White Paper

Shaping the Cardiovascular Disease Access Policy Landscape

Vietnam

DR. NGUYEN KHANH PHUONG, Vice-Director of the Health Strategy and Policy Institute, Ministry of Health in Vietnam
NIKHIL KHICHA, Senior Principal, Asia, IQVIA APAC
PETER KIM, Associate Principal, Asia, IQVIA APAC
ADITI PATIL, Consultant, Asia, IQVIA APAC

Table of contents

Introduction

Cardiovascular disease (CVD) levies a heavy burden in Vietnam: over the past 10 years, it has been the leading cause of mortality and disability in the country, with atherosclerotic CVD (ASCVD), such as myocardial infarction and stroke, contributing to most of the burden.[1] Although policymakers in Vietnam have reacted to the growing burden by implementing a non-communicable disease (NCD) policy,[2] gaps still exist in government policies and plans for managing CVD risk factors. This is particularly the case for hyperlipidaemia, which has shown the fastest increase in prevalence of all major risk factors in recent years.[3]

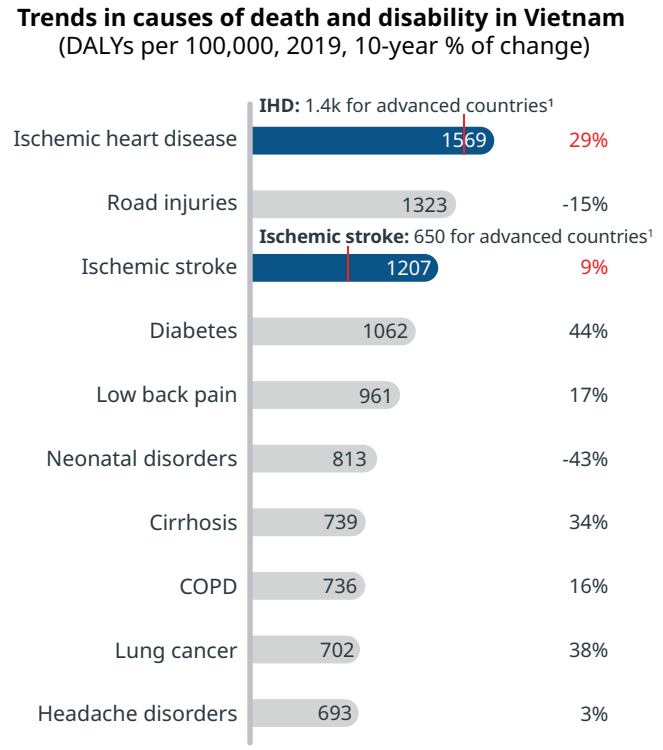
While Vietnam's young population is key to its economic growth, 49% of ASCVD patients belong to the working population (15–64 years).[1] Unless urgent action from both health agencies and policymakers is taken to increase disease awareness and invest more into CVD management/prevention, the risk and burden of this disease will increase steeply. This white paper will explore the unmet needs and unique challenges associated with the growing burden of CVD in Vietnam, as well as potential strategies, including CVD-specific initiatives and improved access to innovative long-acting drugs, to address these challenges and avoid a future public health crisis. These strategies fit under the overarching goal of the United Nations Sustainable Development Goals Indicator 3.4.1,[4] which aims to reduce the risk of premature death among populations from CVD, cancer, diabetes and chronic lung disease by one-third by 2030.[4]

Although the government has formulated policies and plans to manage CVD in Vietnam, there remains a high disease prevalence which has been increasing steadily over the years, especially in young, working adults. Without immediate or urgent action taken to manage these CVD risk factors, in particular hyperlipidaemia, the disease burden will soon reach alarmingly high rates in Vietnam and potentially strain the economy.

What is the current state of disease?

CVD is a group of diseases that includes coronary heart disease such as ischaemic heart disease (IHD), and cerebrovascular disease such as stroke. Globally, CVD is responsible for 32% of deaths in 2019, with over three-quarters of CVD deaths occurring in developing countries.[5] The number of patients with CVD in Vietnam has grown over the past few years, driven by ASCVD which constitutes 65% of CVD cases.[1] With a CVD prevalence of 6.1%, Vietnam fares worse than its low-middle income country (LMIC) counterparts (4.0% in Cambodia and 4.9% in Indonesia).[1] IHD and stroke have consistently been the top causes of death in Vietnam, with the number of disability-adjusted life-years (DALYs) per 100,000 individuals rising steadily since 2009, reaching 1,569 and 1,207 for IHD and ischaemic stroke, respectively, in 2019. These figures were considerably higher than those in advanced economies such as the UK, Japan, Korea, Taiwan, Australia and Singapore (*Figure 1*).[1]

