analysis. Moreover, the various stages and changes to the PTT policy have not been systematically, independently, or rigorously evaluated, so it is not possible to say with confidence what has worked, in what circumstances, at what cost, and what has not been successful.

There is a need to better understand factors affecting the willingness and ability to move to underserved areas. The central government allocates about Rp 1.7 trillion (US$1.7 million) under MoH Regulation 7/2013 as incentive payments for health workers. Physicians may receive an additional US$485 per month for working in remote areas, and an additional US$715 for working in very remote areas, which is significantly larger than the salaries of their civil servant colleagues in urban areas, who earn approximately US$205. Local governments may also offer additional incentive payments from their own budgets, up to US$1,000 extra per month for a physician in Morotai, North Maluku. However, according to the Indonesian Medical Association financial incentive payments may not be the only — or even the main — factor influencing health workers' willingness to transfer to remote locations. Nonmonetary factors influencing their decisions include lack of ongoing training opportunities for workers; lack of education opportunities for their children; inability to continue practicing specialized skills; fears of being overlooked for promotion; unhealthy

environments in remote provinces that might affect their families; and lack of security. Earlier studies found that offering specialist training is enough of an incentive for some physicians from Java to serve in remote areas, without having to also offer a civil service appointment, although there were problems of cost and potential inefficiency in such schemes (Chomitz et al. 1998). In sum, there may be other — and less expensive — ways of encouraging health workers to stay in remote areas other than offering large financial incentives. Increasing the number of well-conducted trials would provide an evidence base the government could use to better tailor incentive packages to the real needs of health workers considering postings to remote locations.

Indonesia may benefit more from diverse deployment policies rather than monolithic or "one size fits all" approaches. Indonesia is a large country spread over 17,000 islands with 33 provinces and approximately 500 districts. It has enormous variety within its borders, ranging from densely populated urban cities in the island of Java to sparsely populated rural and remote islands of Nusa Tenggara Timur (NTT) and Maluku. UHC implies a degree of equity and equality for all citizens, but this does not necessarily mean a single or small choice of instruments to expand insurance coverage, as tends to occur with the single contract regulation strategy (PTT) applied across all of Indonesia.

On the one hand, Indonesia should not introduce further fragmentation of the health system, but on the other, there is an argument for Indonesia to trial different approaches to incentivize health providers. This would include different ways of paying — and supporting — health professionals who are better tailored to the particular social, health, and economic characteristics of differing districts and regions within Indonesia. There is room — and need — to trial other staff deployment approaches.

Indonesia could, and should, experiment with different mixes of physicians, nurses, midwives, and community health workers to find a combination that generates best the health outcomes for the lowest cost. This might be done through task shifting, for example, allowing nurses and midwives to prescribe certain essential drugs if no physician is available, or through other mechanisms. It would also be useful to systematically assess the cost-effectiveness of expanding UHC to remote and marginalized communities. In some cases, policy makers might find that expanding public services to remote areas is more cost-effective than expanding services in urban areas. That is because while the costs of reaching more remote communities may be higher than in nearby urban areas, the actual disease burden in remote areas might be much larger than in urban areas. In such circumstances, allocating resources to remote and rural areas would cost more, but would have a bigger impact than allocating resources to urban areas, where private sector services are already dominant. Much depends upon the actual situation and context. Good quality research can help policy makers allocate scarce resources according to their best use.

There is a need to better understand the overlaps, gaps, and potential inconsistencies between the different health workforce regulations among various agencies. There are many institutional stakeholders issuing regulations about how and where health workers ultimately perform their duties. At the national level these institutions include the Ministry of Education and Culture (which has responsibility for producing the medical staff), the Ministry of Home Affairs (responsible for hiring policy), the Ministry of Finance (responsible for payment policy), and the Ministry of Health (responsible for using health workers). Local governments must also abide by strong powers and regulations that affect the hiring and placement of health workers, as well as the financial flows to hospitals and health centers. Each professional association also has its own policies and regulations, which affect its members, including those for physicians, nurses, and midwives. The end result is that policies and regulations are complex, lack coherence, and blur lines of accountability and responsibility. There would be advantages in rationalizing, simplifying, and unifying the regulations, while at the same time providing scope for regulations to adapt to local needs and circumstances.

More systematic monitoring and impact evaluation is essential for future policy development if Indonesia is to receive the best return from its health expenditure in the lead-up to UHC. The central message of World Health Report 2013 is that achieving UHC requires applied research and a good evidence base. Given scarce health resources, proper, well-designed, systematic monitoring and impact evaluation should be undertaken to generate an evidence base for future investments in alternative approaches. Importantly, well-conducted impact evaluations that generate insights and new lessons could quickly become "global public goods," read and used to influence policy around the world. Indonesia could be a major opinion

maker and global "thought leader" in how to scale up UHC in a decentralized setting if it invested more in basic applied research.

Indonesia may benefit from other countries' experiences in implementing various health worker distribution strategies. A recent study of scaling up UHC in 11 countries, including Indonesia, noted various policies aimed at improving distribution of health workers, including to remote and rural areas (World Bank 2013a). Strategies included "recruiting students from underserved areas, encouraging their enrollment through scholarships, setting quotas in schools, ensuring that curricula include rural service components, and offering monetary and nonmonetary support for career development. Compulsory service through bonding is also common policy for deployment in underserved areas. Another important strategic approach is to invest in primary care workers, both because investments in the hospital sector tend to skew the health workforce distribution toward urban areas and because investments in these health workers have additional benefits for health outcomes" (Ibid.).

PART 1: CONTEXT AND BACKGROUND

HEALTH WORKERS AS A DEVELOPMENT ISSUE: THE INTERNATIONAL PERSPECTIVE

1.1.   Achieving good health is a central issue in international development. At the *global level*, three of the eight Millennium Development Goals are directly health related, and each of these interacts with the other key goals.[1] At the *national level*, good health has the potential to improve a country's productivity and international competitiveness. This includes better learning outcomes for students, reduced absenteeism for workers, improvements in the size and structure of a nation's population, the potential for "demographic dividends," and avoidance of subsequent health costs to governments through effective health promotion programs (WHO, Commission on Macroeconomics and Health 2001; Dodd and Cassels 2006; Spence and Lewis 2009; Bloom and Williamson 1998). At the *household level*, good health facilitates individuals reaching their full social and economic potential and averts preventable — and sometimes impoverishing — out-of-pocket, health-related costs (Xu 2003; Yates 2009). Improved maternal nutrition can help break the cycle of ill health and reduced productivity in the next generation (Adair et al. 2013; Barker 1990; Bhutta 2013).

1.2.   Health workers play a critical role in delivery of health services, as well as in the economy more broadly. WHO specifically states that human resources for health are one of six[2] key components or building blocks of a well-functioning health system (WHO 2010). International literature confirms the importance of health workers as key components of health services, but notes the common problem of maldistribution of health workers (Rowe et al. 2005; Willis-Shattuck et al. 2008; Kanchanachitra et al. 2011; Chen et al. 2004; Fritzen 2007; Dussault and Franceschini 2006; Beaglehole and Dal Poz 2003). WHO estimated in 2006 that there was a global shortage of approximately 4.3 million health workers. They estimated that 57 countries around the world had a critical shortage of health workers, defined as having fewer than 2.3 health care professionals (physicians, nurses, and midwives) per 1,000 population, normally required to achieve 80 percent coverage of basic health services. While the greatest relative shortages were in Sub-Saharan Africa, the greatest absolute shortages were in Asia and especially in Bangladesh, India, and Indonesia (WHO 2006). The number and nature of health workers also has broader fiscal and macroeconomic implications for countries. Expanding the number of health workers can provide significant labor- and skill- intensive employment opportunities including for females in the formal sector, which in turn can increase incomes, consumption, savings, and income tax revenue. On the other hand, large and growing numbers of health workers can put additional strains on public health budgets, squeezing out expenditure on drugs and other necessary expenditure. Some countries, including lower-middle-income countries such as Indonesia, experience a Baumol Effect: rising costs (including wages) in the health sector that are not accompanied by productivity increases (Hartwig 2008; Baumol 2012). This can occur when wages in manufacturing and other sectors of the economy increase as a result of productivity increases in those sectors. The wage increases then flow across to the health sector and other service sectors of the economy where it is sometimes harder to achieve or demonstrate productivity increases (Clements et al. 2011). Aside from HRH numbers and distribution, HRH quality is a critical element for health service delivery. The quality of preservice and continuing education of those already in the workforce is often a challenge for many countries.

HEALTH CHALLENGES IN INDONESIA

1.3.   Despite significant progress in improving health outcomes, Indonesia still faces some important challenges. Indonesia has achieved substantial and sustained progress in increasing life expectancy and

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1. Millennium Development Goals (MDGs) 4, 5, and 6 aim to reduce child mortality, maternal mortality, and communicable diseases, respectively. These three MDG goals interact with other MDG goals including reducing poverty and undernutrition (MDG 1); improved education and gender equity (MDGs 2 and 3, respectively); and improved water and sanitation (MDG 7).

2. The six key components of a well-functioning health system are leadership and governance, health information systems, health financing, human resources for health, essential medical products and technologies, and service delivery.

reducing child mortality (World Bank 2009). Despite improvements, maternal mortality is high and undernutrition remains a persistent problem: approximately one-third of children are stunted (World Bank 2013b). Moreover, there are large health outcome disparities among provinces, and by socioeconomic characteristics. Health outcomes are lower in the Eastern provinces, such as Papua and West Papua, North Maluku, and Maluku; in rural areas; and in the lowest wealth quintile. For example, child mortality in most Western provinces is less than 10 per 1,000 live births. The level is about 2.5 times higher in Maluku and North Maluku; while in Papua, it is 6.5 times higher. Urban child mortality is two-thirds of rural child mortality; while child mortality in the highest wealth quintile is about a third of that in the lowest quintile (IDHS 2012).

1.4. **Demographic and epidemiologic challenges are substantial.** Indonesia has a large population (246 million), spread across more than 900 islands,[3] from densely populated Java to the sparsely populated outer islands. The population is ageing with a growing number of people in the 55-to-74 age group. Indonesia has not yet completed the epidemiological transition: stroke is now the leading cause of premature death in Indonesia, but tuberculosis ranks second. Five of the top ten causes of premature death in Indonesia are still communicable or maternal-related, and four are noncommunicable[4] (IHME 2013). More than one-third of male NCD deaths, and more than one-quarter of female noncommunicable

, now

Box 1.1 Indonesia Health Development Progress — and Challenges

disease (NCD) deaths, are premature: below age 60 (WHO 2011). Indonesia has to confront the rise of road injuries — now the third-leading cause of premature death — and newly emerging diseases including H5N1.

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3. Indonesia has more than 17,000 islands; approximately 922 are inhabited.

4. In order of rank of importance they are stroke, tuberculosis, road injury, diarrheal diseases, ischemic heart disease, lower respiratory infections, diabetes, neonatal encephalopathy, preterm birth complications, and cirrhosis.

Figure 1.1 Total Expenditure on Health as Percentage of GDP

Total health expenditure, 1995-2011

Source : WDI 2013
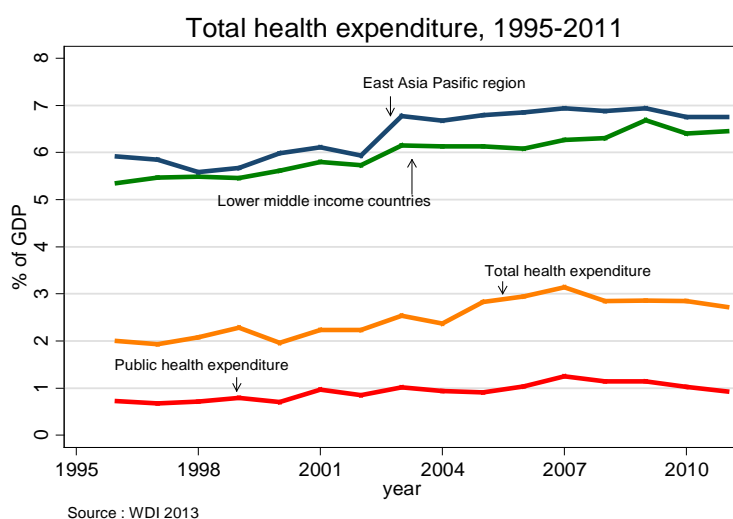
1.5. **Indonesia has distinctive health financing arrangements**. As shown in figure 1.1 above, total health expenditure (public and private) in Indonesia has been significantly and consistently lower as a percentage of GDP than in other lower-middle-income countries globally, or in other neighboring countries in the region. Table 1.1 shows that key health outcomes in Indonesia tend to be better than for other lower-middle-income countries, but not as strong as other neighboring countries in Asia.

Table 1.1 Selected Socioeconomic, Health Outcomes, and Health Expenditure Data

Selected Indicators	Indonesia (2011)	All lower-middle-income countries globally (2011)	East Asia and Pacific developing countries (2011)
Socioeconomic data			
GDP per capita (current US$)	3,471	1,890	4,693
GDP per capita (PPP) current international dollars	4,615	3,795	7,283
GDP per capita growth (annual %)	5.1	3.9	7.5
Health outcomes			
Life expectancy at birth (total) years	69.3	65.7	72.4
Under-five mortality rate (per 1,000 live births)	31.8	63.0	21.0
Infant mortality rate (per 1,000 live births)	24.8	47.0	17.0
Health expenditure			
Total health expenditure as % GDP	2.71	4.26	4.84
Public health expenditure as % GDP	0.92	1.54	2.63
Public health expenditure as % of government expenditure	5.3	7.6	-54.3
Public expenditure as % of total health expenditure	34.1	36.4	
Out-of-pocket health expenditure as % total health expenditure	49.8	55.3	35.9
Per capita government health expenditure at average exchange rate (US$) in 2010 (WHO 2013d)	30	27	21
Per capita government health expenditure (PPP) international dollars in 2010 (WHO 2013d)	44	55	43

Source: World Bank 2013c.

