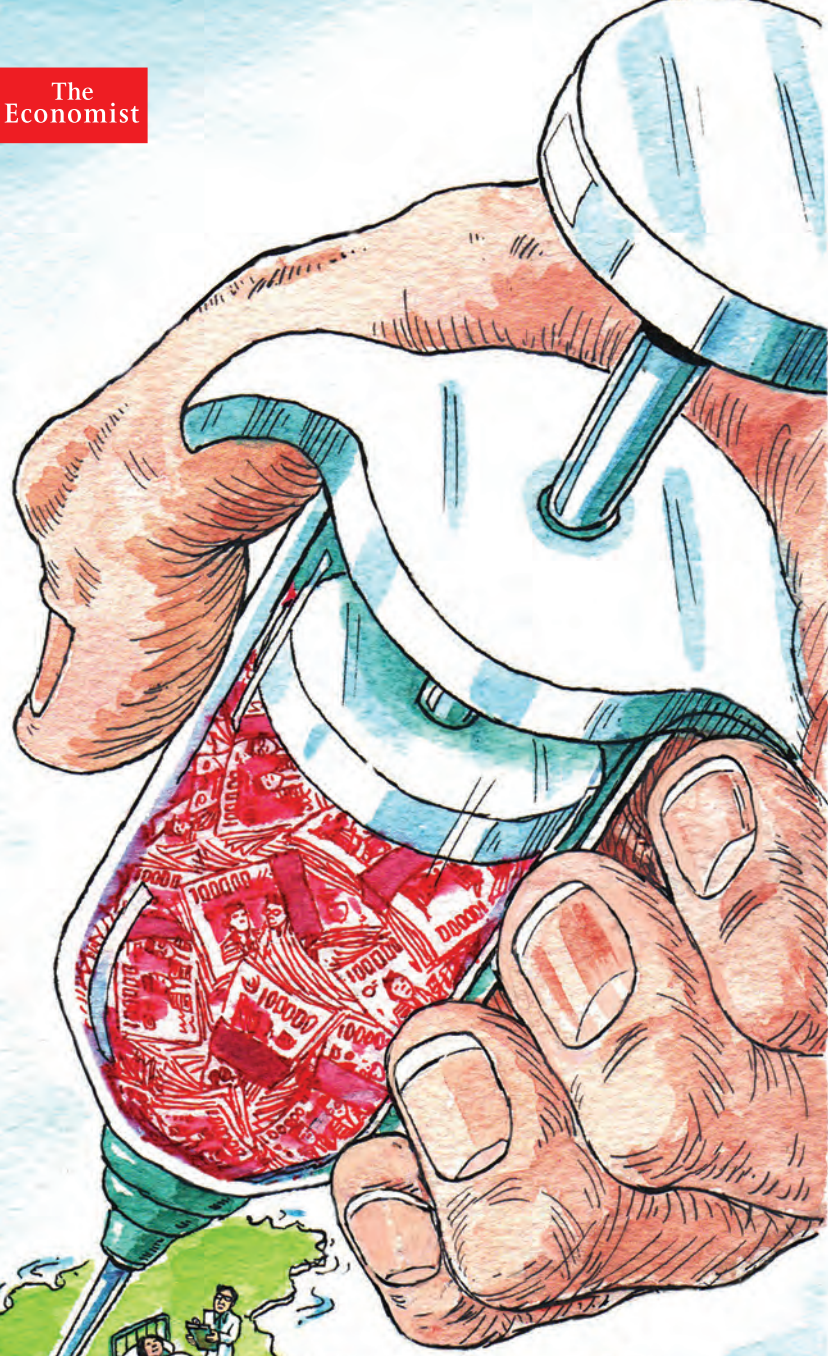


# Old problems, fresh solutions: Indonesia's new health regime

A report from the Economist Intelligence Unit



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## Preface

*Old problems, fresh solutions: Indonesia's new health regime* is an Economist Intelligence Unit report, sponsored by GE. The EIU conducted interviews independently and wrote the report. The findings and views expressed here are those of the EIU alone and do not necessarily reflect the views of the sponsor. Justin Wood was the author of the report and David Line was the editor. Gaddi Tam was responsible for design. The cover image is by David Simonds.

We would like to thank all interviewees for their time and insights.

September 2010

## Interviewees

Professor Tjandra Yoga Aditama, director-general of disease control and environmental health, Indonesia Ministry of Health

Dr Rosa Ginting, president director, InHealth Indonesia

Dr Limpakarnjanarat Khanchit, country director for Indonesia, World Health Organisation

Professor Firman Lubis, department of community medicine, University of Indonesia

Asmilia Makmur, programme director, Bidan Delima, Indonesian Midwifery Association

Luciano Moccia, international programme coordinator, Breath of Life programme, East Meets West

Professor Nila Moeloek, special envoy to president of Indonesia for Millennium Development Goals

Claudia Rokx, lead health specialist for Indonesia, World Bank

Dr Boenyamin Setiawan, founder, senior advisor and former chairman, Kalbe Farma

Dr Devi Shetty, chairman, Narayana Hrudayalaya

Professor Laksono Trisnantoro, department of public health, Gadjah Mada University

Dr Muhammad Yunus, founder, Grameen Bank



## Executive summary

Despite solid economic growth in recent years that has raised millions from poverty, Indonesia faces numerous healthcare challenges. The health issues of a low-to-middle income country are still prevalent, from maternal mortality to vector-borne diseases such as malaria to malnutrition. At the same time, the country is experiencing a surge in degenerative diseases associated with a population that is both ageing and living an increasingly sedentary lifestyle. Compared with its peers in South-east Asia it fares poorly on both health inputs and outcomes: total healthcare spending is still far below levels in many comparable economies, and the number of maternal deaths Indonesia suffers today is roughly twice that of its Asian counterparts.

A new optimism is nonetheless emerging that the country is on the brink of a major improvement, thanks to the government's commitment to universal healthcare. As part of that commitment, the government has pledged to raise its spending on health sharply in the years ahead. Yet the success of its programmes depends on finding solutions to many difficult issues—including pervasive inequality between urban and rural regions; a lack of doctors, nurses and specialists with the right training; and the right balance of public and private involvement and funding.

*Old problems, fresh solutions: Indonesia's new health regime*, an Economist Intelligence Unit report sponsored by GE, analyses these challenges and their potential solutions, and puts them in context through interviews with government, medical and academic experts in Indonesia. It also highlights how innovations in developing countries elsewhere may provide solutions to some of Indonesia's most pressing healthcare challenges—including reverse engineering in Vietnam, business-process innovation in India and telemedicine and microfinance in Bangladesh.