Figure 1. CVD is associated with significant mortality and disability in Vietnam[1]

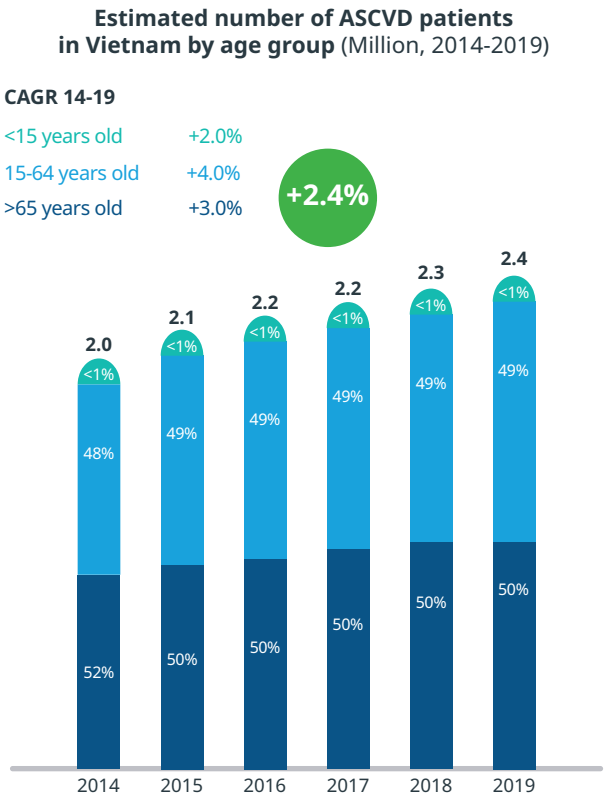


COPD, chronic obstructive pulmonary disease.
Source: Institute for Health Metrics and Evaluation – Vietnam. Available from: http://www.healthdata.org/vietnam

What stands out is that the ASCVD burden largely affects the working population in Vietnam, in which 49% of the ASCVD population belongs to the 15–64 years age group. This prevalence is also growing at a rate of 4% per year (*Figure 2*), which is higher than in other LMIC markets (3.4% in Cambodia and 2.8% in Indonesia).[1]

Vietnam's young, working-age population is key to its economic growth. The increasing burden of ASCVD in the working population1 and the potential reduced workforce productivity will cost the economy greatly if key immediate actions are not taken.

Figure 2. The burden of ASCVD in the working population in Vietnam is cause for concern[1]



CAGR, compound annual growth rate.
Source: Institute for Health Metrics and Evaluation – Vietnam. Available from: http://www.healthdata.org/vietnam

These data highlight the significant disease burden that ASCVD poses in a dynamic, emerging economy like Vietnam, particularly among the working population. The health of the working population is imperative to the economic growth of a country. As such, the government needs to take immediate action to develop policies that more accurately increase the healthcare system's responsiveness to the changing health needs in Vietnam.

What are the key unmet needs?

Despite being largely preventable, CVD 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.[6] 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.[6]

Hyperlipidaemia is a well-recognized major risk factor for CVD. In the INTERHEART study in 52 countries, hyperlipidaemia had the highest mortality odds ratio of 3.25.[6] In addition, hyperlipidaemia is the second most prevalent CVD risk factor in Vietnam and has shown the fastest increase in prevalence of all major risk factors in recent years.[3] With its significant role in the development of ASCVD, hyperlipidaemia management should be a high priority in CVD prevention.

To address the increasing burden of disease in Vietnam, the National Strategy for Prevention and Control of Cancer, CVD, Diabetes, Chronic Obstructive Pulmonary Disease, Bronchial Asthma and Other NCDs was approved in 2015, which sets several targets for 2025, including NCD prevention, awareness and reduction of deaths caused by cancer, CVD, and diabetes.[2] However, this plan lacks a targeted CVD policy, particularly around the management of hyperlipidaemia. Since its inception, these policy measures have also been insufficient and ineffective in controlling the growing CVD prevalence and mortality in the country.

The key unmet needs discussed here can be grouped into three categories: awareness, lifestyle and prevention; screening and diagnosis; and treatment and continuity of care.

