White Paper

Shaping the Cardiovascular Disease Access Policy Landscape

Indonesia

NIKHIL KHICHA, Senior Principal, Asia, IQVIA APAC
PETER KIM, Associate Principal, Asia, IQVIA APAC
YIE WEI CHONG, Associate Consultant, Asia, IQVIA APAC

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Executive summary

In Indonesia, cardiovascular disease (CVD) is associated with significant disease burden, with atherosclerotic CVD (ASCVD) among the top 10 leading causes of mortality and disability.[1] As ASCVD impacts the working population aged 15–64 years more seriously, ASCVD spending is largely driven by this age group and is expected to increase substantially.[2] ASCVD recurrence further adds to the burden, highlighting the importance of secondary prevention.

There is room for improvement in the management of ASCVD risk factors in Indonesia. Strategies for prevention must also begin early, as the duration of risk factor exposure is associated with increased ASCVD risk. Although hyperlipidaemia prevalence is highest and growing at a faster rate than other major risk factors, this condition has been left out of Indonesia's current non-communicable disease (NCD) management plans.[3] The diagnosis rate for hyperlipidaemia is lower than other risk factors, especially in younger patients. In addition, the treatment initiation rate for hyperlipidaemia is poor compared to hypertension and diabetes, resulting in sub-optimal disease control.[4] This in turn results in poor treatment compliance and follow-up.[5] Proactive management of hyperlipidaemia and stronger emphasis on secondary ASCVD prevention is required.

The government and policymakers should act with urgency to tackle the growing burden on ASCVD in Indonesia and avoid a future public health crisis. Several potential solutions to address ASCVD challenges and unmet needs have been identified, such as:

- Development of **CVD-specific policies and plans**

- Improvement of current **screening initiatives for hyperlipidaemia**

- Improvement of **access to long-acting drugs** with fewer side effects

These solutions can enhance disease management and continuity of care, ultimately improving outcomes for patients and drastically reducing the burden of ASCVD in the coming years.

Introduction

CVD has been the leading cause of mortality in Indonesia over the past 10 years,[1] with ASCVD contributing most to the disease burden. Government spending on CVD remains low in Indonesia, with current policy, prevention and intervention measures being insufficient to overcome the growing disease burden of ASCVD, particularly among the working population aged 15–64 years.[2] Early screening and intervention efforts, particularly focused on hyperlipidaemia as a critical ASCVD risk factor, are urgently needed.[3]
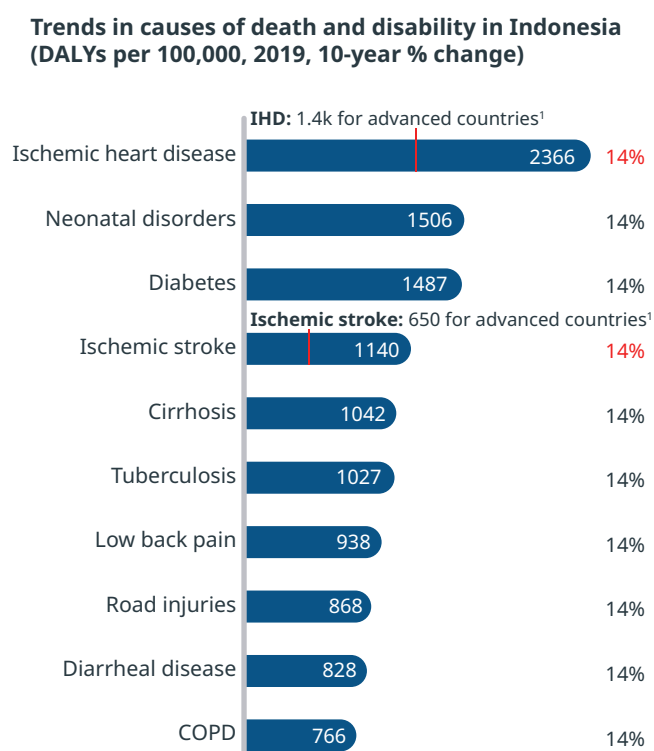
The consequences of delayed intervention will continue to compound the economic impact and disease burden of ASCVD in Indonesia. The economic output loss due to CVD alone is expected to be US$1.77 trillion between 2012 and 2030.[1] This white paper explores the challenges and unmet needs that exist for ASCVD in Indonesia, together with potential strategies and solutions to address the increasing ASCVD burden, such as targeted screening for hyperlipidaemia, and increased access to innovative, long-acting drugs.

Government and policymakers should take immediate action as economic and disease burden of ASCVD increases in Indonesia.

What is the current state of ASCVD?