1.6. Table 1.1 also shows that absolute and relative levels of expenditure on health are generally low compared to Indonesia's peer countries. WHO estimates that per capita government expenditure on health was US$30 in Indonesia in 2010. Private out-of-pocket expenditure (OOPE) is still the dominant source of health expenditure in Indonesia, accounting for nearly half (49.8 percent) of total health expenditure. Of that private expenditure, only 4 percent is covered by prepaid plans. Importantly, high absolute and relative levels of annual OOPE on health occur for those with, and without, health insurance coverage. Indeed, those with insurance coverage tend to pay more OOPE on health as a share of household consumption than those with no insurance coverage. This is shown in figure 1.2 below. High levels of out-of-pocket expenditure have adverse consequences for access, equity, and even possible impoverishment in Indonesia, especially when 43 percent of the population live on less than US$2 a day PPP (World Bank 2013c).

Figure 1.2 OOP Expenditure by Insurance Type
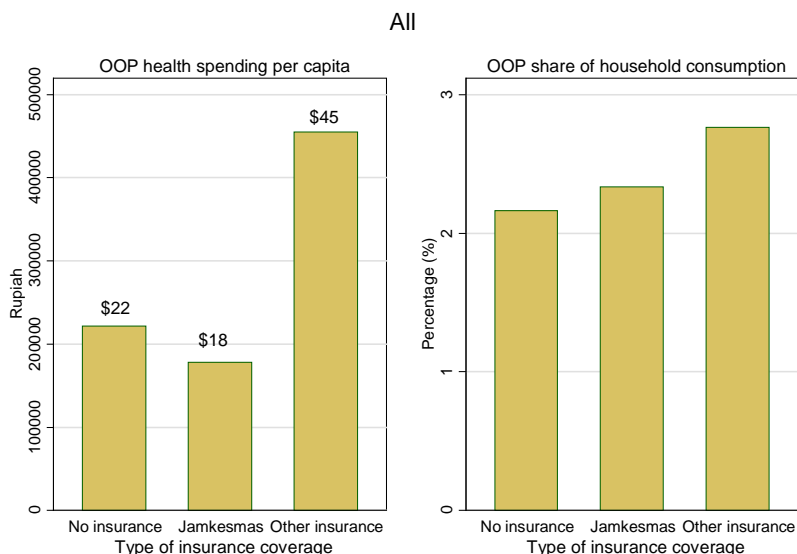
Source: SUSENAS, 2011

1.7. Indonesia is expanding universal health coverage; this is an opportunity to address existing and future challenges, but brings challenges of its own. The goal of universal health coverage (UHC) is "to ensure that all people obtain the health services they need without suffering financial hardship when paying for them" (WHO 2013b). A government-financed health insurance program for the poor and near-poor, called Jamkesmas (previously called Askeskin), has been managed and financed by the Ministry of Health since it became operational in 2005. It currently provides coverage to more than 76 million people in Indonesia. Jamkesmas is to be integrated and merged with all other social insurance programs under a single-payer umbrella by 2014 (see box 1.2). Jamkesmas has both strengths on which to build, and areas for improvement, as Indonesia moves to increase the breadth (population covered), depth (scope of services covered), and

height(level of financial protection) of UHC. As noted in a recent analysis of Jamkesmas (World Bank 2013b):

1.8. On the positive side, about 40 percent of poor and near-poor households are covered under the program, outpatient and inpatient utilization rates have increased among program cardholders, levels of catastrophic payments have declined, and there is generally a positive perception with regard to the program among those who are enrolled. There is increasing participation of the private providers under Jamkesmas, and more than 300 complementary local Jamkesmas-inspired programs have been initiated across the country. On the negative side, there is evidence of high levels of mistargeting and leakages to the non-poor, low levels of socialization and awareness of benefits, low utilization and relatively low quality of care, regional inconsistencies in the availability of the basic benefits package, relatively shallow levels of financial protection, and poor accountability and feedback mechanisms.

Table 1.2 Health Workforce per 1,000 Population 2005–12, International Comparison

Country or region	Physicians	Nursing and midwifery personnel	Pharmacists[5]
India	0.65	1.00	0.54
Indonesia[6]	**0.20**	**1.38**	**0.10**
Malaysia	1.20	3.28	0.31
Philippines	1.03	5.55	0.62
Thailand	0.40	2.15	0.13
Vietnam	1.22	1.00	0.07
WHO South-East Asia Region	0.55	0.99	0.42
Lower-middle income countries globally	0.78	1.34	0.44

Source: WHO 2013d.

1.9. **The production, availability, distribution, and quality of the health workforce are also challenges for Indonesia**. Table 1.2 above shows the availability of key members of the health workforce for Indonesia and comparable countries (public and private). While this table should be interpreted with caution,[7] it does tend to confirm the view that Indonesia has a shortage of key health workers, especially physicians and pharmacists. The distribution of health workers (geographically, as well as by levels of care) is also a challenge, as discussed in the next section. The success or otherwise of UHC will be partly dependent upon the actual number, location, skill level, skill mix, and supervisory arrangements of health workers in Indonesia over the coming years. The most recent information on health workforce quality is the 2007 Indonesia Family Life Survey, which includes a vignette study to assess the quality of physicians, nurses, and midwives. The percentage of correct responses to the vignette questions for the three groups of providers was poor: 45 percent for antenatal care, 62 percent for child curative care, and 57 percent for adult curative care (World Bank 2010).

1.10. **Despite the rapid growth of service provision by the private sector, oversight by the public sector remains limited**. Physicians providing private services have increased by 48 percent during

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5. As noted in paragraph 2.3, this report focuses on physicians, nurses, and midwives. However, WHO estimates are available for pharmacists in Indonesia and other countries and have therefore been included in this instance.

6. MoH reported 0.46 physicians per 1,000 in 2013 based on physicians registered with the KKI (Indonesian Medical Council), see also table 2.1.

7. The estimates cover a wide period, 2005–12; they include richer countries including Malaysia; other countries do not have the same geographical spread and number of islands as Indonesia.

1996–2006 (World Bank 2010). It is known that many public health providers, particularly physicians and midwives also have their own private practice. There is little knowledge about the number and distribution of private providers, how many hours they work, or the scope and quality of their services.

1.11.   Economic shocks and other developments had implications for health financing, health workers, and the movement to UHC. Economic pressures and external shocks have affected the government's capacity to finance health and other sectors over the recent decades. Among other things, government applied a zero-growth policy on civil service numbers in the early 1990s.[8] However to mitigate adverse effects on access to medical care, it allowed the growth of private schools; legalized dual practice (individuals could work simultaneously in the public and private sectors since the early 1970s government salaries were recognized to be low); and liberalized hospital ownership. Political and economic pressures led to a rapid rollout of fiscal decentralization from 1999 onwards, offering the possibility of more localized responsiveness and accountability, but also causing the fragmentation of financing sources. Although the decentralization policy devolved health service delivery authority and responsibilities to local governments, these have limited authority in managing staff. Local governments can propose recruitment of new staff, but staff hiring and firing remains with the central government. The fiscal transfer formula from the central to the local government contains staff salaries; therefore, local governments have little incentive to introduce staffing efficiency. Natural disasters have increased the demand for health workers, at least in the short term. All of these factors have influenced the evolution of health insurance for the poor in Indonesia and the movement toward UHC.

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8. Data on the trends of PNS (Pegawai Negeri Sipil or civil servant) and PTT (Pegawai Tidak Tetap or contract) physicians since the introduction of the zero-growth policy to assess the impact of the policy will not be available until the report is finalized.

PART 2: THE PRODUCTION, AVAILABILITY, DISTRIBUTION, AND PERFORMANCE OF HEALTH WORKERS IN INDONESIA

METHOD, APPROACH, AND DATA SOURCES

2.1. New quantitative and qualitative research was undertaken in Indonesia over the October 2012 to August 2013 period to inform the production, availability, distribution, and performance of health workers in Indonesia. The World Bank contracted researchers at the Center for Health Service Management at Gadjah Mada University (UGM), Yogjakarta, to conduct the study financed by the Japan–World Bank Partnership Program for Universal Health Coverage. UGM undertook literature reviews, review of MoH HRH documents and presentations, and engaged with a range of key stakeholders in Indonesia. This included a survey with four representative[9] medical schools to assess willingness to serve in rural areas, interviews with policy makers, and interviews with the professional associations. Other studies conducted by UGM and used in this report are a study of internship in collaboration with the Ministry of Health in 2013; and a study of medical fees conducted in 2006 for the Indonesian Medical Association.

Secondary data analysis includes the analysis of PODES (the Village Potential Statistics) 2011; SUSENAS (National Socioeconomic Survey) 2012; Ministry of Health data (Bureau of Personnel estimates (2008-2012), Board of Human Resources for Health Empowerment and Development [BPPSDM] estimates 2013, RS Online 2013).

2.2. There are strengths and limitations to the approach taken. One strength of the approach is that the data generated are up to date, including some as recent as August 2013. Further, systematic efforts were made to reduce potential bias: universities selected were both public and private, and from Java as well as outside Java. Although up to date, much of the data were drawn from multiple sources, which were not specifically designed for this study. It was often difficult to obtain data disaggregated by gender or wealth quintiles.

2.3. The scope of the analysis extended to the public and private sectors. That is particularly important and relevant given the movement to UHC, and the prominent role of the private sector in all aspects of the health sector in Indonesia (health professional schools, hospitals, employment of health workers). The definition of health workers was confined to physicians, nurses, midwives, and six categories of specialist doctors (anesthesia specialist, internal medicine specialist, obstetrician/gynecologist (OB/GYN), pediatrician, radiologist, and surgeon), where statistical data were readily available. Lack of readily available data meant that this study could not extend to community health workers, traditional healers, or other ancillary health workers.[10]

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9. Four medical schools were purposively selected for the study; these include one older (pre-1997) public university (Gadjah Mada University/UGM in Yogyakarta), one new public university (Universitas Tanjung Pura in West Kalimantan), one older private college (Universitas Maranatha in West Java), and one new private college (Universitas Muhammadiyah Yogyakarta). All final semester students in each medical school were given a self-administered questionnaire to assess their willingness to serve in remote areas.

10. WHO takes a very broad definition of the health workforce, namely "all people engaged in actions whose primary intent is to enhance health" (http://www.who.int/topics/health_workforce/en/). This report accepts that definition. However, there was limited statistical and other data on the stock, location, and trends of community health workers and other health workers in Indonesia. They were therefore excluded from the original scope of analysis.

2.4. Like most developing countries, Indonesia faces the challenge of increasing the number of trained health workers to meet growing demands. A very recent global study of scaling up UHC confirmed that all nine developing countries, including Indonesia, face the challenge of increasing the stock of trained health workers (World Bank 2013a). The study estimated that Indonesia would need to increase the stock of health workers by 78 percent from current levels if it is to reach the WHO global recommended target of 2.28 trained health workers per 1,000 by 2035.[12] Indonesia has demonstrably increased the number of health workers over time (see next paragraph), but these efforts need to be accelerated even further.

Government documents (Government of Indonesia 2011) and World Bank reports found that Indonesia had considerably smaller physicians to population ratios than other East Asian neighbors such as Philippines and Malaysia,[13] or even lower-income countries such as Vietnam and Cambodia (Rokx et al. 2009). This is also confirmed by latest estimates from WHO (see table 1.2 in the preceding chapter). Nevertheless, World Bank reports also noted that Indonesia has increased its capacity to produce health workers during the last two decades. The latest information from the Directorate General of Higher Education, MoEC, is that there are 72 schools of medicine; 27 dentistry schools; 728 midwifery schools (three-year course); and 733 nursing schools (of which 368 schools provide a vocational nurse training, and 385 provide professional nurse training). This represents a large increase over previous years.[14] Furthermore, the number of private health providers grew dramatically in Indonesia since the legalization of dual practice, liberalization of hospital ownership, the introduction of a zero-growth policy on civil service numbers, and the passing of decentralization legislation in 1999.

Figure 2.1 Number, and Source, of Graduating Physicians 2000 – 2011

Number and source of graduated doctors 2000-2011

Source : Higher Education - HPEQ, 2013

2.5. Indonesia has been capable of regularly, and reliably, producing new physicians from both private and public medical schools. This came to a peak in the period 2008–10 when production was approximately 9,000 physicians.[15] The sourcing mix has changed noticeably over that period with private

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11 The term "availability" refers to the stock of health workers or the number of health workers employed.

12. This compares to an increase of 221 percent for Ghana, 33 percent for Peru, and 19 percent for Vietnam, the other countries grouped with Indonesia in this particular study.

13. 21 physicians per 100,000 in Indonesia compared with 58 in the Philippines and 70 in Malaysia.

14. Rokx et al. (2009) note that in the 1990s there were 183 Sekolah Perawat Kesehatan (SPK) and 76 diploma nursing schools. By 2008 there were some 682 nursing schools in total, producing some 34,000 nurses each year. There were also 52 medical schools producing an average of 5,000 new medical doctors each year, and 465 midwifery schools producing 10,000 midwives.

15. The apparent spike in the number of private medical students in 2009 is not easy to explain, nor the return in 2010 to more normal levels. Investigation suggests it might simply be the result of chance: more schools that happen to upload

medical schools providing an average of 63 percent of the graduating physicians in the last three years. This is clear from figure 2.1 above.