The key findings of the report are as follows:

- **Extending healthcare to rural areas is a key challenge.** Indonesia's island geography makes extending coverage of healthcare services to rural regions even more challenging than it is in other countries. As a result, the divide is extreme: while in 2006 urban areas had one doctor for every 2,763 inhabitants, in rural regions the ratio was one for every 16,792 people. Consequently, health outcomes are much worse: tuberculosis, to take one example, strikes 59 in every 100,000 people in Java and Bali but as many as 189 in Papua. The relative poverty of rural residents makes them more vulnerable to catastrophic healthcare costs when disease or disaster strikes.
- **Healthcare spending is low, but out-of-pocket spending is high.** Scarce insurance coverage and the high proportion of healthcare costs borne directly by patients account for the fact that healthcare spending as a whole in Indonesia is among the lowest in the region. Vietnam, India and Cambodia all have lower per-capita incomes than Indonesia yet spend more per person on healthcare services. Of the money that is spent in Indonesia, the latest data suggest only around half comes from the government, with a third paid directly by the people themselves in out-of-pocket payments, and the rest from insurance schemes, foreign aid and other sources.



- **The government is committed to change.** Despite these problems, the government remains committed to achieving its Millennium Development Goals (targets for basic development issues like sanitation, improved maternal mortality rates and schooling) and raising spending on healthcare. In particular it is making substantial increases to its health budget in coming years, as well as rolling out health insurance to many people who lack coverage. A new health law passed in late 2009 commits the government to lifting its health spending. Much of this will go towards supporting a new health insurance scheme called *Jamkesmas*, which the government is hoping to extend to the entire population.

- **Better finance calls for better services.** Giving people the means to pay is all very well, but if they lack access to services it will make little difference to health outcomes. An uneven distribution of medical staff is an acute problem: rural regions lack general practitioners and specialists such as gynecologists, obstetricians, endocrinologists and anesthetists. The government is encouraging migration of doctors by paying higher salaries and offering more time off for doctors who volunteer to work away from the big cities. It has also launched programmes that incorporate time spent in rural clinics into fast-track career development and training. However, such schemes have yet to make a meaningful impact.

- **Prevention is better than cure.** Investment in infrastructure as basic as water supply and sanitation, in addition to building hospitals, is vital, but some experts suggest local governments do not always make the best use of funds. Thanks to decentralisation, these authorities now wield large spending power but are still developing the skills they need to administer their budgets. Often, focusing on prevention—particularly education about family planning and nutrition (and more “lifestyle” issues related to smoking and heart disease)—would bring greater benefits than building landmark facilities. The role of the private sector in making efficient use of funds could also be expanded.

- **Innovation is crucial to solving Indonesia's healthcare problems.** Innovations to reduce the cost of healthcare technology and expand its reach could be the key to helping Indonesia surmount its healthcare challenges. Commonly thought of as the preserve of rich, technologically-advanced nations, these days groundbreaking innovations often come from developing countries facing similar challenges to those Indonesia must address. This paper discusses three examples of such “frugal innovation”. The first is the Breath of Life programme, which has helped halve the cost of life-saving respiratory machinery for newborns in Vietnam. The second is the process innovation that has brought considerable economies of scale in healthcare provision and finance to Devi Shetty's landmark heart hospital in Bangalore. The third is the use of telemedicine to link doctors in urban areas to isolated rural communities in Bangladesh, as promoted by Muhammad Yunus of Grameen Bank. Each has great potential to help Indonesia address its own healthcare challenges.



# 1. Introduction

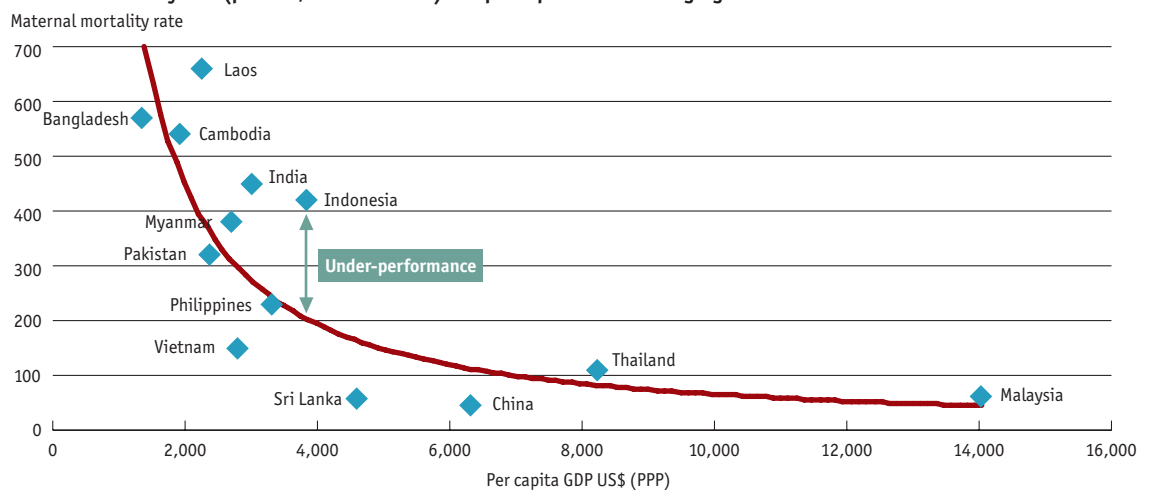
The Asian financial crisis caused tremendous pain for many countries, but few experienced as much upheaval as Indonesia. Not only did the economy suffer, shrinking by almost 14% in 1998 and throwing millions of Indonesians into poverty, but the government itself collapsed. After the continuity of 32 years of rule under President Suharto and his New Order regime, the people rose up and demanded change.

In the decade that followed, Indonesia moved to fix its financial system, reform its companies and nurse the economy back to health. In addition, the political environment was transformed. From being run by an authoritarian regime, Indonesia pushed towards greater democracy, and in 2004 the people voted for the first time directly to elect their president and vice president. Just as significant, the government put in place a process of decentralisation, devolving decision-making and spending power away from the centre and into the hands of the provinces and local government.

While most observers believe the transitions of the past decade have put the country on a sounder footing for the future, many aspects of life in Indonesia have yet to see the benefits. Among them is Indonesia's healthcare environment. The rule of President Suharto frequently comes in for criticism, but standards of healthcare did improve during his tenure. Health services were rolled out to much of the country, helping to lift average life expectancy from 40 in 1960 to 67 in 1998.