ASCVD is group of diseases that includes coronary heart disease, such as ischaemic heart disease (IHD), and cerebrovascular disease such as stroke. Over the last 10 years, CVDs have consistently been among the top causes of mortality in Indonesia.[1] CVDs are also associated with the highest disability-adjusted life years (DALYs) in the country, with much higher prevalence rates compared with more advanced countries such as the UK, Japan, Korea, Taiwan, Australia and Singapore (*Figure 1*).[1]

Figure 1. CVD is associated with significant mortality and disability in Indonesia

Trends in causes of death and disability in Indonesia
(DALYs per 100,000, 2019, 10-year % change)

IHD: 1.4k for advanced countries[1]

Cause	Value	% change
Ischemic heart disease	2366	14%
Neonatal disorders	1506	14%
Diabetes	1487	14%
Ischemic stroke	1140	14%
Cirrhosis	1042	14%
Tuberculosis	1027	14%
Low back pain	938	14%
Road injuries	868	14%
Diarrheal disease	828	14%
COPD	766	14%

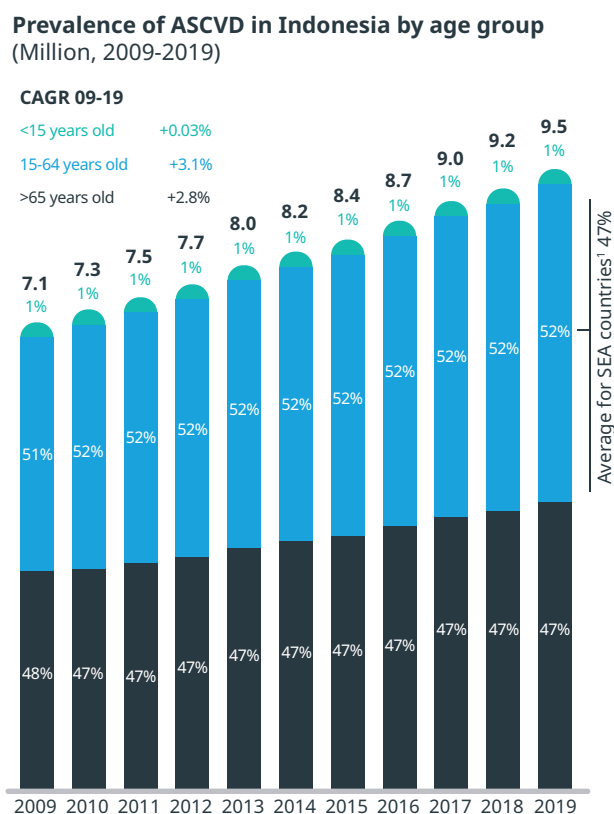**Ischemic stroke:** 650 for advanced countries[1]

COPD, chronic obstructive pulmonary disease.
Source: Global Health Data Exchange Global Health Data Exchange, Global Burden of Disease Tool, Indonesia. 2021.
Available from: http://ghdx.healthdata.org/gbd-results-tool

ASCVD alone contributes to approximately 63% of the CVD burden in Indonesia (~15 million cases in 2019)[2]. Despite ASCVD being more prevalent in people aged 55 and older, 52% of ASCVD patients belong to the working population aged between 15 and 64 years old (*Figure 2*).[2,6] A concerning trend is that the prevalence of ASCVD among this population is growing at a higher rate of 3.1% compared with countries such as Malaysia (2.4%) and South Korea (2.8%), and at a slightly higher rate than non-ASCVD prevalence (2.5%) in Indonesia.[7]

Figure 2. The ASCVD burden is highest in the working population in Indonesia

Prevalence of ASCVD in Indonesia by age group
(Million, 2009-2019)

CAGR 09-19

<15 years old	+0.03%
15-64 years old	+3.1%
>65 years old	+2.8%

Year	Total	<15 (top)	15-64	>65 (bottom)
2009	7.1	1%	51%	48%
2010	7.3	1%	52%	47%
2011	7.5	1%	52%	47%
2012	7.7	1%	52%	47%
2013	8.0	1%	52%	47%
2014	8.2	1%	52%	47%
2015	8.4	1%	52%	47%
2016	8.7	1%	52%	47%
2017	9.0	1%	52%	47%
2018	9.2	1%	52%	47%
2019	9.5	1%	52%	47%

Average for SEA countries[1] 47%

CAGR, compound annual growth rate; SEA, Southeast Asia.
Source: Global Health Data Exchange Global Health Data Exchange, Global Burden of Disease Tool, Indonesia. 2021.
Available from: http://ghdx.healthdata.org/gbd-results-tool

The prevalence rates of ASCVD and associated risk factors also differ by region, province, and urban/rural areas in Indonesia (*Figure 3*). For instance, ASCVD prevalence in Yogyakarta (5.1%), Java (4.5%) and North Sulawesi (3.9%) is higher than in other provinces of the country (3.0%).[6] Similarly, the prevalence of dyslipidaemia in urban areas is significantly higher than in rural areas (55.6% vs 44.4%).[8] These differences are largely driven by cultural and dietary preferences across the various provinces.

Figure 3. Differences in ASCVD prevalence rates among provinces in Indonesia

PROVINCE	PREVALENCE RATE (%)	PREVALENCE (MN)	DEATHS (%)
Yogyakarta	5.1%	0.2	5.1%
Central Java	4.6%	1.6	4.6%
East Java	4.5%	1.8	4.5%
North Sulawesi	3.9%	0.1	3.9%
Bali	3.8%	0.2	3.8%
All other provinces	3.0%	186.1	3.0%

Source: Global Health Data Exchange Global Health Data Exchange, Global Burden of Disease Tool, Indonesia. 2021.
Available from: http://ghdx.healthdata.org/gbd-results-tool

CVDs are among the top causes of mortality and are associated with the highest DALYs in Indonesia. 52% of ASCVD patients belong to the working population aged between 15 to 64 years old.