2.6. Most of the increase in health workers is a result of the expansion in the number of private medical schools. There has long been a shortage of medical schools in Indonesia, which created a bottleneck in terms of producing new health workers. For example, in 2003–04 medical schools received more than 80,000 applications, though they only had capacity to accept 4,700 new students (World Bank 2010). However as seen in figure 2.2, the number of medical schools has increased from 40 schools in 2001 to 72 schools in2011: an increase of 80 percent during the last 10 years. Of those 72 schools, about 60 percent are private medical schools. The number of midwifery and nursing schools has also increased. Establishment of private medical schools relieves pressure on government budgets, particularly in terms of investing in new schools in urban areas, thereby freeing up public resources that can be used to expand services in poorer and more remote areas. On the other hand, the growth of private schools also has the potential to offer higher salaries to senior and experienced lecturers, attracting them away from the public sector schools or forcing salaries there to increase. It should also be noted that, with the passing of the new Medical Education Law (Law no. 20/2013), higher and more rigorous standards apply for establishing a new medical school. This may have the effect of slowing the growth of medical schools — particularly the smaller ones — as a higher level of inputs is now required to establish each school. It is intended that the new law will also help raise the quality of all medical schools. How the rapid increase in the number of medical schools might affect quality and standards more broadly is discussed in paragraphs 2.33 to 2.34.

Figure 2.2 Number of Medical Schools in Indonesia 2001–11

Source : Higher Education - HPEQ, 2013

2.7. Despite increases in the supply of physicians, there are still substantial staffing gaps today. Table 2.1 below shows the progress Indonesia has made in increasing the number of physicians. The data sources for the number of physicians are PODES (the Village Potential Statistics) and KKI (Indonesian Medical Council). PODES data represent the number of physicians living in the village as reported by the village head, while KKI data represent the number of physicians registered at the KKI.[16] According to PODES, the number of physicians increased by 5,643, or 14 percent, between 2005 and 2011, or a marginal increase of physicians from 0.184 to 0.190 in 1,000 population in 2011. KKI data provide higher numbers; an increase of physicians by 41,253 or 57 percent during the 2007–13 period, or an increase of physicians from 0.32 to 0.46 in 1,000 population. In any case, the increase has barely kept pace with population growth; policies to date have increased the *absolute* numbers of physicians, but not sufficiently improved the *relative* position of physicians compared to the total needs of the population. There is a large gap to fill if Indonesia is to reach the target of 0.96 (general practitioners) GPs per 1,000 population by 2019, and 1.12 per 1,000 by 2025, as set by the Board of Human Resources for Health Empowerment and Development (BPPSDM), MoH.

data for that year. If so, there would be value in reviewing and further cleansing the Higher Education Data Base, now and in the future, as evidence-based policy requires sound data.

16. PODES data may be an underestimate because of inadequate quality of village level-data, but it does show trends by village, while KKI (Indonesian Medical Council) data may be an overestimate because not all registered physicians are actively working as physicians.

2.8. Estimating health worker needs based on health worker-to-population ratio is often done, but may not reflect the need to provide access to health workers in rural and remote areas where health workers are mostly needed. Scaling up the number of health workers may not be enough to solve HRH availability and distribution problems. In reality, health workers respond to health labor market changes influencing health worker demand and supply. A labor market analysis may help policy makers in developing appropriate strategies to address HRH availability and distribution problems (see box 2.1). It would be important, for example, to analyze the supply and demand of medical education to understand actual capacity to scale up production, and also to know exactly where graduating doctors are being employed.

Table 2.1 Total Number and Ratio of Physicians per 1,000 Population (2007–13)

Source	Total Physicians			Ratio per 1,000 Population		
	2008	2011	2013	2008	2011	2013
PODES	44,367	45,291		0.184	0.192	
KKI	72,249 (2007)		113,502	0.32 (2007)		0.46

Source: PODES 2008 and 2011; KKI 2007 and 2013.

2.9. Greater progress has been made with respect to increasing the relative targets for midwives, but rapid increases are still needed to meet government targets. Table 2.2 shows that the total number of midwives has increased by more than 37,000 from around 80,000 to almost 116,000 or a 45 percent increase. This increase has been faster than the increase in the total population. As a result, the ratio of midwives to the population has improved noticeably from 0.37 in 2005 to 0.49 in 2011. However, this requires still faster increases if Indonesia is to achieve the BPPSDM target of 0.75 midwives per 1,000 population in 2014 and beyond. As discussed in the previous paragraph, the government may benefit from a labor market analysis to guide midwife recruitment and deployment strategies

Table 2.2 Changes in Numbers and Ratio to Population of Midwives in Indonesia

	2005		2008		2011	
	Number	Ratio/1,000	Number	Ratio/1,000	Number	Ratio/1,000
Population	216,122,506		231,484,133		238,618,143	
Midwives	79,661	0.369	97,976	0.423	115,948	0.486

Source: PODES 2005, 2008, 2011.

2.10.   MOH estimates that an additional 118,788 health workers were needed at hospitals in 2012. The shortage is calculated based on unfilled positions. As figure 2.3 below shows, the largest shortfall was nurses: 87,874 additional nurses, or 74 percent of the total shortfall, were needed at hospital level. The second-largest cohort gap to be filled at hospitals was midwives: 15,311, or 12 percent of the total shortfall, were needed in 2012 before minimum staffing levels could be met across Indonesia. As noted previously the absolute number of physicians and midwives has increased since 2005. However, in the case of physicians, this has barely kept pace with the population growth to date. There have been modest gains in the number of midwives compared to population growth. Modeling projections about the total number of health workers that might be needed *in future*, taking into account population growth and the changing burden of disease, are discussed in paragraph 2.14 and 2.15 below.

Figure 2.3 Shortage of Health Workers at Hospital Level in 2012
(based on unfilled posts)

Shortage of health workers at hospital level in 2012

Category	Value
Nurse	8787
Midwife	15311
GP	3309
Pharmacist	2621
Pediatriciant	1382
Surgeon	1357
Internist	1295
Ob-gyn	1287
Radiologist	1261
Dentist	1144
Dentist specialist	874
Anesthesia specialist	624
Physiotherapist	449

Number of shortage HRH
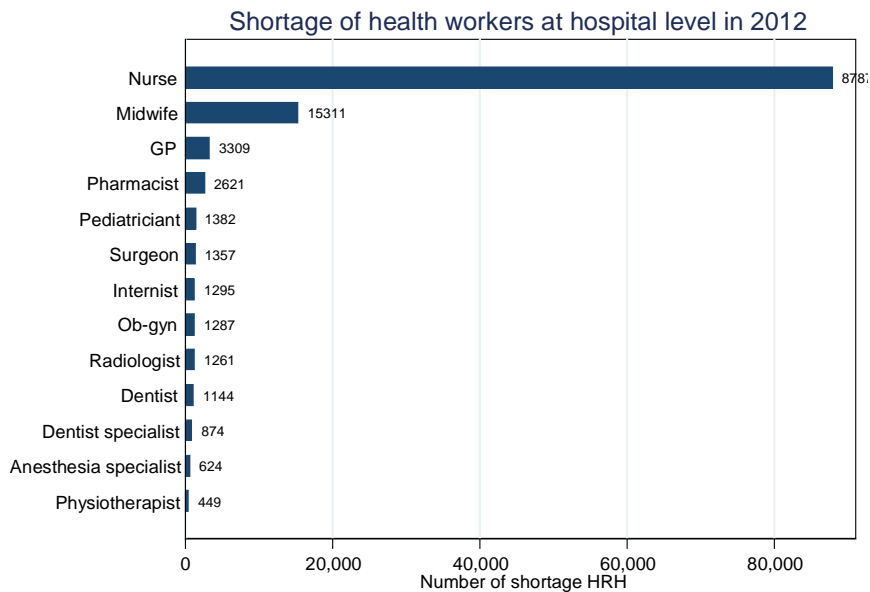
Source : BPPSDM-MoH, 2013

2.11.   Significant gaps also exist in key health worker positions at the puskesmas level.   More specifically, there are an estimated 45,350 health worker positions that need to be filled in 2012 at puskesmas level. Similar to the situation in hospitals, the largest shortfall occurs among nurses, as shown in figure 2.4. An estimated 10,146 extra nurses are needed at primary health care level, or 22 percent of the total shortfall. This is important because achieving UHC involves promotive and preventive services, and not just curative care. Promotive and preventive care, including antenatal care and immunization programs, is often best done in primary health care settings. Indonesia is potentially well placed to capitalize on its 150 schools of public health and wide public health care network to encourage promotive and preventive care as an integral part of UHC. It should be noted that the shortage calculation is based on the need to meet MoH HRH standard for each facility level and type regardless of local conditions or needs. An important point for policy makers is to improve future needs assessment by considering important priorities such as improving access in needy areas.

Figure 2.4 Shortage of Health Workers at Puskesmas Level in 2012 (based on unfilled posts)

Shortage of health workers at puskesmas level in 2012

Category	Number
Nurse	10146
Health care analyst	5353
Midwife	4485
Pharmacist assistant	4370
Dentist	4349
Dental nurse	3514
Sanitarian	2939
Nutrisionist	2934
Bachelor of public health	2813
General practitioner	2269
Pharmacist	2177

Number of shortage HRH

Source : BPPSDM-MoH, 2013
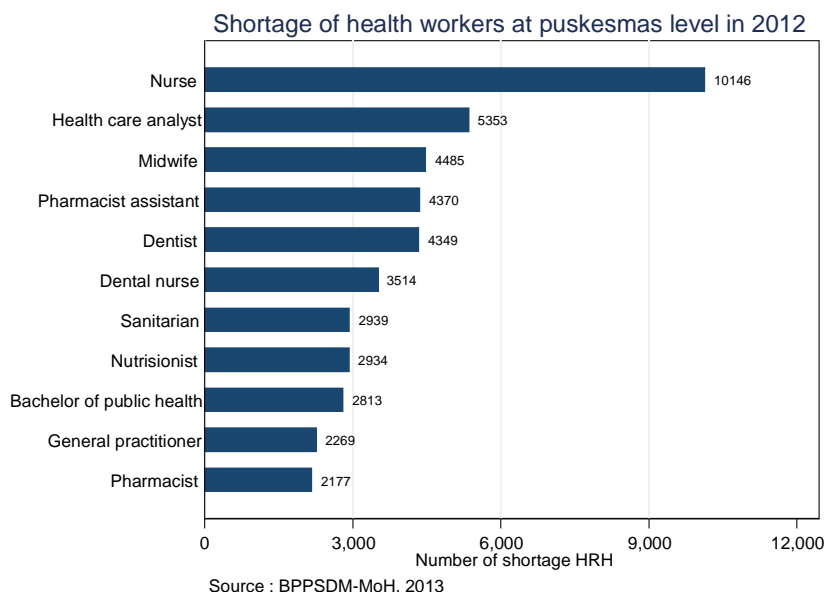
2.12.   The shortage of nurses — despite large numbers of graduates — at hospitals and puskesmas is particularly noticeable and deserves more detailed analysis. The MoH standard is six nurses for each regular puskesmas, and ten nurses for each puskesmas with beds. For types A and B hospitals the standard is one nurse for every bed, and for types C and D hospitals, two nurses for every three beds[17]. The 733 nursing schools produce more than enough graduates per year to fulfil this need. For example, according to BPPSDM, the number of nurses needed in 2014 is 134,623, while production is around 474,000. Yet figures 2.3 and 2.4 demonstrate a large gap. Unfortunately, due to the lack of specific analysis, there is no clear, rigorous evidence-based answer to this question of why graduating nurses are not being employed in practice. The likely explanation is that low government expenditure for health prevents the government from spending enough to recruit nurses for the puskesmas and public hospitals. It is not clear what is happening in private hospitals; perhaps they are reducing the number of nurses to save costs. Perhaps some work in private outpatient clinics, or choose not to work in nursing upon graduation. There is anecdotal evidence that, due to weak enforcement of regulations, nurses also open individual private practices, particularly in rural areas where there are not enough physicians. Nurses emigrating to work overseas — a common phenomenon in the neighboring Philippines — is not a major factor in Indonesia due to a range of factors including language. A study on labor market demand may be able to shed light on why, despite the high production level, there are workforce shortages in the hospitals and puskesmas.

2.13.   Looking to the future, the current annual increase in the number of physicians is unlikely to be enough to meet government's 2019 targets. The government's target is to achieve 1 physician per 1,000 nationally by 2019, as recommended by WHO (BPPSDM 2011), the year Indonesia hopes to attain UHC (see table 2.3 below). If production were to reach 10,000 physicians per year in 2014, the year Indonesia launches

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[17] Type A provides, at a minimum, four basic specialist services (internal medicine, pediatrics, surgery, obstetrics-gynecology), five medical support specialist services (four medical diagnostics and anesthesia), twelve other specialist services, and thirteen subspecialist services; Type B provides, at a minimum, four basic specialist services, four medical support specialist services, eight other specialist services, and two subspecialist services; Type C provides, at a minimum, four basic specialist services, and four medical support specialist services; Type D provides, at a minimum, two basic specialist services.

the UHC program, MoH would likely meet the 2014 target of 0.5 physicians per 1,000. Obviously, there will not be enough physicians produced by 2019 to meet the target of 1 physician per 1,000. The estimated gap between the requirements and the production of graduates is shown in table 2.3. Before investing in improving production capacity, it is important to examine and address factors causing leakages and inefficiencies related to health labor market dynamics such as attrition due to health workers taking up nonhealth posts, migrating overseas, and retirement; difficulties in deploying staff to rural or remote areas; or health worker performance related, for example, to absenteeism due to dual practice.

Table 2.3 Estimated Projection of Physicians Required

	2014	2019	2025
Target (per 1,000)	0.48	0.96	1.12
Required number of physicians	117,511	248,100	306,005
Gap	43,162	182,173	230,813
Production[18] capacity	21,915	36,525	43,830

Source: BPPSDM 2011.

2.14.   Workforce numbers will need to adapt to changes in the size, age, and disease profile of Indonesian society; the movement to UHC; and changes in the economy over time. A recent modeling exercise estimated the possible gap between health care demand and the supply of physicians in Indonesia between 2009 and 2020 (Qureshy 2011). The model assumed six different drivers of demand for health care over that period: growth in population; changes in the population structure due to ageing; changes in epidemiology; increased demand for health care due to the rollout of universal health coverage; increased demand due to economic growth; and changes in technology. The estimates are summarized in table 2.4 below. In essence, the model estimated that the number of outpatient visits and inpatient days would grow by a minimum of 13 percent over the period 2009–20 simply as a result of population growth, with no other changes. A combination of population growth, demographic transition (including ageing of the population), and insurance increases the number of outpatient visits by 30 percent to over 848 million by 2020, and the number of inpatient days by 50 percent to over 48 million. The model estimates an even steeper rise in demand for health care with the combination of population growth, demographic and epidemiological transitions, health insurance, and economic growth. With that combination there could be more than one billion outpatient visits by 2020, and 46 million inpatient days, an increase of 73 percent and 113 percent, respectively, since 2009.