Over the past decade, however, those improvements have stalled and progress in key health measures has stagnated. In particular, Indonesia continues to perform poorly with maternal mortality. The number of maternal deaths is today roughly twice the level of other countries in Asia with comparable income levels (see chart 1). The country also underperforms relative to regional peers on measures of infant

**Chart 1**  
**Maternal mortality rate (per 100,000 live births) and per capita GDP in emerging Asia**

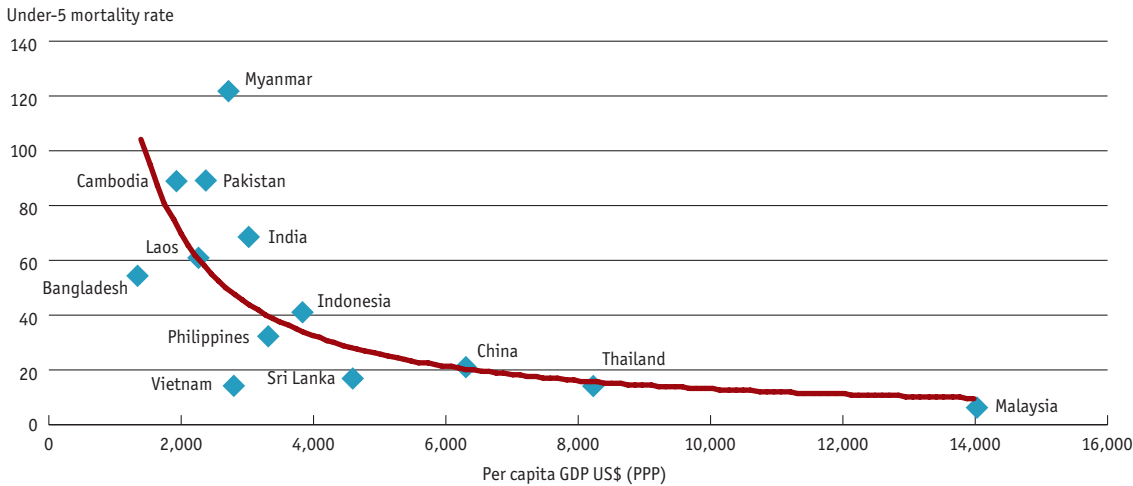


Source: WHO and EIU (data for latest year available)

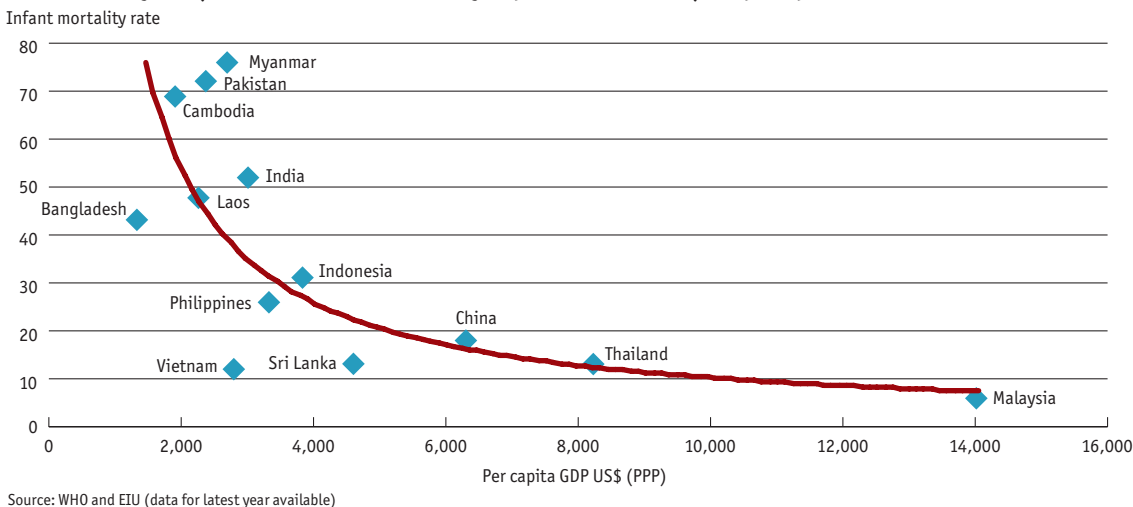


mortality and child mortality (see charts 2 and 3). And the picture is little better for the incidence of many diseases such as tuberculosis.

**Chart 2**  
Under-5 mortality rate (per 1,000 live births) and per capita GDP



**Chart 3**  
Infant mortality rate (deaths between birth and one year per 1,000 live births) and per capita GDP



More recently, however, as Indonesia's political and economic transitions have bedded in, a new optimism has emerged that health in the country is on the brink of major improvement. The government has announced substantial increases to its health budget in coming years and is in the process of rolling out health insurance to large swathes of people who presently lack coverage. As such, the outlook for standards of health in Indonesia looks promising.

But making progress will not be easy. For one, the country is vast, with 240m people, most of whom remain poor—average per capita income in 2009 was just US\$2,249 (US\$4,010 measured by purchasing



power parity). That means that basic health infrastructure such as good sanitation and clean water is often missing, let alone more sophisticated health services such as clinics and hospitals. In such an environment, the health issues of a low-to-middle income country are still prevalent, from maternal mortality to vector-borne diseases such as malaria to malnutrition and stunting (the World Health Organisation reports that as recently as 2008, 37% of children under five years old in Indonesia suffered stunted growth).

At the same time, Indonesia is also experiencing a surge in degenerative diseases associated with a population that is both ageing and living an increasingly sedentary lifestyle. Conditions such as diabetes, obesity, heart disease, cancer and other illnesses more often associated with developed countries are rising sharply. Cardiovascular disease is already the biggest killer in Indonesia, accounting for a quarter of all deaths in the country in 2004 according to the World Heart Federation. The result is a double burden of issues—those of poverty and those of development—each placing competing demands on the country's health services.

Equally important are issues of inequality in access to healthcare. While the country is urbanising, half of all Indonesians still live in rural areas. Those outside the cities are less wealthy, have poorer health and have limited access to medical care. Indonesia's island geography makes reaching these poor doubly hard.

All of which raises big questions. Given the government's plans to increase its health spending, how can it best tackle these challenges? What policies have worked well in other countries in similar situations? And what new ideas might be worth considering?