What are the key unmet needs?

Despite being largely preventable, ASCVD has been the top cause of global NCD-related mortality for decades, and is the result of many modifiable risk factors, such as hyperlipidaemia, hypertension, and diabetes mellitus.[7] These risk factors are the primary drivers for the first cardiovascular (CV) event, and risk factor modification is a critical component in the reduction of CV deaths.[7] Both primary prevention (preventing first ASCVD events) and secondary prevention (preventing second ASCVD events) are important. Strategies for prevention must also start early, as the duration of risk factor exposure is associated with ASCVD risk. In addition to lifestyle modifications, medical interventions are required to manage these risk factors.

In the INTERHEART study in 52 countries, hyperlipidaemia had the highest mortality odds ratio of 3.25.[7] Because of its role in the development of ASCVD, hyperlipidaemia management should be of high priority in CVD prevention.

In terms of policy geared towards addressing NCDs, Indonesia currently has in place a Strategic Action Plan for the Prevention and Control of NCDs (2016–2019).[3] Activities that are part of Indonesia's Strategic Action Plan for the Prevention and Control of NCDs currently include general awareness campaigns focused on healthy food consumption and physical activity, basic

diagnostic or testing services for blood glucose and lipids at primary healthcare centres, and the provision of essential NCD medicines. However, when compared to the NCD policies of countries such as South Korea and Taiwan, Indonesia's plan lacks targeted policies and interventions focused on CVDs, in particular those around the management of hyperlipidaemia, with existing NCD-related measures being insufficient and ineffective for controlling the growing ASCVD burden and associated mortality rates.

Some of the unmet needs for ASCVD that currently exist at different stages of the patient journey pertain to lifestyle modification and prevention, screening and diagnosis, and treatment and continuity of care (*Figure 4*). Solutions addressing these unmet needs in the form of targeted programmes, policy and funding/regulatory processes relating to hyperlipidaemia control require urgent attention and investment.

AWARENESS, LIFESTYLE AND PREVENTION

Hyperlipidaemia is a major risk factor for ASCVD, globally ranking above smoking, diabetes, hypertension and obesity in its risk association with ASCVD. While most of these risk factors, together with alcohol intake and physical inactivity, are highlighted in CVD policy and prevention efforts in Indonesia, there is a stark lack of focus on lipid control, especially hyperlipidaemia.[10] Despite managing hyperlipidaemia being a key determinant in controlling ASCVD risk, Indonesia does not track hyperlipidaemia in its national household health survey, nor is hyperlipidaemia included in the country's national risk surveillance for CVDs. [11]

At present, lifestyle modification plans, awareness programmes and regulations related to hyperlipidaemia are not a top priority for the government, with non-specific NCD awareness and prevention programmes being sporadically carried out at schools and for the

Figure 4. Summary of unmet needs and possible solutions pertaining to CVD in Indonesia

	LIFESTYLE & PREVENTION	DIAGNOSIS & SCREENING	TREATMENT AND CONTINUITY OF CARE
UNMET NEEDS	• **Current policy on lifestyle initiatives** not focused on driving awareness on lipid control	• **Lack of community screening** and referral program for HLD • Current policy **lack national diagnosis target** for HLD which explains the **low HLD diagnosis rate** as compared to other risk factors	• Statins not effective in bringing down LDL levels in high-risk groups – **unmet demand from HCPs and patients for long-acting drugs** • **Cumbersome drug approval and reimbursement process** further adds to the issue of inaccessibility to innovative drugs • **Lack of follow-up and monitoring** in HLD – Statin compliance is low, needing for a long-acting drug
POTENTIAL SOLUTIONS	• **Targeted awareness programmes** – Incentivise patients to modify their lifestyle to prevent ASCVD • **Tax relief programs** for F&B providers who offer healthy food options / less sugar beverage options	• **Nationwide screening programs** for CVD risk factors • **More comprehensive registry** – Collect patient data (identifying high-risk patients, compliance rate) • **Risk calculator for ASCVD** adopted to provinces with high ASCVD prevalence	• **Disruptive treatment pathway** – Encourage innovative drugs to address the treatment gap • **Encourage regular monitoring of lipid profiles** to ensure patient dosages adopt as required • **Improving treatment guideline/ treatment paradigm** to include long-acting drugs

F&B, food and beverage; HLD, hyperlipidaemia; LDL-C, low-density lipoprotein cholesterol.

general public. An example of such a programme is Posbindu – a government initiative to encourage early detection and monitoring of NCD risk factors, including medical care, support groups, and health education about NCDs for the elderly.[12] Programmes like Posbindu have been successful in improving awareness and knowledge about preventing ASCVD, with approximately 83.1% of Indonesians reported awareness of risk factors such as smoking, and uncontrolled low density lipoprotein cholesterol (LDL-C) levels and blood pressure.[13] However, these programmes seem to have less success in mobilizing people to take charge of their own health or engage in preventive health actions. For example, only 10% of the local population have visited Posbindu, citing inadequate facilities or difficulties in access due to logistical issues and/or physical disabilities. Tendencies to downplay the severity of the disease and a reluctance to change cultural and dietary practices are further challenges to preventive health action and lifestyle modification.[9]

"Generally, people have an adequate understanding ASCVD risk factors and how these risk factors can harm their health. Yet, they often downplay the severity of these risk factors."