AWARENESS, LIFESTYLE AND PREVENTION

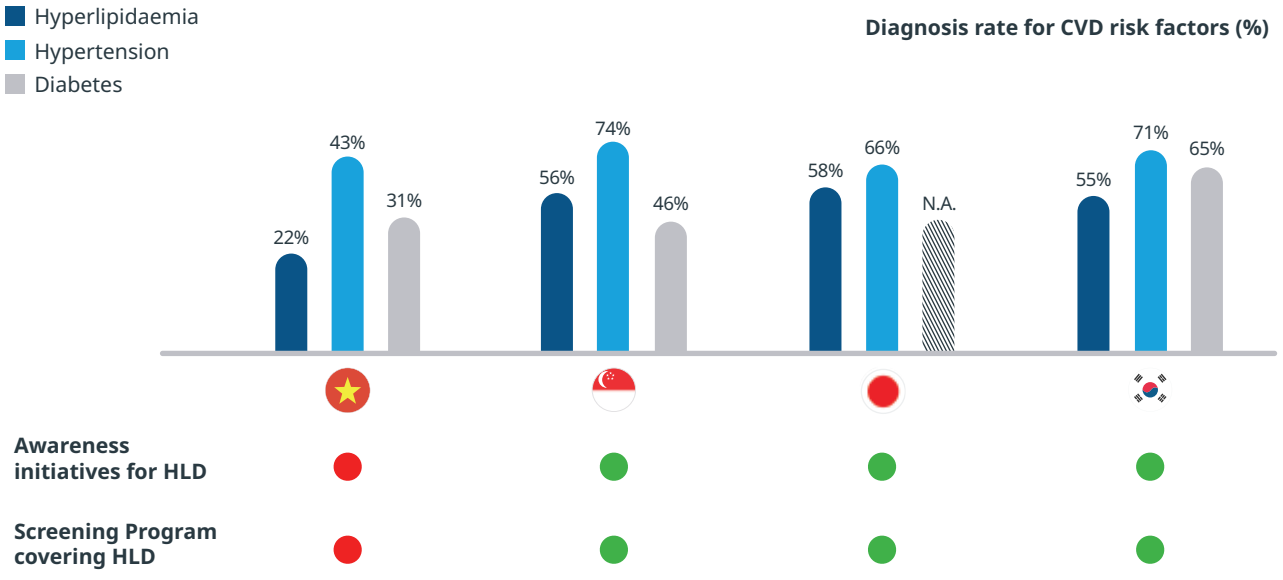
While there are relatively comprehensive lifestyle modification initiatives and laws to promote healthy living and awareness of CVD risk factors in Vietnam, they fall short when compared to countries like South Korea and Taiwan where specific, hyperlipidaemia-focused CVD policies exist. These community-targeted healthy lifestyle initiatives in Vietnam have yet to demonstrate effectiveness, and awareness around CVD risk factors remain low (approximately 50%), particularly in rural areas.[7] Furthermore, a 2014 report on hypertensive patients in Vietnam showed that only 25.9% were aware of their condition, 12.2% have received treatment, and a mere 2.8% have their blood pressure under control.[8]

Gaps still exist in policies and plans for the management of CVD risk factors in Vietnam. The government needs to develop policies via effective information, education, and communication to the public to more target the different risk and disease patterns in urban and rural areas.

SCREENING AND DIAGNOSIS

Gaps in the knowledge of CVD and associated risk factors among the general population, as well as the lack of access to CVD diagnostics and inadequate healthcare capacity are key barriers to effective

Figure 3. High diagnosis rate of CVD risk factors in countries with hyperlipidaemia-focused awareness and screening programmes[3]



HLD, hyperlipidaemia.
Source: Ministry of Health General Department of Preventive Medicine.
National Survey on the Risk Factors of Non-Communicable Diseases (STEPS) Viet Nam, 2015.

disease detection. Evidence shows that disease awareness and screening programmes have been effective in improving the diagnosis rates of CVD risk factors in the region.[9] In advanced economies with hyperlipidaemia-focused awareness and screening initiatives such as Singapore, Japan and South Korea, diagnosis rates of CVD risk factors are high. For example, in South Korea, the pre-set hyperlipidaemia target diagnosis rate of 55% was successfully met by 2018.[9] Conversely, the lack of country-level awareness initiatives and community screening programmes, as well as a specific hyperlipidaemia diagnosis rate target, contribute to the poor diagnosis rates of hyperlipidaemia (22%) and other CVD risk factors in Vietnam[3] (*Figure 3*).