## 2. Inequality: A country divided

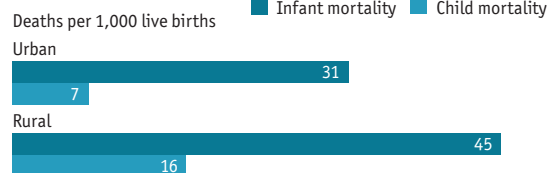
Of all Indonesia's health challenges, perhaps the greatest is unequal access to medical care. At present, those who live in urban areas have much better health than those who live in rural communities. The divide is equally strong between the people of Java and Bali, and those who live in remoter regions. The population of Java and Bali, which is almost 60% of Indonesia's total, tends to be wealthier and more urban than other parts of the country.

For evidence of inequality, consider the incidence of tuberculosis. According to Indonesia's Ministry of Health, Java and Bali experience 59 cases for every 100,000 people. Outside those islands, the incidence is 174 cases per 100,000, and in the country's eastern provinces such as Papua it runs to 189.

Maternal care shows a similar bias. Most births in Indonesia happen at home, but not all of them are overseen by a trained birth attendant. In 2007, 86% of births in urban areas were attended by a doctor or midwife, whereas only 57% of rural births had medical personnel present.<sup>1</sup> Unsurprisingly, rates of maternal mortality and infant mortality are far higher in rural areas.

Child mortality further illustrates the divide (see chart 4). A report from the World Bank in 2008 calculated that fewer than one in 40 children die before the age of five in Bali and Yogyakarta in Java. By comparison, in the more remote northern province of Gorontalo on the island of Sulawesi, close to one in 10 children die before their fifth birthday.<sup>2</sup>

**Chart 4**  
Deaths for infants aged 0 to 1 year, and for children aged 1 year to 5 years



Source: Indonesia Demographic and Health Survey 2007

<sup>1</sup> *Indonesia's Doctors, Midwives and Nurses: Current Stock, Increasing Needs, Future Challenges and Options*, World Bank, 2009

<sup>2</sup> *Investing in Indonesia's Health: Challenges and Opportunities for Future Public Spending*, World Bank, 2008

### Low wealth = poor health

Health inequalities arise in Indonesia for many reasons. Chief among them is the fact that those who live in rural and remote locations are poor. The rise in commodity prices in recent years—especially rising prices for palm oil—has lifted rural earnings, but rural incomes remain much lower than those of city-dwellers. This brings about poorer health outcomes in many ways.

For a start, rural inhabitants have less money to pay for healthcare. All else being equal, that alone would result in lower health standards. However, because they spend less on health, rural areas attract fewer health providers. This is certainly the case in Indonesia. Government statistics show that in 2006 the rural population had one doctor for every 16,792 people. In cities, the ratio was one doctor for every 2,763 inhabitants. Over time, these ratios have improved, but not because doctors are moving to the countryside, rather it is because people are migrating to the cities.<sup>3</sup>

Government salaries in Indonesia are low, and so the state has long allowed its employees to engage in "dual practice", where they work in government facilities for some of the time, and top up their salaries through private practice on the side. For doctors, dual practice is an important part of their income, but

<sup>3</sup> Data from PODES, or Potensi Desa, regular government surveys of village potential



the opportunities for it are much reduced in poorer rural communities and so they prefer not to work there.

Limpakarnjanarat Khanchit, head of the World Health Organisation's programme in Indonesia, sympathises with the country's uneven distribution of doctors. "This is an issue every country suffers from, even developed ones like America," he notes. "Doctors want a good quality of life, they want good schools for their children and they want to earn a good salary. That all tends to favour cities rather than remote areas."

The rural/urban divide is made worse by Indonesia's unique geography. With nearly 18,000 islands, of which 6,000 are inhabited, the population is highly dispersed and hard to reach. Physical infrastructure, such as roads, is often missing, which makes it hard to connect thinly spread populations to central health facilities, and complicates the supply of medicines and health equipment. Geography also hits the provision of clean water and proper sanitation, which compounds rural health challenges.

Furthermore, rural communities tend to have lower levels of education, which again makes it harder to manage health. The education of girls is especially important. Countless studies have proven that educating girls leads to smaller families with better health and higher incomes.

During the rule of President Suharto, strong efforts were made to address health inequalities. Following the oil boom of the 1970s, Indonesia used some of the proceeds to roll out a programme of primary care across the country. It set up around 8,000 *puskesmas*, or local health centres, supported by a further 23,000 *posyandu*, or community health posts (usually staffed by volunteers). Doctors were required by the government to work in rural and remote *puskesmas* as part of their graduation and as a precondition for taking on masters degrees to become medical specialists. The government also trained thousands of midwives, installing one in almost every community under the *bidan di desa* (village midwife) scheme. Indeed, midwives remain well distributed across the country to this day, although the quality of care they offer is highly variable.

Following the decentralisation of government during the past 12 years, however, many of these centrally administered schemes have struggled to keep going. District health authorities—those that operate at the local level, below provincial and central authorities—are still developing the skills needed to manage health budgets and to implement health policies. Many *puskesmas* lack basic infrastructure such as electricity and operate without a doctor, relying on nurses to fulfil diagnostic and treatment services for which they are not qualified. And where doctors are appointed, absenteeism is high. A study in 2006 published in the *Journal of Economic Perspectives* found that 40% of health workers were absent from their posts during working hours.<sup>4</sup>

## The need for change

Improving health services for those who live in rural and remote places is crucial, says Firman Lubis, a medical professor at the University of Indonesia. "Access to good healthcare is a fundamental human right," he says. What's more, he adds, "Those in rural communities tend to come from lower socio-economic backgrounds, which makes them more vulnerable to catastrophic healthcare costs when disease or disaster strikes."

While the number of people in Indonesia who fall into technical definitions of poverty—such as having

<sup>4</sup> "Missing in Action: Teacher and Health Worker Absence in Developing Countries", *Journal of Economic Perspectives*, Vol 20, No 1, 2006



a daily income of less than US\$1 a day—rose during the financial crisis of 1998, it has been falling steadily ever since. Nonetheless, rising wealth has barely reduced their exposure to the dangers of unexpected health expenditure. The World Bank estimates that half of all Indonesians live at an income level that is vulnerable to poverty.<sup>5</sup> These people are often uneducated about how to manage their health, and experience extreme suffering when unanticipated medical costs tip them back below the poverty line.