– Cardiologist at large Indonesian hospital

Targeted awareness programmes can incentivize patients to modify their lifestyle early (*case study 1*), with the goal of preventing or delaying the onset of ASCVD, and improving disease management in the long-term. Indonesia should look to examples of public–private partnerships (*case study 2*) and international/regional policies (*case study 3*), and consider the adaptation of similar initiatives, contextualised to Indonesia's CVD landscape. The effectiveness of such programmes and policy could first be tested through pilots in provinces with high ASCVD or risk factor prevalence, and consequently expanded to the rest of the country.

"The main issue of Indonesians is that although they are aware of ASCVD risk factors, it is hard for them to change due to cultural habits such as diets."

– Cardiologist at large Indonesian hospital

Case study 1: Healthy Community of Nation Builders in Malaysia (KOSPEN) [14]

KOSPEN is an NCD-intervention programme by the Malaysian government to empower Malaysians to adopt and practice a healthy lifestyle to reduce NCD prevalence. The initiative focuses on the hypertension, diabetes and weight management, as well as screening and referral for early disease detection. Activities within the programme encourage a healthy diet (through reduction of salt and sugar intake), active living and smoking cessation, with health education and screening for blood pressure, blood glucose and body mass index incorporated.

To date, more than 6,000 localities have been set up with 40,000 trained volunteers recruited. In a recent evaluation of the programme, 66% of the population was aware of KOSPEN, and 750,000 high-risk adults have been screened and referred for further diagnosis.

Case study 2: The Singapore Healthier Dining Programme [15]

The Healthier Dining Programme is an initiative by the Health Promotion Board to encourage healthier food and beverage intake in Singapore, by collaborating with private sector food and beverage (F&B) companies to provide healthier meals for customers. To facilitate this, the Singapore government offers grants of up to SG$3,000 for the marketing and publicity costs as an incentive for F&B outlets to join programme, while F&B outlets have to offer at least 1 healthier food and beverage option to qualify for the programme.
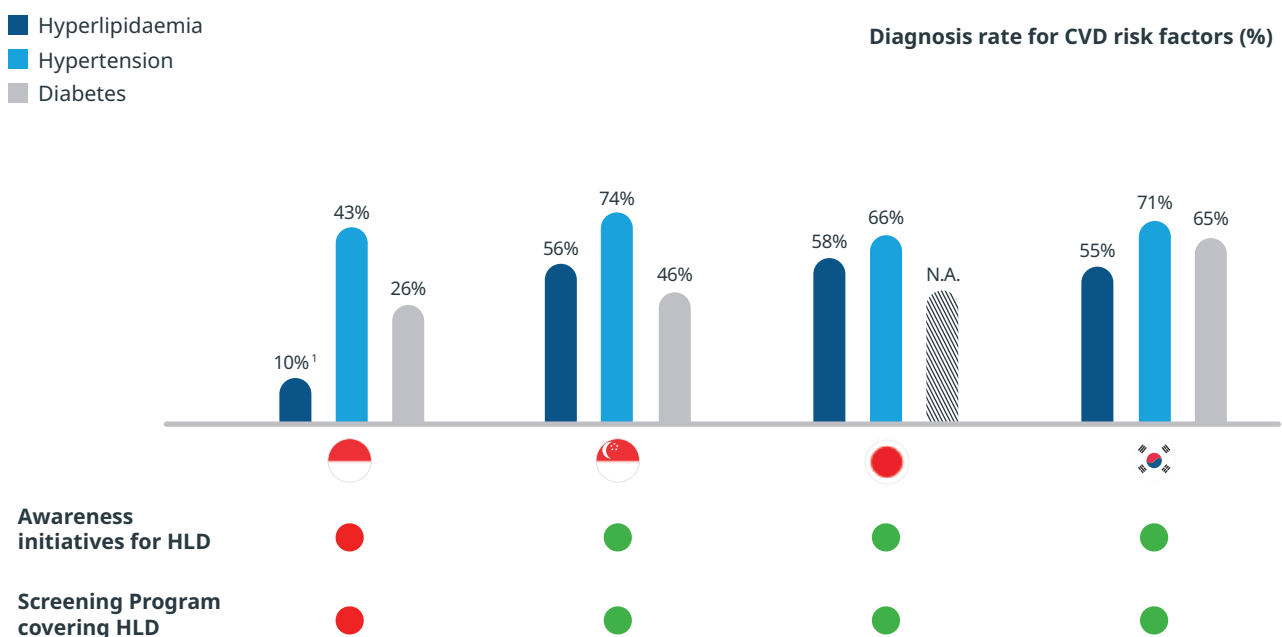
The programme's initial target was to increase the number of healthier eat-out meals consumed to 180 million annually, and to 20% of all eat-out meals by 2020. Between 2014 and 2017, there was a 300% increase in healthier meals sold via the programme, and more than 2,000 partners have joined the programme since its inception.

SCREENING AND DIAGNOSIS

Increased screening, treatment and control of dyslipidaemia have contributed to improved primary and secondary prevention of consequent cardiovascular (CV) events in more developed countries. [18] South Korea, for example, had a set hyperlipidaemia diagnosis target of 55% by 2018, which the country was able to successfully achieve.