TREATMENT AND CONTINUITY OF CARE

The 2020 guideline issued by the Vietnam Ministry of Health for the primary prevention of CVD is an adaptation of the European Society of Cardiology 2019 Guidelines on Dyslipidaemias, which recommends the use of innovative drugs to reduce low-density lipoprotein cholesterol (LDL-C) levels in very high-risk patients who are unable to achieve therapeutic control on maximally tolerated statin-based therapy.[10,11] Despite guideline recommendations, as well as the willingness of healthcare professionals (HCPs) to prescribe and patients' demand for innovative drugs, the access to such options remain a key barrier in the country. The accessibility of innovative drugs is further complicated by the Drug Administration of Vietnam (DAV)'s lengthy drug approval process of up to 3 years,[12] which further delays market entry of potentially life-saving treatments. Even though the New Law on Pharmacy was recently introduced to streamline DAV's drug registration and renewal processes, the impact of this law may be gradual due to DAV's limited resources.[12]

"There is a need to prescribe innovative drugs to high-risk patients, but this is rare because many patients cannot afford it and it is not available."

– Cardiologist in leading hospital

"I will normally advise my patients to purchase innovative drugs from Singapore or the US as it is unavailable in Vietnam."

– Cardiologist in leading hospital

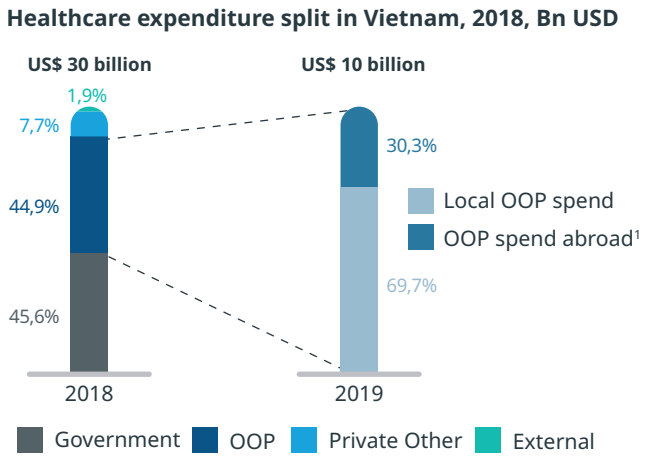
With the lack of innovative drugs for hyperlipidaemia in the Vietnamese market, statin use continues to be widespread, due to statins being reimbursed, and thus affordable, in Vietnam. Yet, a key challenge is that only 50% of patients in the country meet their LDL-C goals when prescribed with a statin and ezetimibe.[13]

"Currently, the only way for us to treat high-risk patients is to use high-dose statins. If there is a better alternative drug that is affordable, we will definitely consider it."

– Cardiologist at leading hospital

Additionally, disparities in spending on innovative medicines have also contributed to the sub-optimal LDL-C goal attainment, especially in high-risk patient groups, in Vietnam.[6,14] Pharmaceutical spending on hyperlipidaemia has been stagnant, with expenditure mainly going towards innovative drugs for diabetes (US$93.6 million for diabetes versus US$29.[5] million for hyperlipidaemia in 2020).[14] Driven by dissatisfaction with public provision of healthcare and the inaccessibility of innovative treatments, as well as rising disposable household incomes, many patients are forced to explore treatment options outside the country. The Ministry of Health estimates that 40,000 Vietnamese people spend approximately US$2 billion in overseas medical expenses every year (*Figure 4*).[15] In response, Vietnam's healthcare sector is now expanding, with new facilities opening in urban centres, especially in Ho Chi Minh City. Despite efforts, these provisions have yet to meet the needs of patients.

Figure 4. Dissatisfaction with healthcare options drove Vietnamese to spend approximately $2 billion on overseas medical expenses[15]



OOP, out of pocket.
Source: International Trade Administration. Healthcare Technologies Resource Guide – Vietnam. Available from: https://www.trade.gov/healthcare-resource-guide-vietnam

Finally, a lack of disease awareness and trust in HCPs result in poor adherence to treatment. While the adherence rate to treatment in Vietnam (49%) is higher than that in the US (27.9–34%) and China (0.8%),[16] challenges in statin adherence are two-fold: patients discontinue their statin treatment 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. This highlights the need for better CVD follow-up, as well as access to comprehensive disease education programmes and effective, long-acting drugs for these patients.

Case study 1: Community-based healthy lifestyle promotion on CVD risk factors in a rural Vietnamese population[17]

An intervention study conducted in two rural communes of Vietnam from 2006 to 2009 found that community-targeted comprehensive healthy lifestyle promotion significantly improved some CVD risk factors over a relatively short time span and at low implementation cost (the estimated total cost was only US$0.06 per capita per year). This study also showed that health interventions need higher intensities of health education and a supportive environment to optimize effectiveness and maintain programme sustainability.

Case study 2: Healthy Community of Nation Builders (KOSPEN)[18]

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 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.

"Patient adherence in Vietnam is considered above average, but the main challenge in adherence lies in low awareness of the disease and distrust of HCPs."