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18. The BPPSDM estimate assumes the same production capacity based on year 2008 physician production, and recognizes the need to increase production capacity.

Table 2.4 Estimated Increase in Health Care Demand[19]

Scenario	Number of outpatient visits, and inpatient days by 2020 (in millions)	Increase 2009–20 (%)
Population growth only		
Number of outpatient visits	736.6	13
Number of inpatient days	36.9	13
Population growth and demographic transition		
Number of outpatient visits	774.1	19
Number of inpatient days	38.7	20
Population growth, demographic transition, and health insurance		
Number of outpatient visits	848.5	30
Number of inpatient days	48.2	50
Population growth, demographic transition, health insurance, and epidemiological transition		
Number of outpatient visits	859	32
Number of inpatient days	46	44
Population growth, demographic transition, health insurance, epidemiological transition and economic growth		
Number of outpatient visits	1,130	73
Number of inpatient days	68.3	113
Population growth, demographic transition, health insurance, epidemiological transition, economic growth and technological progress		
Number of outpatient visits	1,243	91
Number of inpatient days	75.2	134

Source: Qureshy 2011.

2.15. The modeling by Qureshy cited above estimates that if the physician-to-population ratio stayed static at the 2009 estimate of 0.3/1,000, then, under a range of assumptions, there could be a shortage of around 37,000 full-time equivalent (FTE) physicians or 37 percent of the total demand once all the drivers are taken into account.[20] It is important to realize that changes in the age profile, disease burden, and access to health care will affect not just the total number of health workers needed, but the skill mix as well. An increasing burden of noncommunicable diseases, including diabetes, stroke, cancers, and dementia will require more long-term and specialized care. Increasing the number of physicians will also have second-round effects on other health workers. Additional physicians opening up practices in hitherto underserved areas will inevitably increase the level of diagnostic tests and drug prescriptions, thereby increasing the demand for X-ray and laboratory technicians, as well as for pharmacists.

2.16. **The changing disease profile in Indonesia has important implications for the skill mix of the health workforce, as well as for other complementary investments if UHC is to be effective**. The latest burden of disease estimates highlight the changing disease profile in Indonesia (IHME 2013). More

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19. In estimating future health care demand, the drivers are population growth, ageing, insurance, epidemiology, economic growth, and technology. Total health care demand is the total of outpatient and inpatient demand using utilization by age group and by wealth quintiles from SUSENAS (2009). SUSENAS data are also used to estimate the increase of utilization due to insurance. Increased utilization due to technology is assumed to be the same as for the case of insurance. The proportion of communicable and noncommunicable diseases and injuries is derived from Riskesdas (2007). The number of sick people per disease group is calculated using disability-adjusted life year (DALY) ratios based on WHO DALY projections. Treatment rates are obtained from focus group discussion of experts, adjusted with SUSENAS data.

20. The modeling did not extend to the numbers of nurses, midwives, and other health workers that may be required.

specifically, in 2010 stroke displaced lower respiratory infections as the leading cause of premature death in Indonesia, a 76 percent increase in years of life lost since 1990. Ischemic heart disease, diabetes mellitus, and lower back pain are now among the top 10 leading causes of death and disability in Indonesia; whereas none were in the top 10 in 1990 (Ibid.). The training and skill mix of health professionals will need to anticipate and evolve rapidly to respond to these changes. Other complementary investments in diagnostic equipment, drugs, and other requirements are needed if UHC is to be effective. At present, only 27 percent of public hospitals provide cardiovascular services; only one-third of puskesmas in the country reported being able to conduct blood glucose and urine tests; and only one-third of puskesmas were able to screen for cholesterol (Tandon 2013).

FINDINGS ABOUT DISTRIBUTION

2.17.   Maldistribution of health workers is a challenge in virtually all developing countries, including Indonesia. A very recent study of scaling up UHC in 11 developing countries, including Indonesia, confirmed that all countries face the challenge of deploying and retaining health workers in rural and remote areas (World Bank 2013a). Geographical maldistribution of health workers has long been a particular challenge in Indonesia given the wide geographical spread of the country, including numerous isolated islands (Government of Indonesia 2013; Chomitz et al. 1998). Recent reports note that while the physicians to population ratio has improved over time, inequities in the distribution between provinces, between urban and rural regions, and between more and less affluent areas have not (World Bank 2009). Other reports have noted that only 20 percent of physicians are based in rural areas, where the majority of the population lives. The gap between urban and rural areas remains very large, at eight times greater than in urban areas despite some significant proportional improvements since 1996 when the difference was even larger (World Bank 2010).

Figure 2.5 Physician Distribution and Ratio to Population
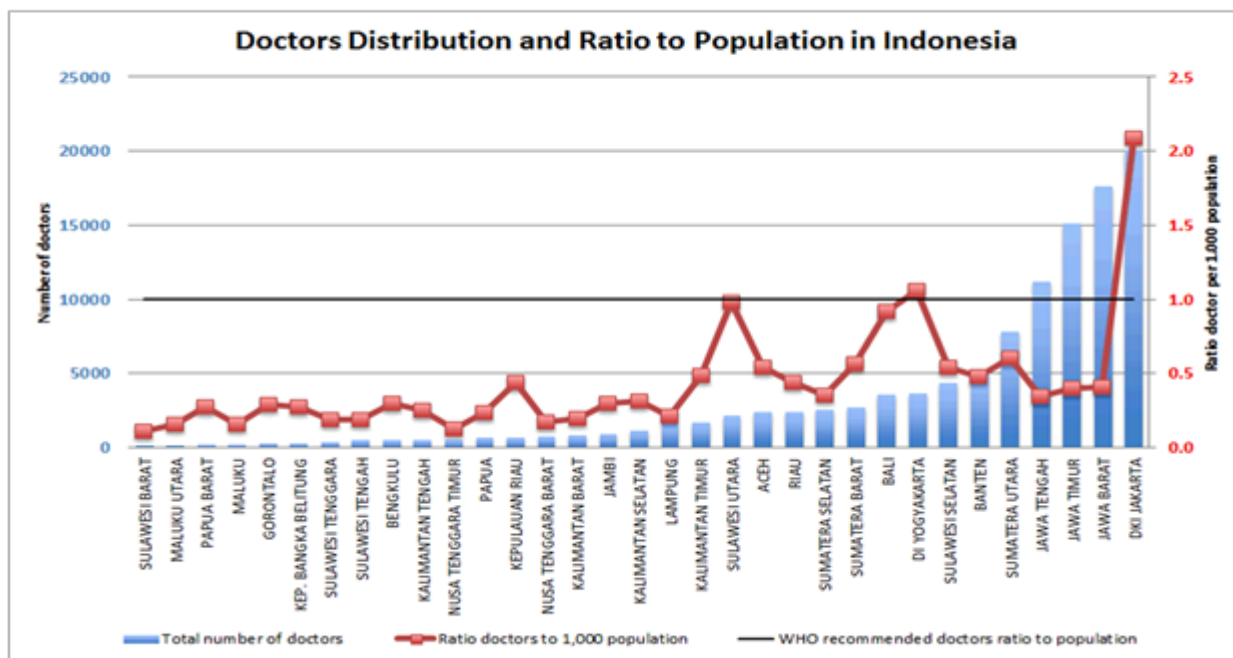
Source: PODES 2011, BPS 2010

**2.18.   Approximately 60 percent of graduating physicians are female, but women may be facing particular barriers to deployment in rural and remote areas.** In many countries, women comprise over three-quarters of the health workforce, but are concentrated in lower-skilled, lower-paid, lower-status positions with limited decision making authority (WHO 2008; Zurn et al. 2002). The total number, and relative share of

60 percent female graduating physicians in Indonesia is therefore an important — and positive — characteristic of the health system. However, if UHC is to be truly universal, the key challenge is to create a policy and programming environment whereby graduating female physicians and other health workers are willing and able to be deployed in rural postings. There is some anecdotal evidence to suggest that female physicians may face particular difficulties in remote and rural posts, particularly if there are limited schooling opportunities for their children or security concerns.

2.19.   Among Indonesia's 33 provinces, 29 do not have the WHO recommended ratio of 1 physician per 1,000 population. Figure 2.5 above shows that only Daerah Khusus Ibukota (DKI) Jakarta and Yogyakarta provinces meet the WHO recommended ratio. Bali and Sulawesi Utara (North Sulawesi) provinces are almost at this target (0.921 and 0.978, respectively). The other 29 provinces are well below the standard, including all other provinces in the Java area: Banten, West, Central, and East Java. The Indonesian Medical Association (IMA) says physicians are discouraged from working in rural and remote areas for a number of reasons. For example, physicians report long delays — sometimes up to three months — in receiving salaries, partly as a result of slow release of funds under decentralization. The IMA also notes that insurance companies were often slow in accepting and reimbursing claims to physicians. Physicians also received lower salaries and allowances than they had expected.

2.20.   According to PODES 2011, virtually all villages in Java have a physician, as shown by the dark green color in figure 2.6 below. But the situation is quite different in other islands, with many villages in Kalimantan, NTT, Maluku, and Papua having less than 28 physicians per *district (*shown by the light gray and light green color) in the figure below.

Figure 2.6 Physicians per Village at District Level

Source: PODES 2011

17
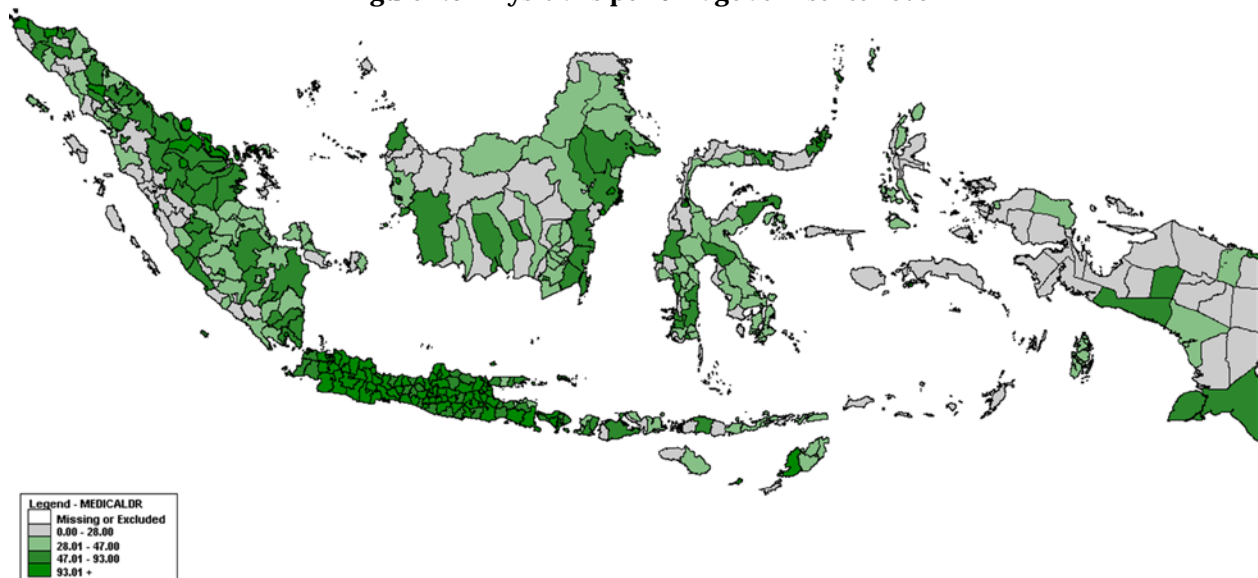
2.21. However the situation is different — and often even reversed — when physicians are mapped per 100,000 population rather than per village. As shown in figure 2.7, even Java and northern Sumatra now have a noticeable number of districts where the density of physicians per 100,000 is low. This is because while each village may have a physician, the villages themselves have large and densely settled populations that require a greater number of physicians. On the other hand, provinces such as Papua and Kalimantan now appear to have better ratios of physicians per 100,000, reflecting the fact that those provinces have less densely populated villages and catchment areas. UGM analysis finds that the same patterns are repeated for nurses and midwives.