Indonesia's current NCD policy lacks such specific diagnosis targets, such as screening frequency of LDL-C levels, community screening initiatives and referral pathways for hyperlipidaemia,[8] which explains the country's low hyperlipidaemia diagnosis rate (10%) compared with other countries in the region [19,20,21] and compared with other risk factors like hypertension (43%) and diabetes (26%) [22,23] (*Figure 5*).

Figure 5. High diagnosis rate of ASCVD risk factors in countries with hyperlipidaemia focused awareness and screening programs

Diagnosis rate for CVD risk factors (%)

- Hyperlipidaemia
- Hypertension
- Diabetes

10%[1]	56%	58%	55%
43%	74%	66%	71%
26%	46%	N.A.	65%

Awareness initiatives for HLD	🔴	🟢	🟢	🟢
Screening Program covering HLD	🔴	🟢	🟢	🟢

Case study 3: Denmark's pioneer trans-fat ban [16,17]

Denmark is the first country in the world to introduce legislations to limit the amount of trans-fat in food, including imported food, to 2% of total product composition. The ban restricted the amount of trans-fat to 2 g per 100 g of fat, and 5 g of trans-fat for every 100 g in multi-ingredient food. The ban included imported foods with trans-fat, and fines and potential criminal penalties were imposed to violators of the legislation.

The goal of the ban was to reduce the risk of CVD by reducing trans-fat consumption in Denmark, and was the first of its kind in banning imported products in the European Union, triggering region-wide discussions on trans-fat bans. Since 2004, 700 deaths attributable to CVD have been averted each year.

A mismatch between the current age coverage of national screening programmes and the age groups with highest ASCVD prevalence further contributes to this problem. Indonesia's Badan Penyelenggara Jaminan Sosial (BPJS) screening programme currently covers hypertension, diabetes and obesity for those aged 15–59 years, while cholesterol screening is only done for those aged ≥60 years. [24] Since ASCVD is most prevalent in the working population aged 15–64 years, the group most at risk for ASCVD is missed by current screening initiatives, highlighting a critical gap in Indonesia's ASCVD diagnosis protocols.

Missed opportunities for lipid screening within Indonesia's current national screening programmes need to be recognized and addressed. The government needs to consider expansion of current screening programmes to include hyperlipidaemia for high-risk groups (*case study 4*) and the younger working population (*case study 5*), which will improve ASCVD diagnosis rates going forward. The government can also consider increasing the frequency of LDL screening (eg monthly screening) for these patients. The formulation and adoption of a risk calculator for ASCVD in provinces with high ASCVD prevalence could further increase early diagnosis. Policy-led solutions that support the early screening of risk factors with specified ASCVD diagnosis targets (*case study 6*) are equally essential, along with a more comprehensive registry of patients to facilitate the identification of high-risk patients and to monitor patient compliance.

Case study 4: Million Hearts in the US [25]

Million Hearts is a screening programme in the US with specific approaches and targets for community CVD screening, to prioritize early risk factor detection and prevent CVD events, particularly among high-risk groups (eg smokers, adults with a family history of CVD events, hypertension and hyperlipidaemia, etc). It leverages electronic health records to screen and identify high-risk patients and conducts proactive outreach to patients with undiagnosed high blood pressure or hyperlipidaemia. The programme taps into a national network of more than 300 private partners and 20 federal agencies across 50 states to implement the different screening activities. The programme also provides support and training for patients and their family members for home monitoring of their blood pressure and cholesterol levels.

Since its launch in 2012, 27,000 cases of undiagnosed hypertension have been picked up by this programme, and approximately 135,000 heart attacks, strokes and related acute CVD events have been prevented, saving an estimated US$5.6 billion in indirect medical costs through early CVD prevention and risk factor detection.

Case study 5: South Korea's national screening programme for hyperlipidaemia, diabetes and hypertension [26]

South Korea has developed a free national screening programme for chronic diseases for all South Koreans aged ≥20 years. This screening programme covers hyperlipidaemia (every 4 years), hypertension (every 2 years) and diabetes (every 2 years).

The initial programme was only available to those subscribed to the country's National Health Insurance scheme – meaning 3% of South Koreans covered under the Medical Aid (Medicaid)

program were not eligible. In 2007, the initial target population was expanded and increased access to the programme was granted via the National Screening Program for Transitional Ages. Since then, 66% of the target population has joined the screening programme. High-risk diabetes patients have also reported improved adherence and compliance to their diabetes medications as a result of being enrolled in the programme.

Case study 6: UK's CVD prevention policy [27]

The UK's National Health Service (NHS) Long Term Plan (2019–2028) recognizes CVD as a clinical priority and aims to prevent CV events throughout the whole patient journey. The goal of this plan is for the NHS to work together with Public Health England and local health authorities to prevent over 150,000 heart attacks and strokes over the next 10 years. To achieve this, the effectiveness of NHS health checks will be improved through targeted interventions that optimizes care, maximizes diagnosis and treatment, and minimizes the impact of both individual and

population-level risk factors with timely follow-up and referral processes.