– Cardiologist at leading hospital

What are the potential solutions?

There is an urgent need for strategies and solutions to tackle ASCVD challenges and unmet needs along the patient journey, particularly for hyperlipidaemia. The solutions discussed below could enhance disease management and continuity of care, ultimately improving outcomes for patients with hyperlipidaemia in Vietnam.

IMPROVING DISEASE AWARENESS, LIFESTYLE AND PREVENTION MEASURES

To improve disease awareness among the general public, the Vietnamese government should consider implementing a community CV health promotion programme (*case study 1*), which tackles the management of all CVD risk factors, including hyperlipidaemia, as part of the national strategy

Case study 3: The Singapore Healthier Dining Programme[19]

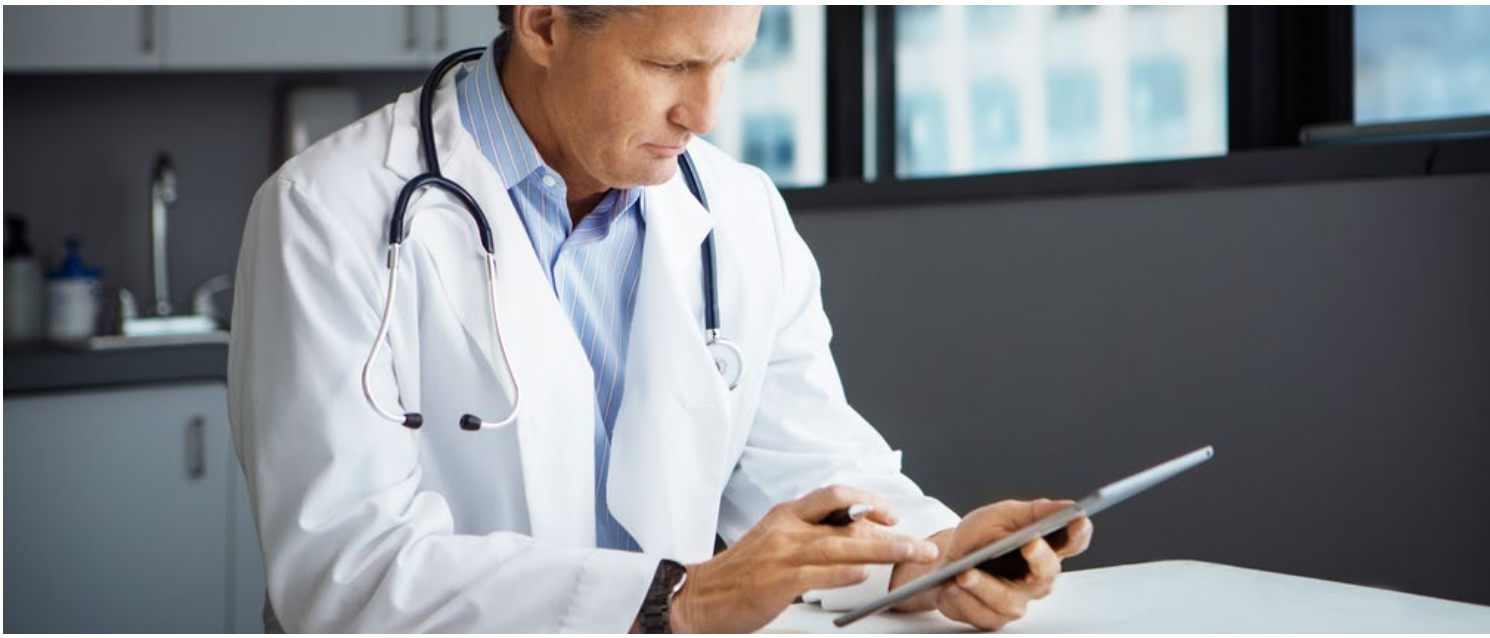
The Healthier Dining Programme is an initiative by the Health Promotion Board to encourage healthier food and beverage intake in Singapore, by collaborating with private sector food and beverage (F&B) companies to provide healthier meals for customers. To facilitate this, the Singapore government offers 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.

Case study 4: Denmark's pioneer trans-fat ban[20,21]

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 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 regional discussions on trans-fat bans. Since 2004, 700 deaths attributable to CVD have been averted each year.



for health. Moreover, the government can look to other countries for examples of targeted awareness programmes that can incentivize patients to proactively act on improving CVD outcomes (*case study 2*), public–private partnerships (*case study 3*), and international/regional policies (*case study 4*) and consider the adaptation of similar initiatives, contextualized to Vietnam's CVD landscape.