**Figure 2.7 Physicians per 100,000 Population**

Legend - RASIODOKTE
Missing or Excluded
0.00 - 10.76
10.77 - 16.55
16.56 - 27.03
27.04 +
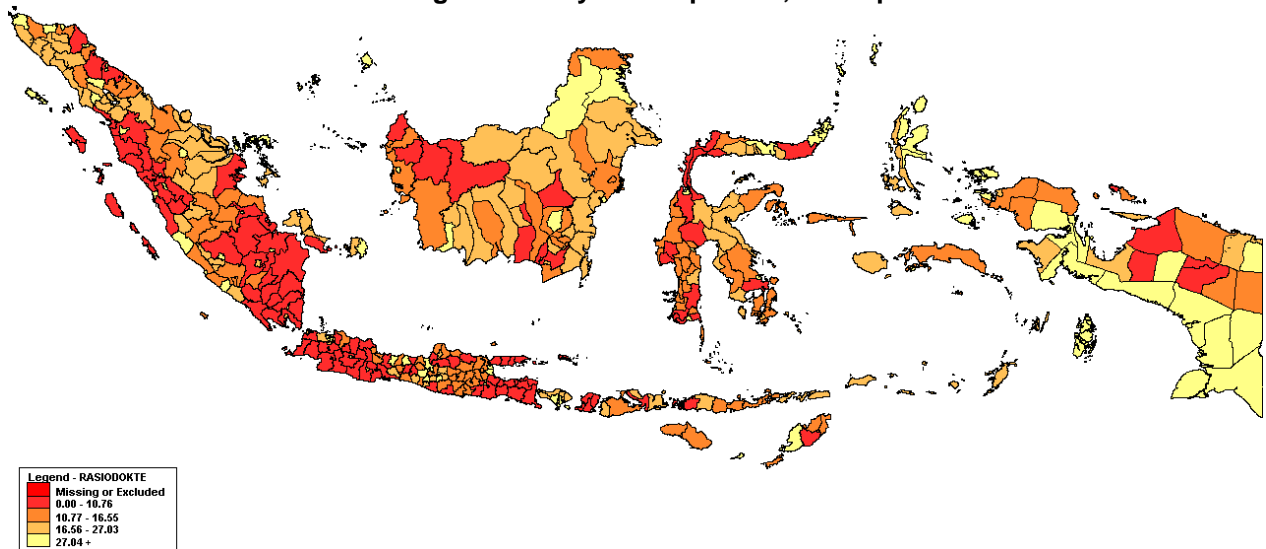
Source: PODES 2011

2.22. The number and location of hospitals is a "pull factor" influencing the distribution of specialist physicians, that favors Java. Figure 2.8 shows the concentration of internal medicine specialists in large, urban hospitals, particularly in Java compared to more remote Maluku, Papua, and Sulawesi Barat (West Sulawesi). Similarly, figure 2.9 shows that while all public hospitals in Jakarta have an anesthesia specialist, the national mean is less than half (48.8 percent). In Kalimantan Tengah (Central Kalimantan), Maluku Utara (North Maluku), Bengkulu, and Papua Barat (West Papua) less than 20 percent of public hospitals have an anesthesia specialist. No hospital in Papua Barat has an anesthesia specialist.

Figure 2.8 Number and Location of Internal Medicine Specialists in 2013

Number and location of internists by province in 2013

Source : Hospital Online, 2012

The lack of anesthesists at hospitals is and will continue to be a critical constraint in reducing maternal mortality and — more generally — in achieving universal health coverage.
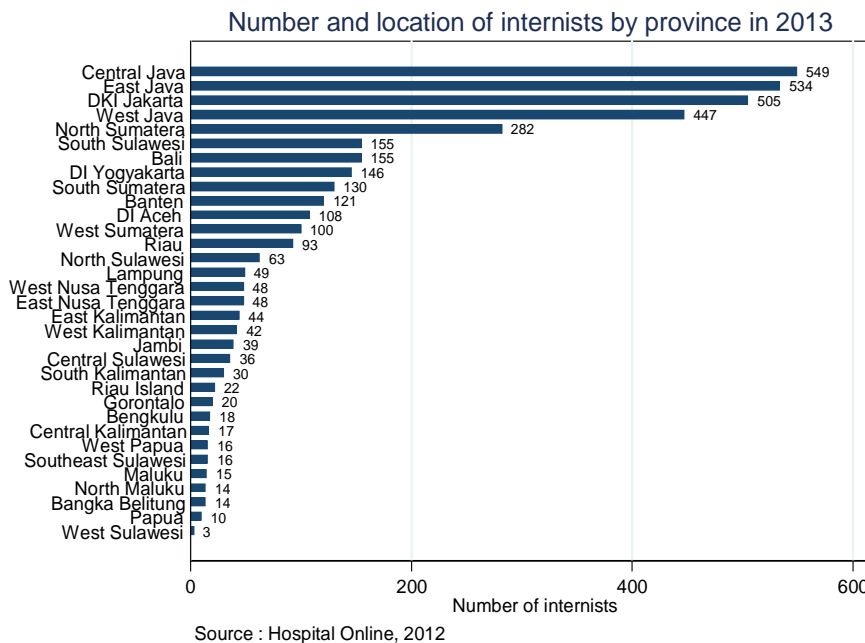
2.23. Geographical location of medical schools can reinforce the urban bias and maldistribution of health workers. More specifically**,** government reports noted that 85 percent of the 72 medical schools were located in the provincial capital city in 2011. Very few schools had special programs for recruiting students from rural or underserved areas (Health Professional Education Quality Project [HPEQ], Directorate General of Higher Education). Surveys by UGM of graduating students suggest the majority of health workers wish to work in a provincial capital rather than a more remote or rural area. Earlier studies noted that physicians coming from the outer islands are far more willing to serve in remote areas of Indonesia than their counterparts from Java, suggesting substantial gains to increasing representation of medical students from the

Figure 2.9 Percentage of Public Hospitals with an Anesthesia Specialist

Percentage of public hospitals with at least one anesthetist by province

Indonesia : 48.8%

Source : Rifaskes, 2011

19
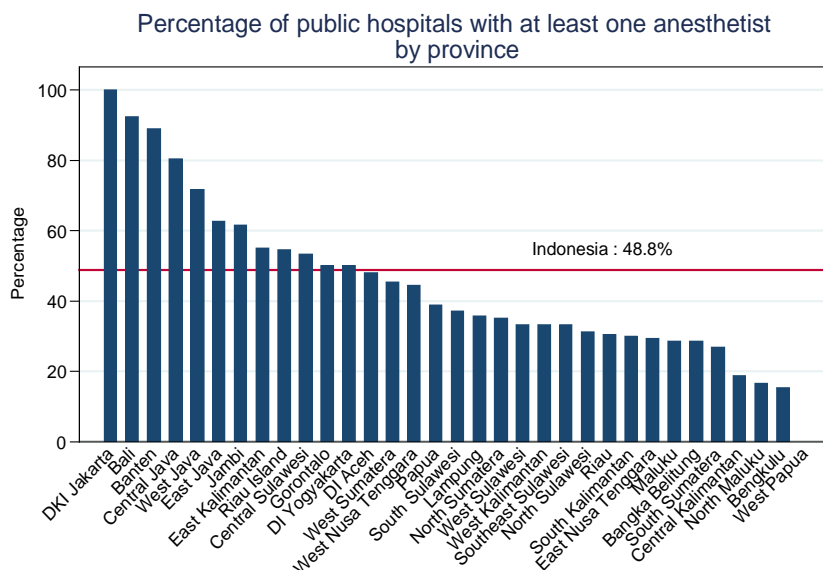
outer islands (Chomitz et al. 1998).

2.24. Workforce distribution does not appear to be well aligned to the current national health challenges, such as the high maternal mortality ratio (MMR). Estimating maternal deaths is a difficult exercise, and many different types of health workers are involved in preventing a maternal death. However, even with those caveats in place, questions arise about health worker distribution in relation to MoH maternal death data. Figure 2.10 shows that MMR based on absolute numbers from service statistics vary widely within Indonesia, even when access to obstetric services, measured by the ratio of obstetricians per 100,000, population, is around 2. The reason for the high level of maternal deaths in West Papua is perhaps understandable given the remoteness, geography and socioeconomic conditions of that province. However, the explanation for such a large difference in maternal deaths for roughly similar ratios of obstetricians per 100,000 in the rest of the country is less apparent.

**Figure 2.10 Maternal Mortality Ratio and Obstetricians per 100,000 Population**
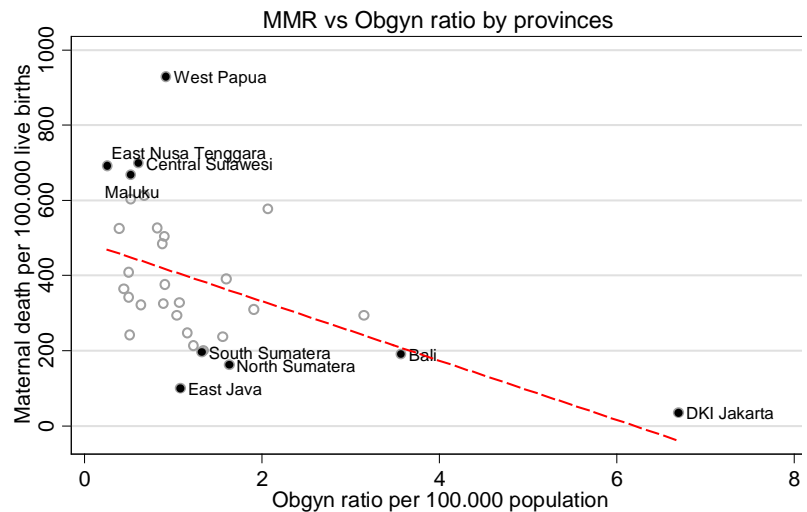
Source:
Obgyn : KKI, 2013
Maternal death : BGKIA-MoH, 2010

2.25. There is also a wide dispersion in the MMR for a similar availability of midwives. Figure 2.11 suggests a wide pattern of maternal health outcomes even when the midwife-to-population ratio is the same at around 50 per 100,000. What explains such variation? Is it measurement error, bearing in mind the well-known difficulties in accurately estimating maternal deaths in any lower-middle-income country? Is it a problem with the referral system? Is it a problem with quality of care? Are there issues outside the formal health sector such as undernutrition, poverty, or remoteness that explain the variation? There is insufficient evidence at this stage to answer these questions.

2.26. Strengthening the evidence base to answer such questions will help Indonesia plan its expansion of UHC in a rational and efficient way. Examination of the outliers is also likely to yield powerful policy and program insights. Why, for example, are there almost five times as many maternal deaths in West Papua than in North Sumatra with roughly the same ratio

Figure 2.11 Maternal Mortality Ratio and Midwives per 100,000 Population in 2010
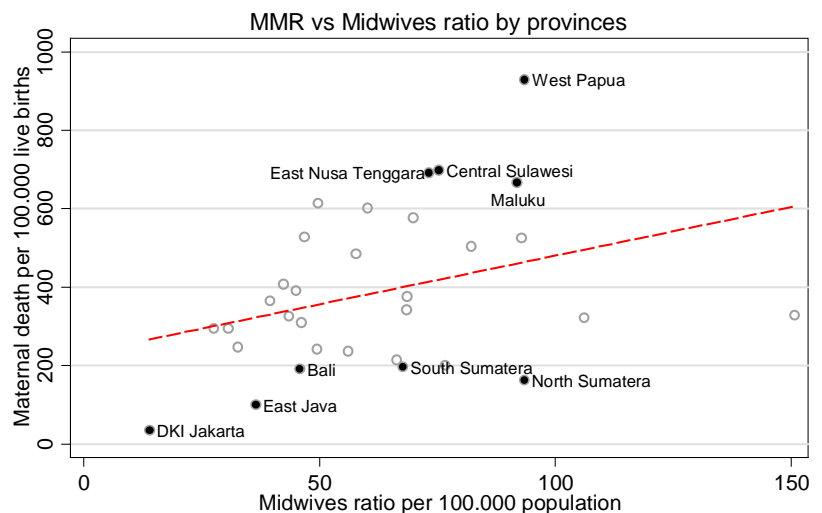
Source:
Midwives : PODES, 2011
Maternal death : BGKIA-MoH, 2010

Figure 2.12 Neonatal Mortality Rate and Midwives per 100,000

Neonatal mortality vs Midwives ratio by provinces

Source:
Midwives : PODES, 2011
Neonatal death : BGKIA-MOH, 2010
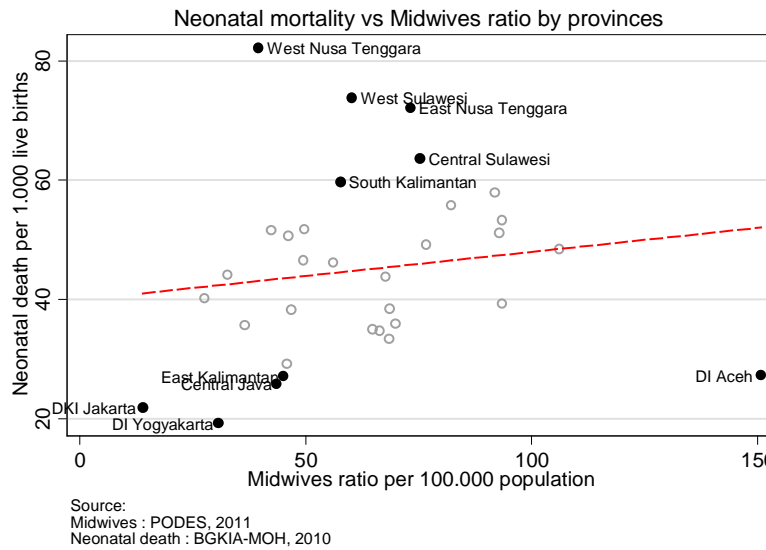
of midwives per population? Is it to do with remoteness and longer distances to essential care in West Papua, or are other factors influencing this? Similarly, as shown in figure 2.12 there are some intriguing outliers when neonatal mortality rate (NMR) is plotted against the ratio of midwives.[21] Why, for example, does West Nusa Tenggara have such a high rate of neonatal mortality when other provinces, including East Kalimantan, have much lower rates with roughly equal ratios of midwives to population?