Activities within the policy framework include improving risk factor awareness, early detection and community support for CVD prevention, increasing access to health checks and testing (particularly for familial hypercholesterolaemia), identifying patients whose treatment and CVD risk management could be improved via primary care touchpoints, and improving cardiac rehabilitation.

Given Indonesia's relatively low healthcare spending and slow increases in allocated healthcare budgets, the government could initially explore piloting screening and diagnosis programmes in provinces with high hyperlipidaemia prevalence and strong health infrastructure, to test the effectiveness of such programmes before scaling up to the rest of the country. Targeted human immunodeficiency virus (HIV) programmes via partnerships with the United Nations Children's Fund in Papua, where the HIV disease burden is much higher (2.4%) than the national average of (0.3%), are an example of how this has been successfully done in the past. Integrated HIV education was implemented in rural areas targeting school children via radio, television and local football teams, and HIV diagnosis rates increased by approximately 600% between 2008 and 2013.

TREATMENT AND CONTINUITY OF CARE

Treatment initiation for CVD and ASCVD is not an issue in Indonesia. However, both local evidence and insights from healthcare professionals (HCPs) highlight a need for innovative drugs, particularly for high-risk patients. [29]

"As an interventional cardiologist, 20–30% of my patients cannot reach the LDL-C goal with statins. Hence, there is a need for innovative drugs."
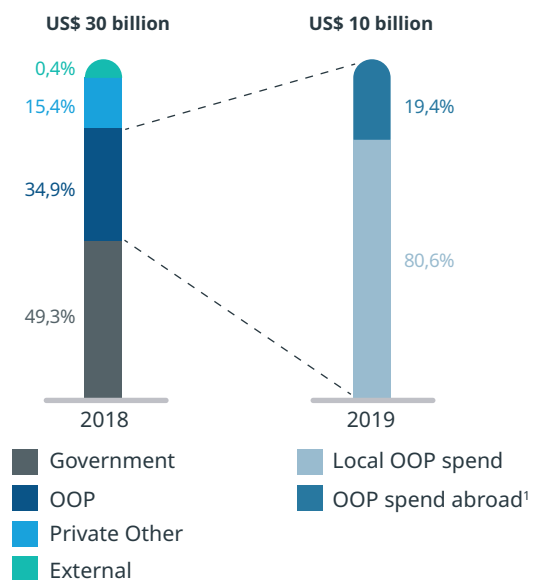
– Cardiologist

One of the main challenges faced by HCPs in Indonesia is that the existing statins or combination therapy, which are in cheaper and widely available in the market, have sub-optimal efficacy in lowering LDL-C levels among very high-risk groups, with only 12.1% of these patients being able to achieve their therapeutic cholesterol goals.[16] HCPs are open and willing to prescribe innovative and novel drugs, but are limited by the unavailability or inaccessibility of any such options within the country. Many HCPs therefore recommend their patients to obtain these drugs from overseas, if and where possible. [30,31] As a result, patients who can afford private healthcare opt to seek treatment in neighbouring countries, such

as Singapore or Malaysia, with approximately 1.2 million Indonesians spending more than US$2 billion annually on healthcare overseas (*Figure 6*).

An extensive drug approval and reimbursement process that favours local generic drugs further complicates the accessibility of innovative drugs in Indonesia.[22] For instance, drug registration applications can only be made by pharmaceutical companies located in Indonesia, and foreign manufacturers must either have their own manufacturing facility or appoint a local company for the registration. Additionally, application and approval timelines by the National Agency of Drug and Food Control (NA-DFC), which is responsible for regulating pharmaceuticals products and drugs in consideration, can often be slow and prolonged. Drugs included in the country's Formularium Nasional (FORNAS) e-catalog (similar to a standard drug list) can be reimbursed under the Jaminan Kesehatan Nasional (JKN) national health insurance scheme, but these drugs are often subject to restrictive reimbursement criteria that include strict claim verification by BPJS Health, tight regulation of prescribing in public hospitals and strict enforcement of treatment guidelines. [33]

Figure 6. High overseas healthcare expenditure driven by limited availability and accessibility of innovative drugs in Indonesia

Healthcare expenditure split in Indonesia, 2018, Bn USD

US$ 30 billion

0,4%
15,4%
34,9%
49,3%

2018

US$ 10 billion

19,4%
80,6%

2019

- Government
- OOP
- Private Other
- External
- Local OOP spend
- OOP spend abroad[1]

OOP, out-of-pocket.
Source: IQVIA Market Prognosis Indonesia, Q3 2021

Compounding this issue is the fact that innovative medicine spending in the country is currently more focused on conditions such as diabetes than on hyperlipidaemia. [34] Between 2014 and 2020, pharmaceutical spending on innovative drugs increased from 67% to 75% for diabetes, while a reduction from 59% to 38% was reported for hyperlipidaemia.[28]

"Having a right and influential local partner is vital in ensuring a smooth application process and overcoming red tapes in a relationship-based country."