ENHANCING SCREENING AND DIAGNOSIS

To improve the rates of hyperlipidaemia detection and diagnosis, the Vietnamese government can consider implementing screening programmes for CVD risk factors, especially in rural provinces. Should such a national screening programme not be feasible due to healthcare budget constraints, the government can consider establishing an electronic medical

Case study 5: SWEDEHEART, Sweden[22]

SWEDEHEART is a national online registry of all patients hospitalized for acute coronary syndrome or undergoing coronary or valvular interventions in Sweden. Launched in 2009 after merging four national registries, SWEDEHEART provides continuous information on patients' care needs and treatment outcomes. Patient information collected include risk factors, diagnoses, interventions, medications, as well as personal identification numbers to allow for long-term follow up and recurrence monitoring.

records system to track populations at increased risk of CV events (e.g. the elderly population). Also, considering the demographic characteristics of ASCVD in Vietnam, workplace health screenings would also be useful to identify CVD risks among the working population. Furthermore, a highly integrated and online-based cardiac registry can be implemented to not only track patient journeys and disease recurrence, but also support evidence-based disease management (*case study 5*).

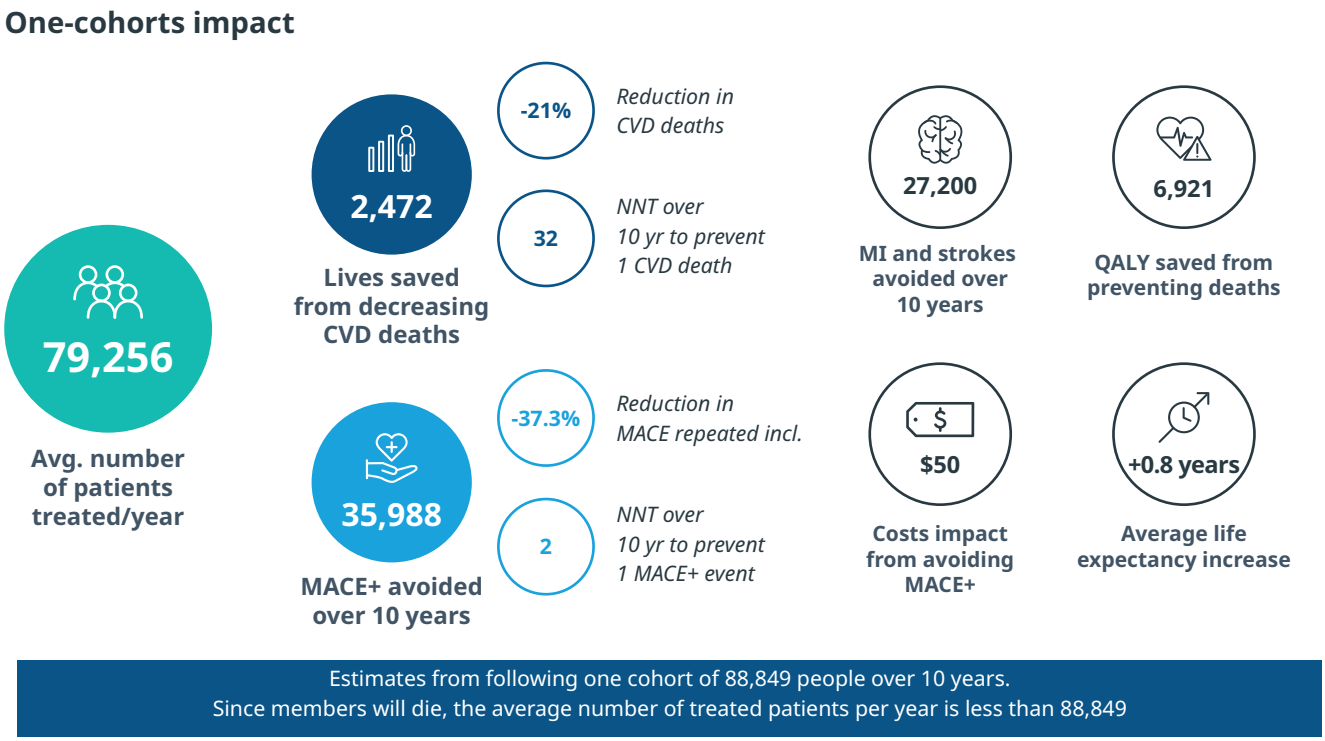
IMPROVING TREATMENT AND CONTINUITY OF CARE

To improve treatment management and continuity for hyperlipidaemia, the Vietnam Ministry of Health and Vietnam National Heart Association should review and update local diagnosis and treatment guidelines to reflect the latest international guidance on the management of CVD risk factors. Grassroot-level risk management strategies to prevent the progression of disease and recurrence of CVD events are also imperative. Furthermore, a drug-led solution with the introduction of innovative, long-acting drugs with improved efficacy (*case study 6*) can help address the current challenges in access to innovative drugs and limited treatment efficacy with statins in high-risk patients. 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-effectiveness study by Novartis, the introduction of an innovative, long-acting drug for effective LDL-C control could save 2,470 lives, 6,921 quality-adjusted life years (QALYs) and US$50 million over the next 10 years by avoiding major adverse CV events (MACE) (*Figure 5*).[24]