<sup>5</sup> *Investing in Indonesia's Health: Challenges and Opportunities for Future Public Spending*, World Bank, 2008

Like many other countries, Indonesia is a signatory to the United Nations' Millennium Development Goals (MDGs), which set out 21 targets such as reducing extreme poverty, raising school enrolment rates and promoting gender equality—all to be achieved by 2015. In April this year Indonesia's president, Susilo Bambang Yudhoyono, appointed a special envoy, Nila Moeloek, to oversee his country's progress on its MDG commitments.

"We're well on our way to meeting most of our MDGs, but we do have some challenging ones," says Professor Moeloek. "On education we've done very well, on reducing poverty we've made strong headway, but our health goals are a struggle. The three big concerns are maternal mortality, the spread of HIV/AIDS and access to clean water." Only marginally better are MDGs concerning rates of child mortality and child malnutrition.

With 55% of Indonesians still living in rural areas, the nation needs to tackle the inequality in its healthcare system and raise standards of care in rural locations to match those received in urban environments. If it doesn't, then some MDGs will almost certainly be missed.



### 3. Innovations in healthcare financing

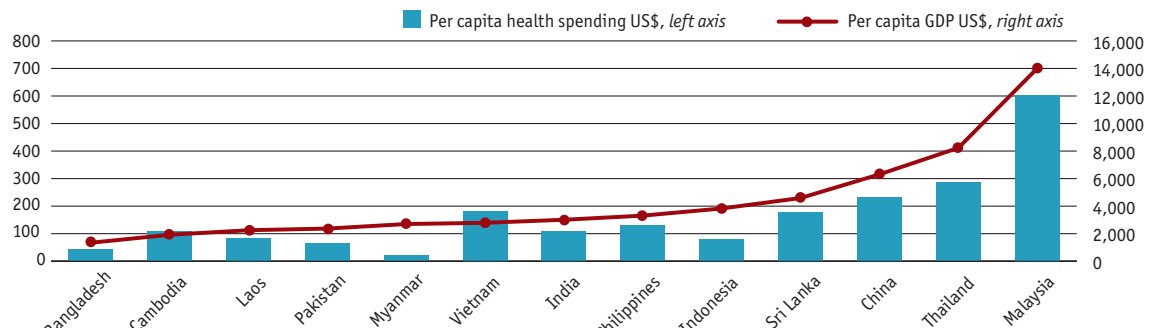
While inequality appears entrenched in Indonesia, the outlook for the next few years offers scope for optimism that healthcare in Indonesia is on the brink of a major step forward. The chief goal of the government with regard to health is to move towards a programme of “universal coverage”. This involves both putting in place a set of services that make healthcare available to everyone, and also setting up the means to finance such services. In both aspects of universal coverage—services and financing—Indonesia has historically struggled. Today, however, new steps are being taken to address the deficiencies.

Financing for universal coverage can be achieved in many different ways, ranging from systems that are completely covered by government tax revenues, to those that are funded through private contributions by workers into government schemes, to systems based around citizens buying cover from private health insurers. The important thing is to put in place structures that gather pre-paid contributions for healthcare in some sort of risk-pooling structure. The aim is to avoid people making out-of-pocket (OOP) payments at the moment when they need medical attention. In low-income countries, OOP payments can cripple a family unprotected by health insurance, and often lead them to avoid seeking medical treatment until the last minute.

In Indonesia, health insurance coverage has traditionally been low, while OOP payments have been high, especially among the poor. In the absence of widespread insurance, health spending as a whole has been among the lowest in the region. Vietnam, India and Cambodia, for example, all have lower per-capita incomes than Indonesia, yet spend more per person on healthcare services (see chart 5). And of the money that is spent on health in Indonesia, only around half comes from the government, with the rest paid directly by the people themselves. In 2006, the government accounted for 50% of Indonesia's health spending, a further 33% was made up of OOP payments by citizens, and the rest came via health insurance schemes, foreign aid and other sources.<sup>6</sup>

<sup>6</sup> Health Financing in Indonesia: A Reform Road Map, World Bank, 2009

Chart 5  
Per capita health spending in US\$ (blue bars, LHS) and per capita GDP in US\$ (red dots, RHS)



Source: WHO and EIU (all using PPP; latest year available)



## Raising healthcare spending

However, a new health law passed in late 2009 commits the government to lifting its health spending substantially. The law is still being implemented, but it mandates that 5% of the central government's budget and 10% of all provincial and district government spending be directed to healthcare. The move is not before time. When comparing government spending on health relative to GDP, Indonesia is among the lowest in Asia (see chart 6).

At the Ministry of Health, Tjandra Yoga Aditama, director-general of disease control and environmental health, says spending in the past was low because the government had other priorities, such as creating jobs and revitalising the economy. "Now there is more room to focus on other things," he explains. "Education and health are both receiving a lot more money."

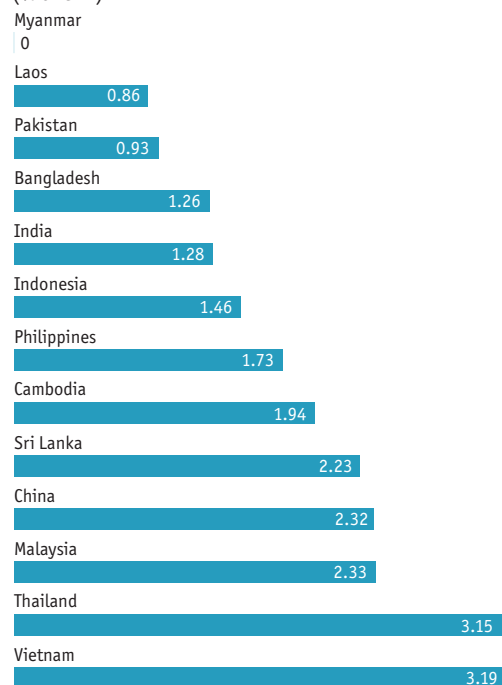
Much of that spending increase will go towards supporting a new health insurance scheme called *Jamkesmas*. Set up in 2008, it is an expansion of an existing scheme called *Askeskin* that was introduced in 2004. *Askeskin* was targeted at Indonesia's poorest citizens, but has grown under the new *Jamkesmas* format to include many of the country's near-poor, taking in 76m people, or one-third of the population.

Other insurance schemes also exist, such as *Askes*, a health insurance scheme for civil servants, *Asabri*, one for the military, and *Jamsostek*—mandatory health insurance for employees at firms with 10 or more staff. Nonetheless, the total number of people covered by all the schemes is still less than 50% of Indonesians, meaning that OOP payments continue to be unacceptably high. Many of the country's workers are employed by small companies with fewer than 10 staff, or else work in the informal sector, and so are exempt from existing insurance cover.