– Pharmaceutical MNC expert in Indonesia

Where continuity of care is concerned, there is often a lack of follow-up with patients who have hyperlipidaemia. This is exacerbated by low adherence rates for statins (34%) due to patients ceasing their medication once they feel they have been adequately treated, or because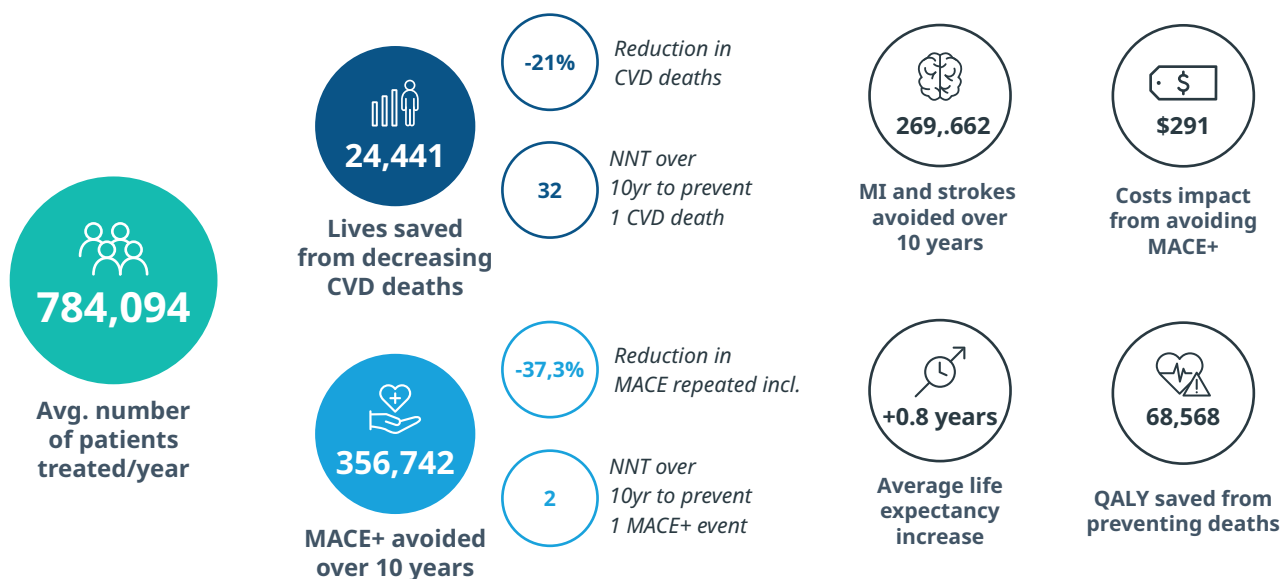 they are deterred from continuing treatment due to the side effects they read about online. [35] This highlights the need for better ASCVD follow-up and access to long-acting drugs to improve adherence and compliance among patients.

"Patient adherence in Indonesia is considered low, but the main challenges in adherence lies in awareness of the disease and not trusting HCPs."

– Cardiologist in leading hospital in Indonesia

Innovative, long-acting drugs with improved efficacy are essential to achieve better treatment adherence and outcomes for ASCVD in Indonesia, particularly in light of the sub-optimal treatment efficacy and LDL-C control rates with existing medications. Increased availability and accessibility of these drugs could additionally prevent or curtail the drain of monetary resources towards healthcare and medicines overseas. Based on a cost-impact model by Novartis which incorporates the CV event costs from Indonesian

Figure 7: Impact model output (calculated over a 10-year period)

784,094
Avg. number of patients treated/year

24,441
Lives saved from decreasing CVD deaths

-21% Reduction in CVD deaths

32 NNT over 10yr to prevent 1 CVD death

269,.662 MI and strokes avoided over 10 years

$291 Costs impact from avoiding MACE+

356,742
MACE+ avoided over 10 years

-37,3% Reduction in MACE repeated incl.

2 NNT over 10yr to prevent 1 MACE+ event

+0.8 years Average life expectancy increase

68,568 QALY saved from preventing deaths

Estimates from following one cohort of 875,486 people over 10 years.
Since members will die, the average number of treated patients per year is less than 875,486

*US$1= IDR 14,355   MACE, major adverse cardiovascular event.
Source: Novartis Internal Impact Model

Case study 7: Introduction of a long-acting drug with fewer side effects [30]

A long-acting drug for the treatment of CVD risk factors such as hyperlipidaemia could potentially reduce treatment follow-up and monitoring frequency, as well as improve adherence.

Prolia (Denosumab) is a first-in-class human monoclonal antibody administered subcutaneously every 6 months for the prevention and treatment of osteoporosis in post-menopausal women. Better treatment adherence, compliance and persistence, and reduced side effects with Prolia have been demonstrated through a large scale, crossover study of 250 postmenopausal women. Prolia was introduced to replace alendronate because it requires a lower frequency of administration, follow-up and monitoring (6-monthly), which helps to minimize hospital visits and drop-out of patients from osteoporosis treatment. Amgen leveraged Prolia's longer duration of action and better side-effect profile to advocate for the inclusion of the drug under the Pharmaceutical Benefits Scheme in Australia.

case-based groups (INA-CBGs), the introduction of innovative drugs to control LDL-C levels in high-risk patients, or in patients where combination therapy is not effective, can result in cost savings amounting to US$291 million (IDR 4.2 trillion), and save approximately 68,568 quality-adjusted life-years (QALYs) over 10 years (*Figure 7*). [36]

The use of Prolia in Australia (*case study 7*) is an example of the effectiveness of long-acting, injectable therapy replacing oral treatments that have poor patient adherence and persistence. [37]

To enable better access to innovative, long-acting drugs, the government could consider disruptive funding pathways, such as a fund for high-risk patients in need, or pathways specifically created for the accelerated approval of innovative ASCVD medicines. Examples of successful disruptive funding pathways include Singapore's Medical Assistance Fund, which allows eligible patients to access to high-cost ASCVD drugs that are not on the standard drug list, [38] and the UK's Cancer Drug Fund, which is a specific interim fund for oncology patients to gain access to new, promising cancer treatments that are not yet available on the NHS list. [39] Such funding pathways allow for government funding for innovative drugs to be obtained without having to go through conventional reimbursement pathways, speeding up the processes for approval of these drugs.