To enable better access to innovative, long-acting drugs, the government could consider disruptive funding pathways for high-risk patients, or pathways specifically created for the accelerated approval of innovative CVD medicines. Examples of successful disruptive funding pathways include Singapore's Medical Assistance Fund, which allows eligible patients to access to high-cost CVD drugs that are not on the standard drug list,[25] and the UK's Cancer Drugs 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 National Health Service list.[26] Such funding pathways allow for government funding for innovative drugs to

Figure 5: Impact model output (calculated over a 10-year period)[24]



MACE, major adverse CV event.
Source: Novartis Internal Impact Model

Case study 6: Introduction of a long-acting drug with fewer side effects[23]

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.

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?

CVD places a significant burden on individuals, families, community, and society. Furthermore, with almost half of the ASCVD population in Vietnam still in the workforce, the disease will cause disruption to the economy if the government and policymakers do not take immediate action to address the significant clinical and economic burden of CVD in Vietnam. This burden will continue to grow as long as gaps still exist in current policies for managing CVD risk factors. Without further action, there is a risk of a future public health crisis in Vietnam.

The rising burden of CVD in Vietnam represents an urgent need for collaborative and proactive efforts between the government, pharmaceutical companies, and other key stakeholders to reduce the burden and cost of the disease.

An all-encompassing strategy that employs multiple intervention approaches will need to be implemented. These actions include mobilizing funding for CVD, implementing lifestyle initiatives and screening programmes that cover hyperlipidaemia, increasing the national capacity for diagnosing and managing CVD risk factors, strengthening grassroot-level CVD risk factor management, and expediting access pathways for innovative, long-acting medicines. Overall, these solutions to overcome the current challenges and unmet needs associated with CVD and ASCVD must be comprehensive yet targeted, and inclusive of the general public and all risk groups.

CVD is associated with significant disability and mortality. As such, the government and policymakers will need to take urgent action to address the growing strain this disease places on Vietnam and its people. Immediate actions include implementing community health promotion initiatives, hyperlipidaemia screening programmes, and improving access to innovative, long-acting drugs, to prevent 35,988 MACE, save 2,470 lives and US$50 million over the next 10 years.

References

1. Institute for Health Metrics and Evaluation – Vietnam. Available from: http://www.healthdata.org/vietnam (accessed January 2022).
2. Ministry of Health Vietnam. National Strategy for the Prevention and Control of Cancer, CVD, Diabetes, COPD, Bronchial Asthma and Other NCDs, 2015–2025.
3. Ministry of Health General Department of Preventive Medicine. National Survey on the Risk Factors of Non-Communicable Diseases (STEPS) Viet Nam, 2015.
4. United Nations Sustainable Development Goals (SDG) Indicators. Goal 3. Available from: https://unstats.un.org/sdgs/metadata/?Text=&Goal=3&Target=3.4 (accessed January 2022).
5. World Health Organization. Fact sheets: cardiovascular diseases (CVDs). Available from: https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds) (accessed January 2022).
6. Yusuf S et al. Lancet 2004;364:937–52.
7. Khai GP et al. Epidemiological survey of hypertension and its risk factors in Vietnam. Presentation at the World Health Organization's office, Hanoi, Vietnam, 2008.
8. Ha T.P. Do. Hypertension in Vietnam: prevalence, risk groups and effects of salt substitution, 2014.
9. Kweon S et al. Int J Epidemiol 2014;43:69–77.
10. Ministry of Health. Decision 5333/QD-BYT. Available from: https://vanbanphapluat.co/quyet-dinh-5333-qd-byt-2020-tai-lieu-chuyen-mon-du-phong-tien-phat-benh-tim-mach (accessed January 2022).
11. Mach F et al. Eur Heart J 2020;41:111–88.
12. IQVIA Market Progress Report, 2021–2025.
13. IQVIA MIDAS.
14. IQVIA analysis: expert interviews.
15. International Trade Administration. Healthcare Technologies Resource Guide – Vietnam. Available from: https://www.trade.gov/healthcare-resource-guide-vietnam (accessed January 2022).
16. Nguyen TPL et al. Value in Health 2014;17:A492.
17. Nguyen QN et al. BMC Cardiovasc Disord 2012;12:56.
18. Lim KH et al. Technical report evaluation of effectiveness of implementation of "Komuniti sihat perkasa negara" (KOSPEN) programme in Malaysia- phase 1. 2015. Available from: https://iku.moh.gov.my/images/IKU/Document/REPORT/2014/KOSPEN2014.pdf (accessed December 2021).
19. Singapore Healthier Dining Programme. Available from: https://www.hpb.gov.sg/healthy-living/food-beverage/healthier-dining-programme (accessed January 2022).
20. Restrepo B et al. Am J Prev Med 2016;50:69–76.