In the coming years, the government intends to keep expanding *Jamkesmas* until it covers the entire population. The goal is widely applauded, but important questions remain, including how best to roll out the programme. For example, which segments of the population should be next in line to join the scheme and when? Just as important are questions over what package of benefits the scheme should include, what role the private sector will play in providing services under the scheme, and how the government will manage the escalating costs.

Claudia Rokx, lead health specialist for the World Bank in Indonesia, says the government is only now getting to grips with the implications of pushing for universal coverage. "The *Jamkesmas* scheme could

**Chart 6**  
Government spending on health as a percentage of GDP, 2006  
(% of GDP)



Source: WHO and EIU



potentially be very expensive," she says. "The government hasn't yet thought deeply about what the scheme will cover and how to pay for it."

At present, adds Ms Rokx, the introduction of *Jamkesmas*—and *Askeskin* before it—has increased government health spending, but not dramatically. Partly that's because the poor don't yet understand how to use their new insurance. "Many of them have their *Jamkesmas* cards, but they still think they have to pay for health services," she explains. "As they realise what they can get for free, the costs could shoot up very quickly because the benefits package is quite generous."

Ms Rokx and her colleagues at the World Bank have been commissioned by the government to look at a range of scenarios for how *Jamkesmas* might evolve under different funding models and varying levels of benefits. It isn't easy, because the quality of data on illness and health spending is patchy at best—an issue that will need to improve if the health system is to function more effectively in future. So far, however, it looks like the majority of funding for *Jamkesmas* will come from government tax revenues, with only limited contributions from individuals.

Rosa Ginting, president director of InHealth Indonesia, a provider of private health insurance with more than 1m clients, believes the government should subsidise *Jamkesmas*, but also require people to make a contribution themselves. "If the state simply pays for everything, then it encourages the population to abdicate responsibility for their health," she argues. "They'll smoke and lead unhealthy lives and won't care so much about managing their own health."



## 4. Improving health services

No matter how universal coverage is funded, important questions remain about how to provide the services that will go with it. Laksono Trisnantoro, a medical professor at Gadjah Mada University in Yogyakarta, says that *Jamkesmas* is not yet being used by many of the poor because they don't have access to doctors or hospitals. "Giving people health insurance is a good idea, but they can't use it if health services aren't in place," he notes.

Upgrading health services is a complex task, requiring efforts on multiple fronts. Of critical importance is improving healthcare personnel across the country—not only the number of staff, but also their distribution and quality. In terms of doctors, the country has more than 70,000 and that number is increasing as the number of medical schools grows—in the past five years, the number of colleges offering medical courses has risen from 60 to 70. As mentioned above, however, rural and remote regions struggle to attract enough doctors. That is true for general practitioners, but is especially the case for specialists, such as gynecologists, obstetricians, endocrinologists and anesthetists.

The government has schemes in place designed to alleviate this issue, such as paying higher salaries and offering more time off for doctors who volunteer to work away from the big cities. It has also launched programmes that incorporate time spent in rural clinics into fast-track career development and training. But, says Professor Lubis, "the system is full of loopholes and is not implemented properly."

The nationwide distribution of nurses and midwives is much more even than that of doctors, but here the critical question is quality. Indonesia has 465 midwifery schools and around 682 nursing colleges, most of which are privately owned.<sup>7</sup> Together, they produce enough health workers, but the regulatory framework for licensing these schools and certifying their graduates is considered by many to be inadequate, giving rise to nurses and midwives who lack the basic skills to carry out their roles. And yet, they often work in communities where they are called on to perform duties usually done by doctors.

Supply-side constraints are just as evident in the nation's physical health infrastructure of hospitals, clinics and health centres. Again, the number, the quality and the distribution of such centres all need attention. In some districts this is happening, but not in all.

Boenyamin Setiawan, founder and former chairman of Kalbe Farma, Indonesia's largest local drug company, thinks the government should be more open to involving the private sector in filling gaps in the health infrastructure. "The government has good health policies, but it struggles with implementation," he says. "The private sector could build and run hospitals much more efficiently and effectively."

Perhaps with that sentiment in mind, the government has taken certain steps towards opening up its health sector to foreign investment. For example, in May this year it raised the stake that foreign investors can own in Indonesian hospitals from 65% to 67%. And, whereas foreigners were previously only allowed to own hospitals in certain cities, today they are allowed to own them everywhere across the country.

But, concedes Dr Setiawan, important questions remain about how the public and private sectors can

<sup>7</sup> *Indonesia's Doctors, Midwives and Nurses: Current Stock Increasing Needs, Future Challenges and Options*, World Bank, 2009



work together. For example, few private companies currently provide services to publicly insured patients because of disagreements over the tariffs that can be charged for services. For the government, putting in place proper regulatory oversight and rethinking payment mechanisms for service providers are key requirements for the private sector to get involved.

## Prevention preferable to cure

More generally, stresses Professor Moeloek, the foundations of an effective universal coverage programme begin with prevention rather than cure, by reducing the need for doctors and clinics in the first place. It isn't easy, she adds, because it requires an integrated approach from many different parts of government.

"A lot of it is about education, both general education and health education, such as teaching women about family planning, reproductive health and nutrition," she notes. "We also need to invest in infrastructure, to improve the water supply and sanitation and reduce the conditions in which disease can spread. The state of the economy, levels of pollution, health and safety regulations and workplace conditions are all vital too."

Her prevention theme extends to the skills of doctors. Currently, she says, most community doctors are general practitioners who are trained to identify illnesses and treat them. Much better, she says, would be to produce a new cadre of family doctors who focus more heavily on preventive health.

Professor Lubis agrees, arguing that district health authorities often focus their health budgets on the wrong things. Thanks to decentralisation, these authorities now wield large spending power, but are still developing the skills they need to administer their budgets. "They like to spend their money on physical equipment and buildings because then they see a tangible outcome," he observes. "It would be much better if they promoted prevention measures instead."

Many such measures are complex because they require changing people's behaviour, says Ms Rokx at the World Bank, and that takes intensive communication efforts at a local village level. Take breast-feeding. Many mothers in Indonesia use formula milk, or even chew rice in their own mouths to a pulp before feeding it to their newborns. "Thailand had very effective programmes during the 1970s and 80s to promote awareness of the benefits of breast-feeding and complementary feeding that made a big impact on health," she says. "These could easily be replicated in Indonesia."