Call to action: what can be done now?

ASCVD poses a significant burden on individuals, families, community, and society. With almost half of the ASCVD population in Indonesia still in the workforce, the disease will cause disruption to the economy if steps are not taken to address the significant clinical and economic burden of ASCVD. This burden will continue to grow as long as gaps still exist in policies for managing ASCVD risk factors.

A mix of immediate and long-term strategies can be implemented now to address some of these challenges (*Figure 8*). Short-term solutions should focus on targeted awareness programmes, while medium-term strategies should place emphasis on nation-wide screening programmes for CVD risk factors and regular monitoring of lipid profiles. Long-term solutions need to include initiatives such as an ASCVD risk calculator, a comprehensive patient registry, and shifts in treatment guidelines and paradigms to include long-acting drugs.

Figure 8: Possible short-, medium- and long-term strategies to address CVD burden in Indonesia

PROPOSED SOLUTIONS	TIMELINE
TARGETED AWARENESS PROGRAMMES	Short-term (<1 year)
TAX RELIEF PROGRAMS FOR F&B PROVIDERS	Medium-term (1-2 years)
NATIONWIDE SCREENING PROGRAMS FOR CVD RISK FACTORS	Medium-term (1-2 years)
MORE COMPREHENSIVE REGISTRY	Long-term (>2 years)
RISK CALCULATOR FOR ASCVD ADOPTED TO PROVINCES WITH HIGH ASCVD PREVALENCE	Long-term (>2 years)
DISRUPTIVE TREATMENT PATHWAY	Long-term (>2 years)
ENCOURAGE REGULAR MONITORING OF LIPID PROFILES	Medium-term (1-3 years)
IMPROVING TREATMENT GUIDELINE/ TREATMENT PARADIGM TO INCLUDE LONG-ACTING DRUGS	Long-term (>2 years)

Mobilizing funding for ASCVD, implementing lifestyle initiatives and screening programmes covering hyperlipidaemia, and expediting access pathways for innovative medicines could drastically reduce the burden of ASCVD and its associated mortality in the years to come. Solutions to overcome the unmet needs associated with CVD and ASCVD must be comprehensive, targeted and inclusive of the general public as well as high-risk groups. Collaborative and proactive action between the government, policymakers and other key stakeholders is urgently needed to avoid a future public health crisis in Indonesia.

Indonesia's government and policymakers will need to act to address the growing clinical and economic burden of CVD and ASCVD. Actions that can be taken include the inclusion of hyperlipidaemia screening programmes, improving CVD treatment management, and the introduction of innovative, long-acting drugs for effective LDL-C control. Initiatives implemented today could result in savings of 68,568 QALYs and USD 291 million over the next 10 years.[34]

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About the authors

NIKHIL KHICHA,
Senior Principal, Asia,
IQVIA APAC

Nikhil Khicha is a Senior Principal at IQVIA Asia Pacific, based in Singapore. He has over 20 years of experience in the pharmaceutical and healthcare industry and currently leads the consulting practice in Asia Pacific. He has deep experience in working on projects that enable companies to achieve greater commercial success and profitable business growth. His areas of interest include developing and executing innovative solutions that best meet client needs.

Nikhil holds a Masters of Biotechnology from Northwestern University, USA and a Bachelor's Degree in Chemical Engineering from University of Virginia, USA.

PETER KIM,
Associate Principal, Asia,
IQVIA APAC

Peter Kim is an Associate Principal at IQVIA Asia Pacific, based in Kuala Lumpur, Malaysia. He is responsible for leading regional and global strategy consulting projects at IQVIA. In his current role, Peter specialises in market access and global health systems, advising pharmaceutical industry players, governments and global health agencies. Peter has worked in different strategy leading consulting firms in SEA, bringing extensive experience in both the healthcare and pharmaceutical industry.

Peter holds a Ph.D. in Biomedical Sciences from University of Melbourne, Australia.

YIE WEI CHONG,
Associate Consultant, Asia,
IQVIA APAC

Yie Wei Chong is an Associate Consultant at IQVIA Asia Pacific, based in Kuala Lumpur, Malaysia. He has over 5 years of industry and consulting experience for both the pharmaceutical industry and the public sector. His areas of interest include market landscaping, regulatory access and market entry.

Yie Wei holds a Bachelor's Degree in Business Economics and Finance from University of Nottingham, Malaysia.

Co-authors

ADITI PATIL, Consultant, Asia, IQVIA APAC
HONG HUEI TAN, Associate Consultant, Asia, IQVIA APAC
JISU KIM, Associate Consultant, Asia, IQVIA APAC

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