2.27. The wealth and fiscal capacity of a province is not a good predictor of availability of physicians. In principle, although decentra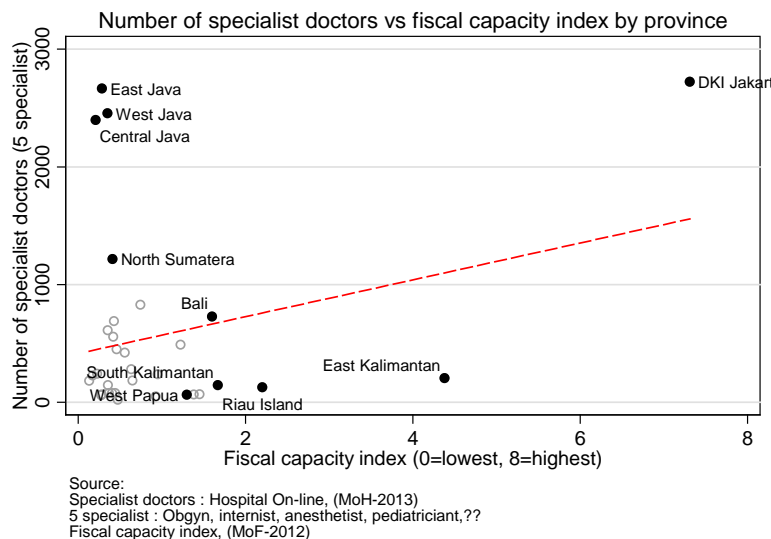lization does not give much authority to the local government in workforce management, it does give resource-rich provinces like West Papua and East Kalimantan, an increased financial capacity to fund health services and attract physicians. However in practice this is not occurring. As shown in figure 2.13 below, deployment of specialist physicians is quite low in provinces with higher fiscal capacity, some of which have particularly high health needs such as West Papua with the highest MMR in Indonesia. We can thus conclude that resource-rich provinces with correspondingly higher provincial fiscal capacity will not necessarily attract specialist physicians. That is because fiscal capacity only measures the *potential* for fiscal space; whereas *actual* implementation capacity is of more importance. The capacity to pay additional — and sometimes significant — hardship and remoteness allowances is also not sufficient to attract physicians if they will not also have the complementary infrastructure and services to practice. A study on labor market demand to better understand the factors discussed in this paragraph may help decision makers to develop distribution policies for Eastern Indonesia.

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21. WHO and UNICEF statistics show that most newborns die within the first 24 to 48 hours of life, so there is an important role for midwives in reducing newborn death.

Figure 2.13 Number of Specialist Physicians Compared to Fiscal Capacity Index of a Province

Source:
Specialist doctors : Hospital On-line, (MoH-2013)
5 specialist : Obgyn, internist, anesthetist, pediatriciant,??
Fiscal capacity index, (MoF-2012)

2.28. Private health providers create both opportunities and risks for health outcomes and the expansion of UHC. Indonesia is characterized by a dual practice health system that allows medical staff to practice in both the public and the private sectors, often on the same day. Recent analysis finds that the number of physicians working privately increased by almost 10,000 over the decade from almost 20,000 to almost 30,000 in 2006, representing around 38 percent increase in physicians per 100,000 population. The growth in the number of physicians providing private services has been greatest in **urban areas, where opportunities for** attracting paying patients is higher than in more sparsely populated and poorer rural areas. However rural areas also experienced an increase of 21 percent, with four physicians providing private services for every 100,000 people in 2006 (World Bank 2010).

2.29. Private practice may have improved health utilization by the poor. World Bank analysis of the Indonesia Family Life Surveys (IFLS) found the following:

Growth in the number of private physician practices in communities is associated with increased utilization of health services by poorer members of the community. The poor are more likely to use the puskesmas as the private sector grows. This suggests that the increase in supply of health service providers reduces congestion in the puskesmas, while also sorting more affluent members of the community to private practices (World Bank 2010).

2.30. On the other hand, a UGM study on medical fees found that dual practice also presents policy and practical challenges, especially when the dual practice system remains largely unregulated and unsupervised. That study found the following:

Despite regulations limiting practice locations to three, most specialists studied in a provincial capital city were working in more than three locations, with some working in up to seven locations, and spending only a few hours per week, sometimes as few as two hours, in their government hospital practice. Our study demonstrates that the current regulatory policies and financial incentives have not been effective in addressing the maldistribution of specialist doctors in a context of a growing private sector and predominance of doctors' income from private sources. A broader and more integrated   approach, including more innovative service delivery strategies for rural and remote areas, is recommended (Meliala et al. 2013).

22

Box 2.2 Measuring Diagnostic and Treatment Ability Using IFLS Vignettes

The ability of health providers to diagnose illness correctly is measured using community and health vignette questions from the Indonesia Family Life Survey (IFLS, http://www.rand.org/labor/FLS/IFLS/) 1997 and 2007. The interviewer presents the health vignette or case to the health worker and asks how the worker would proceed. Three vignettes are conducted related to diagnosis and treatment of conditions common in prenatal, child, and adult care, respectively. For example, one vignette has a mother bringing in a child suffering from diarrhea for more than two days. Among the items that the interviewer records is an indication of whether the health provider takes the temperature of the patient, and asks about frequency of diarrhea and about the nature of the stool. The interviewer then assigns a score of one for a correct answer or zero for an incorrect or missing answer to a prepared list of items based on standards for diagnosis and treatment. Two types of quality scores are constructed for each health case: the raw score, which is the share of correct responses multiplied by 100, and the normalized raw score, or z-score, which shows the difference from the mean in the category divided by the standard deviation. For the public sector, only puskesmas and auxiliary puskesmas (pustu) are included, whereas private practitioner ratings were obtained for nurses, midwives, and physicians. At public health facilities, the vignettes were conducted with the highest-level health worker present when the enumerator arrived to conduct the facility survey, and responses are used as the puskesmas or pustu score. In cases where no physician was present, the person questioned could have been a midwife, paramedic, or nurse, which is considered representative of the quality of care provided at that facility at that time (World Bank 2010).

Figure 2.14 Specialist Physicians and Private Hospitals

Source:
Hospital On-line, (MoH-2013)
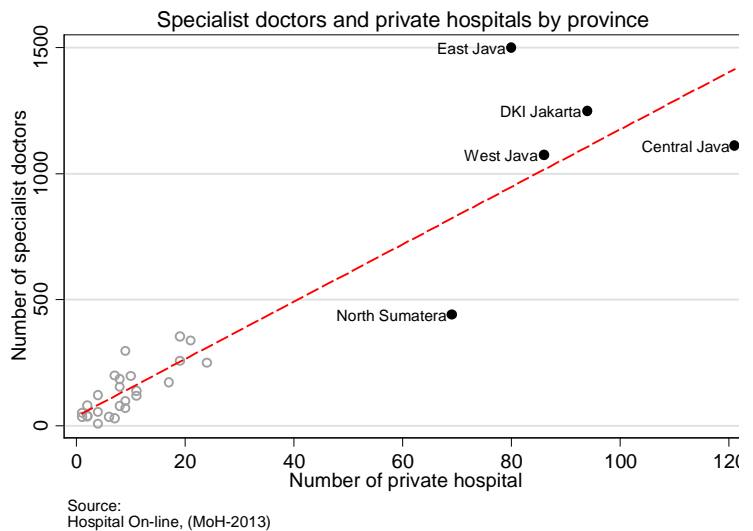
2.31.   Furthermore, the same UGM study also shows that specialist physicians tend to be associated with private hospitals. This is shown in figure 2.14 above. There are several reasons medical specialists are attracted to private hospitals. Private hospitals tend to be located in major cities, where there are more patients willing to pay for extra services. Private hospitals can therefore offer higher payment and better facilities than found in most public hospitals. Private hospitals generally tend to provide an opportunity for dual or even triple practice for specialist physicians. UGM also found anecdotal evidence that private hospitals tended to be more responsive to issues regarding specialists' needs

FINDINGS ABOUT QUALITY AND PERFORMANCE

2.32.   Indonesia does not have enough health workers so it needs to ensure it is getting maximum benefit from those that it does have. With relatively few health workers, and generally low expenditure on health, Indonesia needs to maximize the allocative efficiency ("doing the right things") and technical efficiency ("doing things right") of its scarce resources. Quality of care, including patients' perceptions about health system responsiveness[22] and quality, is an important factor influencing access and utilization of services. A recent World Bank report found that the quality of diagnosis and treatment varied a lot between public and private providers,

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22. Responsiveness included perceptions about outpatient and inpatient waiting time, hospitality, information availability, involvement in decision making, private consultation, freedom of choice, and cleanliness; ease of family visits is unique to inpatient settings.

23

and between physicians and nurses (World Bank 2010, see Box 2.2). Key findings from the report include the following:

Increasing the number of private sector physicians per 100,000 population is associated with improvement in the average diagnostic ability of all facilities. The changes in prenatal care, child curative care, and adult curative care scores from diagnostic and treatment vignettes are all positively correlated with changes in the number of private physician practices in the community. These relationships are statistically significant for prenatal and child curative care.

The diagnostic as well as the treatment practices of doctors for prenatal care are rated less highly than those of midwives, based on analysis of detailed vignette scores. Only 28 percent of doctors checked a patient's blood pressure and fewer than 6 percent checked for protein in urine during a prenatal visit.

Much of the training of the past decade has been focused on improving midwives. Nevertheless, ongoing quality concerns exist regarding midwives' ability to provide care and accurate diagnoses. Given that the use of midwifery services has increased more than use of any other service, particularly among the poor, further quality improvements at this provider level are still necessary, despite their performance advantage over doctors and nurses.

When one analyzes the more detailed standards of the prenatal care vignettes, stark differences appear between the abilities of puskesmas health workers and midwives, on the one hand, and private physicians on the other. Where only 28 percent of private physicians responded that they would measure blood pressure during a prenatal care visit, 89 percent of puskesmas health workers and private midwives would do so. Only 18 percent of private physicians responded that they would measure uterine height, as opposed to 66 percent of puskesmas health workers and private midwives.

Prenatal care provided by private nurses shows very low quality scores. Pregnant women in Indonesia have high levels of anemia, and provision of iron-folate is part of the required minimum service standards for all pregnant women, regardless of their anemia status. Although 72 percent of puskesmas health workers and 55 percent of midwives reported assessing hemoglobin level, only 42 percent of puskesmas health workers and 35 percent of midwives provide iron-folate. Private physicians compare more favorably to puskesmas health workers on a number of diagnostic and treatment practices in child curative care, although at the same time overall scores are on the low side (World Bank 2010).

2.33.   Government policy to allow public sector health workers to also work in private facilities or have a private practice may have affected health worker distribution and performance. Until the early 1990s public sector employment for fresh medical graduates was mandatory, and the policy helped to improve access to health services at the puskesmas throughout the country. During that period, the government allowed medical staff to also have private practice or to work in private facilities to compensate for the low government salary. The policy to allow dual practice remains to date. A high percentage of public sector physicians and midwives engage in dual practice (World Bank 2010). The government regulates dual practice by allowing medical staff to practice at maximum at three sites to control time spent at public facilities. However, oversight and enforcement of the regulation is rather limited. Moreover, allowing dual practice has very likely affected the ability to fill rural positions, as physicians tend to seek employment in urban areas where they can earn lucrative income from the private practice. Future studies on dual practice are important to better understand the impact of the policy on health worker distribution and performance.

2.34.   The rapid growth of schools raises questions about standardizing the schools' quality through accreditation. While attention tends to focus on the rapid growth of private medical schools, newly established public medical schools — especially those initiated through local government initiatives — face similar challenges of achieving and maintaining standards and quality. In 2010, one-third (23 of 69) of undergraduate medical schools in the public and the private sectors were not accredited, and only one-quarter

(17 out of 69) received the highest accreditation level (Indonesia, Directorate General of Higher Education , MOEC 2010). The situation is more or less the same for the other health disciplines.

2.35. The Ministry of Education and Culture (MoEC) has sought to improve the quality assurance system of the health professional schools. The government's 2010–2014 medium-term development plan states accreditation of health professional schools and certification of their graduates as a priority. The design of the accreditation and examination systems is meant to adopt international practices, and tailored to the specific requirements and characteristics of each health discipline. Beginning in 2012, the national competency examination for medicine applied computer-based testing and other supporting technologies. An objective structured clinical examination for medicine (OSCE) was first introduced in 2013. The first national competency examination for nurses and midwives took place in late 2013. In 2013, MoEC also declared the national examination a mandatory exit examination for medical and dentistry schools. These are all steps in the right direction and it is of strategic importance that their implementation is accelerated.

2.36. The UGM study at the four medical schools found that there is a low level of training in medical schools about implementation of UHC, and about the implications of UHC for health workers. All health workers, especially frontline health workers dealing directly with patients and the general public, need to know how UHC is meant to work if they are to help achieve government policy goals. UGM conducted a survey of four representative[23] medical schools. The survey found that specific training about UHC ranged from just 2 to 16 hours within a three-year program of lectures. Specific training on primary health care, and communicating with patients — important components in making UHC accessible at the primary care level — were generally limited to around eight hours over the three years. Interviews with the deans of colleges further revealed that they were reluctant, or unable, to increase teaching of UHC or package it into their curriculum in the absence of national guidelines about UHC operations.

2.37. There is a reasonably comprehensive system for setting and maintaining the quality assurance of existing physicians, but it would be useful to independently test this as part of the scale-up of UHC. The Medical Practice Act no. 29/2004 includes articles to ensure the quality of physicians. The act also mandated the establishment of the KKI (Indonesian Medical Council) . The KKI is responsible for registering physicians, validating the standards of education for medicine, and supervising medical practice. Registration with the KKI is a prerequisite for obtaining a license to practice from the local government. To register with the KKI, the physician must present the certificate of graduation from a medical school, and medical students must pass the national standardized examination to graduate. KKI registration is valid for five years, after which each practicing physician has to reregister. According to KKI regulation, the physician has to present a certificate of competency for reregistration. The certificate of competency is given by the IMA, based on scoring in five areas: continuing education, professional performance (for example, seeing patients), community service, scientific publication, and research and development. There could be merit in assessing the effectiveness, quality, and efficiency of this approach as part of the scaling-up of UHC.

2.38. I**nternships have the potential to enhance quality of services, while also improving the geographical location of health workers.** Indonesia has a system of internships whereby newly graduating physicians are supervised for one year as physicians at the primary and secondary levels of the health system prior to their formal registration as physicians. In principle, the system of internships has two clear potential advantages: good supervision can enhance quality, while simultaneously facilitating the supply of physicians at the primary and secondary levels, including rural areas. In practice, the internship system has both strengths and weaknesses (see Box 2.3, below). Better collaboration between central and local government, and the medical schools, would help to maximize the positive impacts of the internship scheme.

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23. One older (before 1997) public university (UGM); one new public university (Universitas Tanjung Pura Kalimantan Barat); one older private college (Universitas Maranatha Bandung); and one new private college (Universitas Muhammadiyah Yogyakarta).

Box 2.3 Do Internships Increase Availability and Quality of Services?