21. Christiansen MS. Danish ban on trans fat saves two lives a day. 2015. Available from: https://sciencenordic.com/denmark-food-videnskabdk/danish-ban-on-trans-fat-saves-two-lives-a-day/1424297 (accessed January 2022).

22. Jernberg T et al. Heart 2010;96:1617–21.

23. Amgen. Treatment with Prolia® (denosumab) associated with significantly greater adherence, compliance and persistence compared to alendronate. Available from: https://www.amgen.com/newsroom/press-releases/2011/03/treatment-with-proliar-denosumab-associated-with-significantly-greater-adherence-compliance-and-persistence-compared-to-alendronate (accessed January 2022).

24. Novartis Internal Impact Model

25. Agency for Care Effectiveness Singapore. Drug evaluation methods and process guide; 2019. Available from: https://www.ace-hta.gov.sg/docs/default-source/process-methods/ace-methods-and-process-guide-for-drug-evaluation-(20-dec-2019).pdf (accessed January 2022).

26. Department of Health and NHS England. Investigation into the cancer drugs fund; 2015. Available from: https://www.nao.org.uk/wp-content/uploads/2015/09/Investigation-into-the-Cancer-Drugs-Fund1.pdf (accessed January 2022).

About the authors

DR. NGUYEN KHANH PHUONG,
Vice-Director of the Health Strategy and Policy Institute, Ministry of Health in Vietnam

Dr. Nguyen Khanh Phuong is currently the Vice-Director of the Health Strategy and Policy Institute, Ministry of Health in Vietnam. She is a leading expert with more than 20 years of experience in health financing, health economics and health system reform in Vietnam. She has PhD in Public Health from National Institute for Hygiene and Epidemiology and M.Sc in Health Economics from Chulalongkorn University, Thailand. She has engaged in several studies on economic evaluation of intervention program for hypertension control in Vietnam, such as costing of basic health packages for treatment and management of hypertension and diabetes, cost-effectiveness of community - based intervention for hypertension control in Vietnam

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.

ADITI PATIL,
Consultant,
Asia, IQVIA APAC

Aditi Patil is a Consultant at IQVIA Asia Pacific, based in Singapore. She has around 8 years of industry experience and over 5 years of experience advising life sciences and healthcare companies across South and South-east Asia.

Aditi holds an MBA from INSEAD and a MSc Finance from London School of Economics and Political Science.

Co-authors

YIE WEI CHONG, Associate Consultant, Asia, IQVIA APAC

HONG HUEI TAN, Associate Consultant, Asia, IQVIA APAC

JISU KIM, Associate Consultant, Asia, IQVIA APAC

With thanks to the Novartis team for their contribution and collaboration in the development of this white paper.

About IQVIA Asia Pacific

IQVIA (NYSE:IQV) is a leading global provider of advanced analytics, technology solutions, and clinical research services to the life sciences industry. IQVIA creates intelligent connections across all aspects of healthcare through its analytics, transformative technology, big data resources and extensive domain expertise. IQVIA Connected Intelligence™ delivers powerful insights with speed and agility — enabling customers to accelerate the clinical development and commercialization of innovative medical treatments that improve healthcare outcomes for patients. With approximately 70,000 employees, IQVIA conducts operations in more than 100 countries.

With regional headquarters in Singapore and offices in 15 countries, IQVIA Asia Pacific provides technology-enabled services and solutions to meet the growing and rapidly changing needs of clients, both local and multinational, operating in Asia Pacific. IQVIA is committed to advancing healthcare by offering evidence-based insights and deep domain expertise in thought leadership, with the aim of improving understanding and accelerating innovation within the healthcare ecosystem. To learn more, visit www.iqvia.com/locations/asia-pacific.

CONTACT US
iqvia.com/contactus

LOCATION
79 Anson Road #19-01
Singapore 079906
iqvia.com