A focus on prevention will become ever more important as the Indonesian population starts to age in coming decades and the incidence of lifestyle and degenerative disease begins to pick up sharply. Already heart disease, diabetes, cancer, hypotension and the like are rising rapidly. In a population where two-thirds of adult males smoke cigarettes, diets are often poor and lifestyles are becoming more sedentary, health awareness campaigns will be crucial.



## 5. The innovation imperative

Given Indonesia's many health challenges, one often-overlooked aspect of an effective health system is the potential of innovation. In some cases that might mean developing new types of products, including medical equipment and drugs. In others, it could mean process innovation, by organising health services and delivering them in completely new ways.

While traditionally thought of as the preserve of rich countries, increasingly it is poor countries that are pushing the boundaries of innovation. Often that means redesigning complex machinery such as electrocardiograms and making them not only simpler and more suitable for low-income nations, but also radically cutting the cost of building and running them. Dubbed "frugal innovation" or "reverse innovation", countries like India have been so successful in this field that many of their designs are now being imported by the richer nations of the West where rising health costs are becoming ever more problematic.

While Indonesia has made commitments to increase its health spending in coming years, the government will still struggle to afford all the health services that its citizens want. "Anything that reduces the cost of medical technology will be very welcome in a poor country like Indonesia," says Professor Trisnantoro. "So much of the technology available today is just too expensive for us."

The following three case studies highlight interesting examples of medical innovation in Asia that might be applicable in Indonesia. The first examines how a project in Vietnam completely redesigned the technology used for infant care, in an example of product innovation. The second looks at process or business model innovation in India and how it is making complex surgery accessible to poor farmers. The third case study combines both product and process innovation to overcome the reluctance of doctors to work in remote regions.



## Case study 1: A breath of fresh air

### Frugal innovation saving babies in Vietnam

Back in 2005, Vietnam was living with high levels of infant mortality that refused to come down. The country had put in place good policies—such as encouraging mothers to give birth in hospitals and clinics rather than at home—but still the rate of newborn death remained stubbornly high. That is, until an innovative scheme called Breath of Life (BOL) was developed by East Meets West, an NGO dedicated to tackling difficult development problems.

The number one killer of newborns, explains Luciano Moccia, international programme coordinator for BOL in Vietnam, is respiratory problems. When babies are born prematurely, often their lungs aren't fully developed, they struggle to breathe and frequently die. The way such conditions are treated in wealthy Western markets is to use a Continuous Positive Air Pressure (CPAP) machine, which keeps their lungs inflated until they can breathe on their own.

"The problem in Vietnam", says Mr Moccia, "was that these machines were too expensive to buy and run." A CPAP machine usually costs around US\$4,500 to buy, and then requires even more expensive "consumables" to operate it. Every baby must be connected to the machine by a set of special tubes that cost around US\$300. To prevent infection, these tubes are designed to be thrown away after each use. "In the West, that's an acceptable cost," says Mr Moccia, "but not in Vietnam."

To solve this issue, BOL teamed up with a local manufacturer in Vietnam called MTTs to design a new CPAP machine that was appropriate to the local market. For one, that meant producing the machine for a much lower cost. For another, it meant doing away

with the need for expensive consumables. Just as important was the need to make the machine rugged enough to withstand the rough treatment common to Vietnamese hospitals.

The result was a CPAP unit that MTTs now sells for US\$2,200—or half the price of a Western equivalent. More importantly, the disposable tubes were replaced by a set of glass bottles and special silicone pipes that can be washed and reused instead of being thrown away after a single use. In addition, the new CPAP was made significantly more robust, for example with special software to regulate the supply of electricity—in Vietnam, the unstable electricity supply often damages Western-designed machines. Finally, instructions for the machines were issued in Vietnamese.

"We took the CPAP and completely re-engineered it to suit the local market," says Mr Moccia. MTTs's machines are installed in every one of Vietnam's national and provincial hospitals and in a quarter of its district hospitals. Last year, they treated 40,000 babies, many of whom would have died or been brain-damaged without them.

But, adds Mr Moccia, just as important as the machines has been training. BOL runs intensive training courses for doctors and nurses not only in how to use the machines, but also in infant care. Another critical component of the programme has been maintenance of the machines, with MTTs—which is a private, for-profit, locally-owned company—running a full maintenance and repair service and ensuring a good stock of spare parts.

BOL's activities are funded by donors who support its East Meets West parent. But given BOL's success in Vietnam, supporters have provided the funds to roll out the programme in Cambodia and Laos, to which MTTs is now exporting its CPAP machines. Mr Moccia's next big push is India, where he reckons 350,000 babies die of respiratory problems every year.



## Case study 2: Delinking health from wealth

### Business model innovation transforming Indian healthcare

When Devi Shetty was training as a heart surgeon in the 1980s, he was taught that healthcare is expensive. Some day, his tutors told him, everyone would grow rich enough to afford it.

But, as an Indian national living in a country with hundreds of millions of destitute and poor, Dr Shetty realised he couldn't afford to wait. His countrymen needed health today, at prices they could afford, not in 50 years' time when India had grown rich.

"We need to disassociate healthcare from wealth," he says. "They've done it with mobile phones, where even the poor can afford them now. The same has to happen with health."

Over the past few years, Dr Shetty has set out to achieve exactly that, introducing radical innovation into the way that healthcare is financed, taught and delivered. Along the way, he has pioneered microinsurance plans for poor farmers, has applied the production line techniques of Henry Ford to cardiac surgery and has brought sophisticated healthcare to millions of low-income Indians.

His base is the Narayana Hrudayalaya hospital in Bangalore, where he has built a 25-acre health city that houses numerous hospitals catering to heart surgery, cancer treatment, organ transplant, eye-care and other conditions. The principle behind all of them is to employ economies of scale and specialisation to slash the costs of providing healthcare. The heart hospital, for example, has 1,000 beds (compared with 160 in an average American hospital) where Dr Shetty and a team of 40 cardiologists perform 600 operations every week. (The cancer hospital has 1,400 beds.)

The sheer number of patients, and the narrow specialisation of the surgeons, means they quickly become experts—Dr Shetty has performed more than 15,000 heart operations. The scale of the operation drives down the cost, especially as the heart hospital shares central facilities such as administrative services, laboratories and a blood bank with the other hospitals. The cost of open heart surgery at the facility is around US\$2,000, against costs of at least 10 times as much at a hospital in the US, and with success rates that are as good, if not better.