Government of Indonesia instituted an internship program in 2010 for newly graduated doctors prior to their registration. A mixed methods survey (MoH 2013) evaluated the program.

There were several positive findings. Interns believed they benefitted: 73 percent of interns surveyed believed they could not be good primary health care doctors without the program; overall skills in seven competency areas improved (from 75 percent to 95 percent). Institutions also benefitted: the number of physicians increased in rural area, completing the staffing configuration. This, in turn, helped reduce waiting times at hospitals, and improved patient satisfaction. Procedures have also improved. Practice guidelines were developed based on graduates' latest knowledge acquired at the medical schools.

However, the survey revealed remaining challenges. Supervision of — and especially feedback to — the interns was weak. Management and administration of the program was poor: advice about deployment was not timely, and provision of salaries was not regular. Only a sustenance allowance, rather than a salary, could be paid, sometimes around half of a registered physician's salary. There was a lack of clarity about the roles and accountability of the interns' license.

2.39. The UGM study analyzed immunization patterns as an indicator for assessing health workforce performance. UNICEF and WHO recommend that routine immunization should reach 90 percent of children under one year of age nationally, and achieve at least 80 percent coverage in every district by 2020 (UNICEF 2013). Immunization coverage of DPT is often taken as a proxy for the overall effectiveness of a country's primary care health system because three separate rounds of immunization are required. Figure 2.15 shows a wide variation of DPT coverage[24] in Indonesia. The coverage is positively correlated with physician density negatively correlated with midwife and nurse density per 100,000 population, although midwives and nurses are the primary immunization providers in puskesmas. Again, the outliers provide

Table 2.5 Sources and Proportion of Income for General Practitioners in 2012

Source of Income for GP	Percent of total income
Private incentive (private hospital)	29.0
Private practice	19.5
Fixed salary as civil servant	19.4
Private salary (private hospital)	9.0
Incentive (public hospital)	7.2
Health insurance	4.2
Lecturing fee	2.2
Incentive from pharmaceutical industry, lab, etc	1.3
Others	8.3

Source: Meliala et al. 2013.

interesting insights. What has the province with 100 percent DPT coverage with a relatively lean ratio of 1 nurse to 300,000 population done that others have not been able to do? Analysis for the other antigens shows the same correlation patterns. This would suggest the need to strengthen workers who do strategic planning to ensure scarce resources are allocated where they will meet the greatest need; strengthen frontline and supporting health workers who provide the immunizations; and strengthen health workers responsible for supervision, monitoring, evaluation, and accountability. Moreover, existing measures to enhance performance and quality focus primarily on ensuring skills and competencies or what health workers can do; it is equally important to build evidence through research about health worker efforts or what they will do.

2.40. The UGM study about medical fees conducted for the KKI found that the sources of income for physicians and other health providers are fragmented; that insurance was the smallest component of income; and that financing streams will need to be consolidated and made more coherent for UHC to be effective. More specifically, researchers found that there were nine[25] separate sources of income for general practitioners as shown in table 2.5 (Meliala et al. 2013). Income from private sources was always the largest component (57.5 percent). Importantly in the context of the movement toward UHC, income from insurance organizations was small, providing just 4.2 percent of a GP's income. It should be noted that Jamkesmas fees for puskesmas physicians (GPs) was based on local government regulation, and the amount is very small. The same is true for specialist physicians' income. Income from private sources ranged from 65.6 percent for surgeons to 81.2 percent for obstetricians. Income from health insurance was just 1.1 percent of a surgeon's income, 0.9 percent of a pediatrician's income, 0.4 percent of an OB/GYN's income.

24. The data do not currently allow identification of whether this is the first, second, or third dose.

25. The nine were fixed salary as a civil servant; allowances in a public hospital; private salary in a private hospital; allowances in a private hospital; private practice; incentives from pharmaceutical industry; lecturing fees; health insurance (Jamkesmas, Askes, and Jamsostek), and "other."

2.41. The government of Indonesia, at both central and local levels, has trialed a range of policies and programs to improve the impact and distribution of health workers, including the Health Act, the Medical Act, and the Hospital Act (figure 2.16). The Health Act 32, article 26 confirms that the government must be responsible for the national distribution of health workers. This is understandable, given the need to distribute health staff across the country in a way that is effective, efficient, equitable, and affordable. However the policy intent of that article is constrained because, to date, there is no technical regulation in place to guide the execution of that article. The Health Act also sets out a framework of national standards in terms of inputs, processes, and expected outputs to achieve better health outcomes. The desire to have national standards applied uniformly across the country is understandable, but faces a challenge when the underlying circumstances are so different across Indonesia. Indonesia's Hospital Act also requires standardization of hospital inputs, including human resources and equipment. In practice, however, those hospitals with additional facilities and medical equipment — usually in Java and Bali — become the first preference for health workers seeking employment. The Medical Act regulates the practice of physicians. A key policy instrument allows medical practitioners to practice at a maximum of three sites. The intent is to facilitate a fair — but appropriate — distribution of medical staff without compromising quality. In practice, however, physicians seek out those hospitals, cities, and regions that offer a mix of good public and private hospitals so that they can maximize their professional practical experience as well as their income. A summary of the overall approach is shown in figure 2.16 below, and the evolution of the staff deployment policy over time is summarized in figure 2.17.

Figure 2.16 Overview of Approach to Improve Distribution of Health Workers
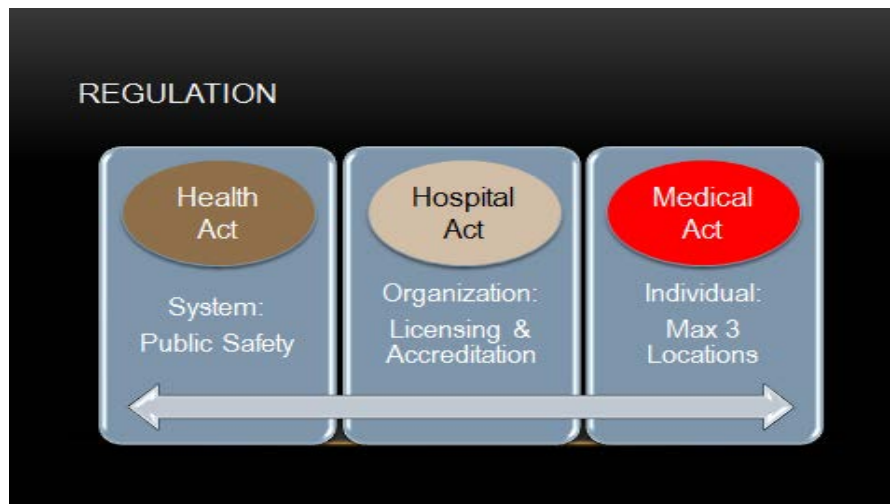
Source: University of Gadjah Mada 2013

2.42.   The picture that emerges is that government policy on deployment of staff has been evolving over time as summarized in the World Bank (2010) report below:
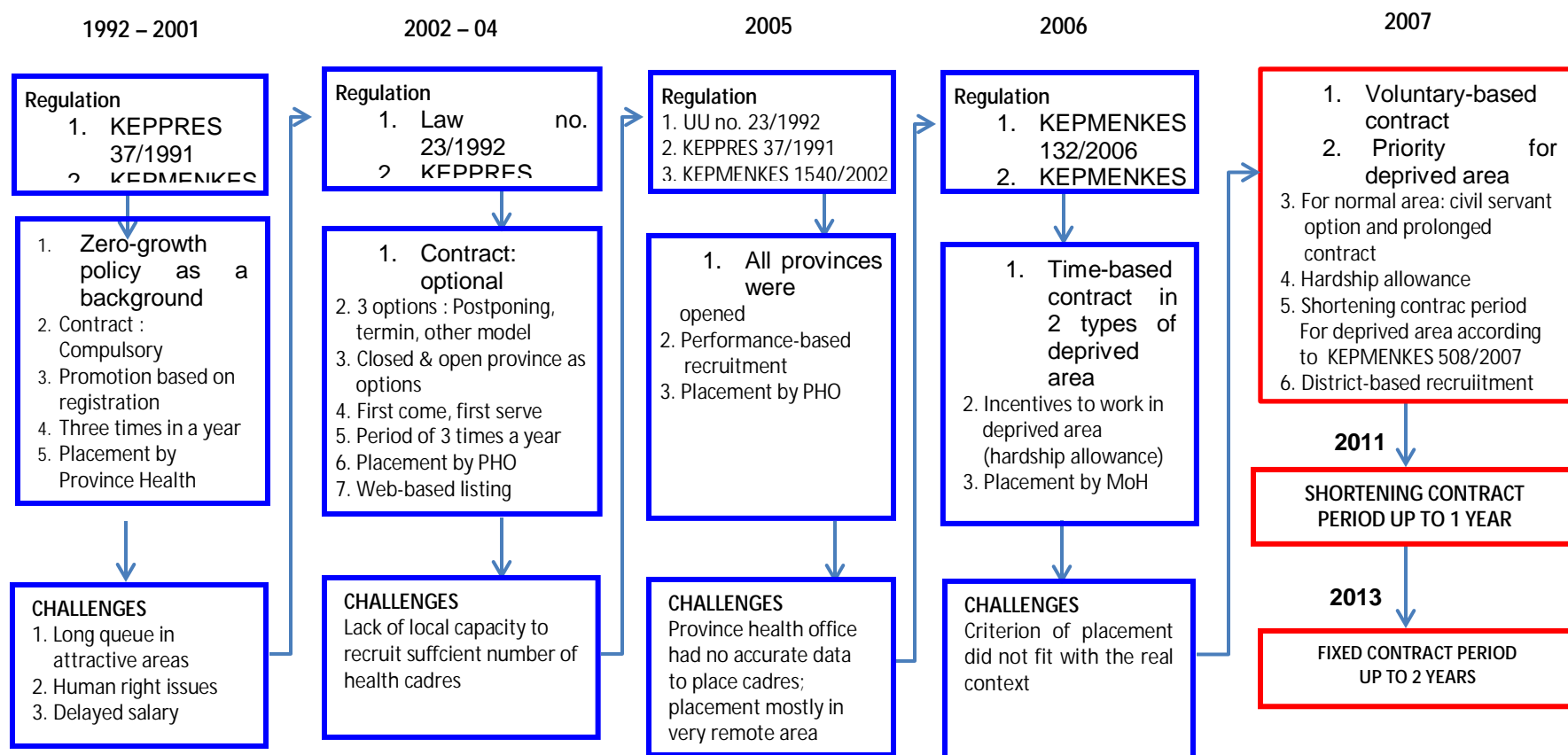
> In response to the fiscal crisis of the late 1980s, the government in the early 1990s introduced an overall policy of zero growth of the civil service, as a measure to control public spending. Unlike other countries that introduced such measures, Indonesia provided no exception for medical doctors. This policy had a strong impact, reducing the number of health workers in the public sector, especially physicians, as it eliminated the main incentive for deployment to remote areas.

> To mitigate the effect of this change, the Ministry of Health initiated the Pegawai Tidak Tetap (PTT), or health worker contract scheme, which hired recent medical school graduates as contractors, not as civil servants, and required a period of service in underserved areas. After their first three years, PTT doctors had the opportunity to continue their education, go into the private sector, or become civil servants by taking the national civil service examination. Those PTT doctors who had served in remote or very remote areas through the PTT scheme would generally receive priority in the subsequent civil service recruitment process. At the same time, changes were made to the village midwife program, which also started recruiting midwives under PTT contract schemes, with the expectation that the midwives would establish themselves as private providers after a number of years as contractors.

> The PTT policy changed over time, and in early 2000 the number of graduates directly recruited into the civil service began to fall. If one assumes that about 5,000 medical students graduate each year (World Bank 2009b), the public sector only absorbed about 40 percent through the PTT program. Medical graduates were growing more dissatisfied with the program policy and mandatory service. As a result, in 2007, compulsory PTT contracts were abolished.

> The government remained concerned about providing medical care in remote and rural areas, however. A new policy was established offering a six-month period of service in remote areas for new graduates and an attractive salary package. In addition to the base salary, the new graduates received a monthly bonus amounting to as much as two-and-a-half times the base for very remote postings. This incentive package (generous remuneration and a short term of service), combined with a growing number of medical graduates entering the labor market after an expansion in the number of medical schools, has increased the interest of graduates in rural and remote postings. In addition, service as a PTT contract doctor in a remote area still contributes to positive evaluation for recruitment into the civil service.

Figure 2.17 Summary of the Evolution of the PTT Policy

1992 – 2001	2002 – 04	2005	2006	2007

1992 – 2001

Regulation
1. KEPPRES 37/1991
2. KEPMENKES

1. Zero-growth policy as a background
2. Contract : Compulsory
3. Promotion based on registration
4. Three times in a year
5. Placement by Province Health

CHALLENGES
1. Long queue in attractive areas
2. Human right issues
3. Delayed salary

2002 – 04

Regulation
1. Law no. 23/1992
2. KEPPRES

1. Contract: optional
2. 3 options : Postponing, termin, other model
3. Closed & open province as options
4. First come, first serve
5. Period of 3 times a year
6. Placement by PHO
7. Web-based listing

CHALLENGES
Lack of local capacity to recruit suffcient number of health cadres

2005

Regulation
1. UU no. 23/1992
2. KEPPRES 37/1991
3. KEPMENKES 1540/2002

1. All provinces were opened
2. Performance-based recruitment
3. Placement by PHO

CHALLENGES
Province health office had no accurate data to place cadres; placement mostly in very remote area

2006

Regulation
1. KEPMENKES 132/2006
2. KEPMENKES

1. Time-based contract in 2 types of deprived area
2. Incentives to work in deprived area (hardship allowance)
3. Placement by MoH

CHALLENGES
Criterion of placement did not fit with the real context

2007

1. Voluntary-based contract
2. Priority for deprived area
3. For normal area: civil servant option and prolonged contract
4. Hardship allowance
5. Shortening contrac period For deprived area according to KEPMENKES 508/2007
6. District-based recruiitment

2011

SHORTENING CONTRACT PERIOD UP TO 1 YEAR

2013

FIXED CONTRACT PERIOD UP TO 2 YEARS

Source: University of Gadjah Mada 2013.

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PART 3: CONCLUSION AND POLICY IMPLICATIONS

CONCLUSION

3.1. The central policy priority is to achieve UHC under a single-payer umbrella covering all citizens by 2014 and to achieve full UHC coverage by 2019. Health insurance coverage has increased significantly in Indonesia, from 15 percent in 1995 to 40 percent in 2011, particularly targeted at the poor. A key priority is to further expand coverage in ways that deliver good health outcomes and financial protection to the rest of the population — many of whom are in the informal sector — in ways that are financially sustainable to government. Other priorities as part of the national scale-up to UHC include the need to integrate the current health insurance program for the poor and near-poor — Jamkesmas — with all other social insurance programs.

3.2. The overarching challenge is to achieve rapid scale-up of services, improved health outcomes, and increased financial protection in ways that are effective, efficient, equitable, and sustainable in a country as large and as diverse as Indonesia. Indonesia is a lower-middle-income country with a population of over 242 million spread over thousands of islands. The country has achieved rapid, substantial, and sustained improvements in reducing poverty and improving health outcomes. However, like others, the country is now facing the challenge of rapidly rising incidence of often preventable, chronic, and expensive-to-treat noncommunicable diseases such as stroke and other cardiovascular diseases at the same time that it has an unfinished agenda of communicable diseases, especially tuberculosis and undernutrition. Like others, Indonesia also has many development needs; increasing government expenditure on health therefore needs to achieve value for money and be financially sustainable.

3.3. Despite rapid increases in the supply of health workers, there are still substantial staffing gaps in addressing current needs. The number of physicians has increased annually but has barely kept up with population growth: the ratio of physicians to 1,000 population has increased only marginally from 0.32 in 2007 to 0.46 in 2013. Greater progress has been made with respect to increasing the relative targets for nurses and midwives. MoH estimates that an additional 118,788 health workers were needed at hospitals in 2012. There are also significant gaps in key health worker positions at the primary care (puskesmas) level. The shortage of nurses — despite large numbers of graduates — at hospitals and puskesmas is particularly noticeable.

3.4. The government uses several programs to increase the availability of medical staff in rural and remote areas. These programs include higher financial incentives and shorter contract periods for rural and remote postings; recruitment based on ethnicity and location; and an internship program. Distribution of health workers to remote and rural areas has been improving. However efforts need to be maintained: at this stage 30 of 33 provinces in Indonesia still do not have the WHO recommended ratio of 1 physician per 1,000 population. The location of hospitals — many of which are concentrated in densely populated Jakarta, and East, West, and Central Java — acts as a "pull" factor attracting health workers, especially specialist physicians, who need the medical infrastructure that hospitals offer to practice their skills. The geographical location of medical schools can also reinforce the urban bias and maldistribution of health workers. Only a few schools had special programs for recruiting students from rural or underserved areas.

3.5. Improving the *regulatory environment, overall quality* of health workers, and responsiveness of the health system to changing needs is a challenge. Policies and programs for accreditation of medical schools and for renewing certification for existing staff are being scaled up. However at this stage the new accreditation system is not ready for implementation. The dual practice (public/private) system provides flexibility for health workers and a source of income that is external to the government's budget. Nevertheless, there is an ongoing need to strengthen the regulatory system; many specialists in provincial capital cities spend more time in private practice — and less time in public hospitals — than is envisaged under the scheme. Medical schools do provide some initial training on UHC to prepare

graduating health workers, but more intensive and nationally standardized training will be required in future as the country expands UHC coverage. There is also a need to continually adjust the standards of competencies and the curriculum in response to the changes in disease burden.

3.6. Financing streams will need to be consolidated and made more coherent to make UHC effective. Government expenditure on health has been expanding in absolute and relative terms. However current levels of total — and public — health expenditure are still low relative to other comparable countries. Sources of income for physicians and other health providers are fragmented: there were ten separate sources of income for specialist physicians. Importantly, in the context of the movement toward UHC, income from insurance organizations was always the smallest contribution to overall income, providing less than 5 percent of total income.

POLICY IMPLICATIONS

3.7. Indonesia needs to consider moving from norm-based approaches to a labor market strategy to address HRH issues and broaden the scope of health workforce deployment approaches responding to Indonesia's differing circumstances in the lead-up to UHC. The evolution of the PTT policy indicates that Indonesia has not been entirely satisfied with the contract arrangements; as changes have been made quite frequently. The changes and evolution of policy demonstrate Indonesia's determination to make improvements and achieve better, fairer results for its people. Decision making to solve complex HRH issues would benefit from an understanding of health labor market dynamics influencing health worker supply and demand. Most policy implications illustrated in the paragraphs below are pieces relevant for a labor market analysis.   Moreover, the various stages and changes to the PTT policy have not been systematically, independently, or rigorously evaluated, so it is not possible to say with confidence what has worked, in what circumstances, at what cost, or what has not worked.

3.8. There is a need to better understand factors affecting the willingness and ability to move to underserved areas. The central government allocates approximately Rp 1.7 trillion (US$1.7 million) under MoH Regulation 7/2013 as incentive payments for health workers. Physicians may receive an additional US$485 per month for working in remote areas, and an additional US$715 for working in very remote areas — which is significantly larger than the US$205 their civil servant colleagues in urban areas earn. Local governments may also pay additional incentive stipends from its own budget, up to US$1,000 extra per month for a physician in Morotai, North Maluku. However, feedback from the Indonesian Medical Association is that financial incentive payments may not be the only — or even the main — factor influencing health workers' willingness to transfer to a remote location. Nonmonetary factors include lack of ongoing training opportunities for themselves; lack of education opportunities for their children; inability to continue practicing specialized skills; fear of being overlooked for promotion; unhealthy environment in remote provinces, which might affect their families; and lack of security. Earlier studies found that for some physicians in Java, the offer of specialist training — without any accompanying offer of a civil service appointment — was sufficient incentive to serve in remote areas, although there were problems of cost and potential inefficiency in such schemes (Chomitz et al. 1998). In sum, there may be other — and less expensive — ways of encouraging health workers to stay in remote areas other than offering large financial incentives. Increasing the number of well-conducted trials would provide an evidence base on which government could better tailor incentive packages to the real needs of health workers considering postings to remote locations.

3.9. Indonesia may benefit more from diverse deployment policies than monolithic or "one size fits all" approaches. Indonesia has enormous variety within its borders ranging from densely populated urban cities in the island of Java to sparsely populated rural and remote islands of NTT and Maluku. Having UHC implies a degree of equity and equality for all its citizens, but this does not necessarily mean a single or small choice of instruments to expand insurance coverage, as tends to occur with the single contract regulation strategy (PTT) applied across all of Indonesia.

3.10.   On the one hand, Indonesia should not introduce further fragmentation of the health system, but on the other, there is an argument for Indonesia to trial different approaches to incentivize health providers. This would include different ways of paying — and supporting — health professionals that are better tailored to the particular social, health, and economic characteristics of differing districts and regions within Indonesia. There is room — and need — to trial other staff deployment approaches.

3.11.   Indonesia could, and should, experiment with different mixes of physicians, nurses, midwives, and community health workers to find a combination that generates best health outcomes for the lowest cost. This might be done through task shifting, for example, allowing nurses and midwives to prescribe certain essential drugs if no physician is available, or through other mechanisms. It would also be useful to systematically assess the cost-effectiveness of expanding UHC to remote and marginalized communities. In some cases, policy makers might find that expanding public services to remote areas is more cost-effective than expanding services in urban areas. That is because, while the costs of reaching more remote communities may be higher, the actual disease burden in remote areas might be much worse than in urban areas. In such circumstances, allocating resources to remote and rural areas would cost more, but would have a bigger impact than allocating resources to urban areas, where private sector services are already dominant. Much depends upon the actual situation and context. Good quality research can help policy makers allocate scarce resources to their best use.

3.12.   There is a need to better understand the overlaps, gaps, and potential inconsistencies between the various health workforce regulations of different agencies. There are many institutional stakeholders issuing regulations about how and where health workers ultimately perform their duties. At the national level these institutions include the Ministry of Education and Culture (responsible for producing the medical staff), the Ministry of Home Affairs (responsible for hiring policy), the Ministry of Finance (responsible for payment policy), and the Ministry of Health (responsible for using health workers). Local governments must also work within the strong powers and regulations affecting the hiring and placement of health workers, as well as financial flows to hospitals and health centers. Each of the professional associations has its own policies and regulations that affect its members, including those for physicians, nurses, and midwives. The end result is that policies and regulations are complex, lack coherence, and blur lines of accountability and responsibility. There would be advantages in rationalizing, simplifying, and unifying the regulations, while at the same time providing scope for regulations to adapt to local needs and circumstances.

3.13.   More systematic monitoring and impact evaluation is essential for future policy development if Indonesia is to receive the best return from its health expenditure in the lead up to UHC. The central message of the latest World Health Report is that achieving UHC requires applied research and a good evidence base. Given scarce health resources, proper, well-designed, systematic monitoring and impact evaluation should be undertaken to generate the evidence base for future investments into alternative approaches. Importantly, well-conducted impact evaluations that generate insights and new learnings could quickly become "global public goods," read and used to influence policy around the world. Indonesia could become a major opinion maker and global "thought leader" in how to scale up UHC in a decentralized setting if it were to invest more in basic applied research.

3.14.   Indonesia may benefit from other countries' experience in implementing various health worker distribution strategies. A recent study of scaling-up UHC in 11 countries, including Indonesia, noted various policies aimed at improving distribution of health workers, including to remote and rural areas (World Bank 2013a). Strategies included "recruiting students from underserved areas, encouraging their enrollment through scholarships, setting quotas in schools, ensuring that curricula include rural service components, and offering monetary and nonmonetary support for career development. Compulsory service through bonding is another common policy for deployment in underserved areas. Another important strategic approach is to invest in primary care workers, both because investments in the hospital sector tend to skew the health workforce distribution toward urban areas and because investments in these health workers have additive benefits for health outcomes" (World Bank 2013a).

3.15. The following principles could be useful in setting priorities and making choices:

- **Do no harm.** Change to policy and programs can cause unintended consequences that can actually be harmful to public health, or to the financial security of individuals (or government).

- **Continue to focus on critical barriers to UHC in the demand and supply side of health care**. In a country as vast and varied as Indonesia, these critical barriers will be different from province to province, and from time to time. Trying to do everything or adopting a "one size fits all" approach could be counterproductive. There should be several service delivery models taking into account the diverse characteristics. Lowering direct and indirect financial barriers to health care, including travel costs, is likely to be important on the demand side in certain remote and rural provinces. On the supply side, health workforce planning should also produce different deployment models to produce the required skills mix, realistically taking into account the difficulty in attracting physicians to rural and remote areas.

- **"Readiness for UHC" among health workers is not "just" about numbers, important as that is in Indonesia.** As this report shows, the actual number of health workers being produced — and employed — is a particularly important policy issue for Indonesia. However, having the right number of health workers, although necessary, is not sufficient for achieving UHC. Also important is the *availability* of health workers, including hours worked in the designated facilities, and numbers working in remote locations. "Readiness" also implies that all health workers have the appropriate skills level and quality of services relevant to current and changing disease burden in Indonesia at the primary and secondary/tertiary level of the health system. "Readiness" for UHC also means that all health workers have the necessary drugs, equipment, and facilities to do their job. "Readiness" for UHC means that the mix of physicians, nurses, and midwives is technically efficient and financially affordable.

- **"Readiness" also requires improved quality of service delivery among the health workforce.** The service delivery strategy for UHC developed by the MoH should include the standards of services for the various levels of service to guide the competency standards of the health workforce. The professional associations and Ministry of Education and Culture have important roles to play as well.

- **The country will benefit from regular assessment of the quality of the stock of health workers providing services.** The Indonesia Family Life Survey, for example, includes vignettes to measure quality. Collaboration with the professional associations to implement a good recertification or continuing education program should be encouraged and strengthened.

- **Implementation of the new quality assurance system for health professional education is urgently needed.** Accreditation of health professional study programs and the standardization of graduate certification will help standardize the quality of health workforce entering the market.

- **It is critical to actively and independently monitor and evaluate the inputs, outputs, outcomes, and impact of the movement to UHC**. Are inputs and outputs achieving value for money? Why are graduating nurses not being employed as much as is needed? What are the trends in the quality of the health workforce? Are outputs appropriate to changing needs? Are outcomes disproportionately benefiting the poor or the rich? Are impacts sustainable? There is merit in carefully piloting and evaluating alternative models before undertaking wider implementation.

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Indonesia's national health insurance program — Jaminan Kesehatan National (JKN) —aims to achieve universal health coverage (UHC) by 2019. Achieving UHC means not only increasing the number of people covered but also expanding the benefits package and ensuring financial protection. Although the JKN benefits package is comprehensive, a key challenge related to the capacity to deliver the promised services is ensuring the availability, distribution, and quality of human resources for health (HRH). Of Indonesia's 33 provinces, 29 do not have the WHO recommended ratio of 1 physician per 1,000 population, although Indonesia regularly produces 6,000 to 7,000 new physicians annually. The shortage of nurses in hospitals and health centers (*puskesmas*) is noticeable despite the large number of graduates. Physician maldistribution has been particularly affected by the number and concentration of hospitals in urban areas, as well as by government's policy of allowing dual practice. The latest data from the 2007 Indonesia Family Life Survey (IFLS) vignettes, which measured diagnostic and treatment ability, showed low average scores for physicians, nurses, and midwives. Indonesia is addressing the quality issue by improving the quality assurance system of health professional education through school accreditation and graduate certification and by strengthening health professional registration and recertification systems. With these issues in mind, if Indonesia is to attain UHC by 2019, significant and concerted effort to improve the availability, distribution, and quality of human resources for health is required.

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