Nonetheless, even US\$2,000 is too much for most Indians, and

so Dr Shetty has also devised innovative insurance programmes for the poor in Karnataka state that enable them to use his hospitals. Starting eight years ago, he teamed up with a local cooperative of dairy farmers, selling microinsurance to its members for 11 US cents per person per month, with the premiums deducted every time a farmer sold his milk. He persuaded the local government to chip in a further 7 cents for each member of the scheme.

Today, it has 3m insured members and 400 hospitals across the state where those on the scheme can access health services, with no cash payments required. The funding arrangement has changed slightly, with policyholders now paying 22 cents per head and the government acting as a reinsurer if claims go above a certain threshold. He is also in the process of rolling out similar insurance schemes in other states such as Andhra Pradesh and Tamil Nadu.

Dr Shetty uses politics to get the schemes off the ground, always naming each scheme after a local politician looking to get re-elected. Come election time, it's a highly popular move among voters to roll out an affordable insurance scheme that is part-funded by the government. "Politicians do the right thing for the wrong reason and we use that," explains Dr Shetty. "I'm optimistic the whole country will adopt this model in a very short time because of the popularity it creates for politicians."

While these schemes all require private contributions from the people taking on the insurance policy, Dr Shetty believes that the costs of healthcare need government support. However, when it comes to the delivery of health services, he is adamant that private businesses operating in a competitive market do a much better job of driving down cost and improving efficiency. With that in mind, Dr Shetty has ambitious plans to build many new health cities across India, and is hoping to expand from 5,000 beds today to 30,000 beds by 2015.

"Indonesia is a poor country with a big population just like India. It should do the same things we have done," he advises. "Introduce microinsurance plans run by the government where the people pay tiny amounts each month. Then build medical cities to provide the services they need. These hospitals will need to have at least 3,000 beds each, otherwise you can't get the costs low enough. Finally, the government will need to invest in hundreds of new training colleges for doctors and nurses to staff these health cities."



### Case study 3: Dial D for doctor

#### Telemedicine tackling rural doctor shortage in Bangladesh

Muhammad Yunus is world-famous for pioneering microfinance in Bangladesh. Less well known is another groundbreaking effort of his in the field of healthcare. Although still under development, it could revolutionise the way that doctors serve rural and remote communities.

Dr Yunus set up Grameen Bank in the 1970s to build out his micro-lending programme. The idea was to bring financial services to poor communities who were traditionally cut off from opportunities to borrow. The bank has become a huge success, having lent more than US\$9bn since it was launched, and helping millions of Bangladeshi villagers to set up and manage small businesses.

In running the bank, however, Dr Yunus grew aware that many of his customers suffered from poor health, and so he introduced a set of borrowing criteria around health issues. For example, anyone wanting to borrow money first had to prove that they had dug a latrine for their family to use rather than defecating on bare ground.

Gradually the focus on health grew. Grameen launched a micro-insurance programme that today costs US\$2 per family per year. Then it set up Grameen Healthcare to run the clinics that provide the services for insurance holders. Today, however, Grameen's health schemes have hit a major obstacle caused by the doctors who staff its 51 clinics.

"We hire doctors to run our health centres, we pay them well, but they rarely last more than six months," says Dr Yunus. "They just don't want to be stuck in the middle of a remote rural area. And if our clinics don't have doctors, then people don't want to buy our health insurance."

Grameen is therefore now turning to an ambitious programme of telemedicine to overcome this problem. The idea is to run a pool of doctors in a central location in Dhaka who are connected to

rural communities by mobile phones. In the villages themselves, Grameen relies on "mobile health entrepreneurs", usually local women who go from house-to-house enquiring after the health of the inhabitants.

The village health entrepreneurs charge for their service—a small fee for those with Grameen health insurance, and a bigger one for those without. Using specially designed health questionnaires and portable technology such as hand-held ultrasound devices, they gather health data and send it via their mobile phones to the pool of doctors in Dhaka. Once there, the data is analysed and treatment recommendations are sent back.

The third component in the system is a new breed of highly-trained nurses who now run the village clinics in place of the doctors. As well as giving out health advice, these nurses are trained to prescribe and dispense medicine based on the recommendations of the central team of doctors.

Many aspects of the system are still under development. For example, Grameen is working with technology companies to design rugged, simple, portable devices for its health entrepreneurs. These devices need to be tough and capable of surviving harsh treatment in hot, dusty and unsanitary conditions. They need to be cheap to produce and maintain. Most important of all, they need to be simple, so that village health entrepreneurs with little education can use them effectively. A new generation of portable ultrasound machines looks particularly promising in raising standards of maternal care. Equally, Grameen is working with universities such as Glasgow Caledonian in the UK and Emory in the US to set up the training programmes for its new breed of village nurses.

"Not only will the system overcome the problem of getting doctors to work in remote places, it will also create huge economies of scale that will bring our costs down," enthuses Dr Yunus. "With a central pool of 50 doctors we could cover a huge share of the country instead of just 50 villages."



## 6. Conclusion

Access to healthcare in Indonesia and standards of service have much room for improvement. The country still suffers alarmingly high levels of maternal mortality, infant mortality and child mortality. What's more, inequality is a major issue, with the rural population being underserved. Headline health statistics in Indonesia will not improve significantly until those inequalities are addressed.

In addition, the challenges of providing health services will grow tougher in the years ahead as the country starts to age and degenerative diseases such as cancer grow more common. These new issues will emerge before the old health problems associated with poverty have been fully addressed. An already stretched health system will find itself being pulled in new directions as ageing citizens demand greater curative and in-patient services in place of the current priorities of preventive, out-patient services.

Fortunately, the government has recognised the need to upgrade and increase the country's health system. It has pledged to lift levels of health spending, but it must do so wisely. Health systems eat cash, and it will take careful planning to design the financing and the service levels that support the country's push towards universal coverage on a sustainable basis.

As that process unfolds, Indonesia would be wise to see how other countries have fared and to learn the lessons that emerge. Countries that have already put in place universal coverage—such as Malaysia and Thailand in South-east Asia—offer important pointers. But so too do countries like Vietnam, India and Bangladesh that are less wealthy. It is here that examples of innovation can be found that offer possibilities for managing healthcare and its costs in new ways.

For Indonesians, today is surely a moment to be optimistic, a time when the government has its sights set on taking healthcare to the next level. The country must grasp this opportunity. The future health and wellbeing of 4% of the world's people depend upon it.

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