

White Paper

Chronic Obstructive Pulmonary Disease (COPD) in Malaysia

DATO DR MAT ZUKI MAT JAEB, Respiratory Consultant and Head Department of Medicine MTS Kelantan Representative

PROF DR AHMAD IZUANUDDIN ISMAIL, Associate Professor

DATO DR AZMEE MOHD GAZI, Deputy Head Department, Consultant Cardiologist, Clinical Director, Heart Failure and Heart Transplant

DR NOR HAZLIN BINTI TALIB, President, FMSA

DR HO BEE KIAU, President, FMSA Selangor

DEVARAJ SUBRAMANIAM, Principal, IQVIA Asia Pacific

KEAN MUN LAU, Manager, Consulting Services, IQVIA SEA and APAC RHQ

ALAN TAN, Associate Consultant, Consulting Services, IQVIA SEA and APAC RHQ



Table of contents

| | |
|---|-----------|
| EXECUTIVE SUMMARY | 4 |
| 1. Current state of the disease | 7 |
| 2. Current copd challenges in malaysia | 10 |
| 3. Improving access to copd management | 13 |
| 4. The way forward | 18 |
| 5. References | 19 |
| 6. Appendix | |

Financial disclosure

This research was conducted by the APAC Consulting Team at IQVIA, supported by AstraZeneca Malaysia. The co-authors and reviewers do not receive any form of compensation for their contribution to this paper.

This paper has been collaboratively authored by a diverse team of healthcare experts, ranging from family medicine specialists to pulmonologists and cardiologists, with the aim of presenting solutions to enhance COPD care in Malaysia. The proposed recommendations are intended to stimulate conversations and discussions among public and private stakeholders, e.g., government, pharmaceutical companies, non-governmental organizations, to explore potential collaboration models to address the challenges faced by health care professionals and patients as well as to advance the COPD management landscape in the country.

Executive summary

Chronic Obstructive Pulmonary Disease (COPD), a progressive respiratory condition characterized by airflow limitation, represents a critical public health challenge in Malaysia. With an estimated prevalence of 6.1%, representing approximately 548,000 affected individuals, and an annual economic burden of RM 2.8 billion, COPD has emerged as the seventh leading cause of death in the country. The impact extends beyond direct healthcare costs, with affected individuals experiencing an average of 12-18 days of work absenteeism annually and a 22-35% reduction in work capacity, translating to individual productivity losses of RM 7,020 per year. Recent evaluation reveals significant systemic challenges, underscoring the need for reforms.

Key challenges

Awareness and clinical capability

Analysis suggest that most primary care providers often adopt a reactive approach to diagnosis. Importantly, healthcare professionals demonstrate limited proficiency in early detection and workplace hazard recognition. Public awareness is particularly concerning, with 80% of patients unaware of COPD before diagnosis. Patient education remains inadequate, resulting in poor inhaler technique and suboptimal treatment outcomes.

Infrastructure, tool and treatment

Analysis also suggests that there are critical infrastructure limitations which hamper effective COPD care. This coupled with limited diagnostic capabilities, availability of spirometry equipment and shortage of trained personnel severely impacts COPD care delivery. Treatment accessibility is compromised by limited availability of long-acting bronchodilators in primary care facilities and budget constraints preventing recommended dual or triple therapy. This results in high emergency department visits (31%) and hospital admissions (42%). The scarcity of pulmonary rehabilitation facilities also creates substantial gaps in comprehensive care delivery.

Governance and strategy

Despite COPD being the seventh leading cause of death in Malaysia, there is no comprehensive national strategic plan for its management. The current National Strategic Plan for Non-Communicable Disease (2016-2025) inadequately addresses COPD. Care integration is poor, with only 20% of patients being referred from primary to specialist care. Clinical practice guidelines have not been updated since 2009, leaving significant gaps between local and international standards.

Proposed solutions

To address these challenges, a comprehensive, collaborative, and multi-pronged approach is needed, involving various stakeholders from the government, healthcare providers, patients, and the private sector. Some key recommendations are:

- Enhancement of healthcare professional training and capability building
- Expansion of diagnostic and rehabilitation infrastructure through public-private partnerships
- Development of a comprehensive national COPD strategy aligned with international standards
- Implementation of a hub-and-spoke healthcare delivery model

The way forward

Addressing the challenges in COPD management in Malaysia requires a comprehensive, collaborative, and multi-pronged approach. Due to the interconnectedness of all these elements highlighted above, it creates a cycle where limited awareness leads to delayed diagnosis, infrastructure gaps prevent proper treatment, and weak governance perpetuates systemic inefficiencies. Breaking this cycle requires coordinated interventions across all three areas to create sustainable improvements in COPD management. This document can serve as a compelling call to action, emphasizing the pivotal role the government plays in implementing policies and initiatives that will mitigate the impact of COPD on both public health and the economy.

1. Current state of the disease

Burden of COPD

Chronic Obstructive Pulmonary Disease (COPD) represents one of the most significant challenges in global public health. This irreversible chronic respiratory condition progressively deteriorates lung function, leading to severe complications including respiratory failure, heart diseases, depression, and death (Figure 1).¹ The disease's impact extends beyond individual health outcomes to create substantial societal and economic burdens worldwide.

COPD currently is the third leading cause of mortality globally, with an estimated 3.28 million lives lost in 2019.² The disease's impact is particularly devastating in low- and middle-income countries, where 90% of COPD-related deaths under age 70 occur.² Multiple risk factors contribute to COPD development, including:-

- Tobacco exposure (primary and secondary)
- Occupational exposure to dusts, fumes, or chemicals
- Indoor air pollution and environmental haze¹

Figure 2. Global COPD prevalence and death (2015-2019)³

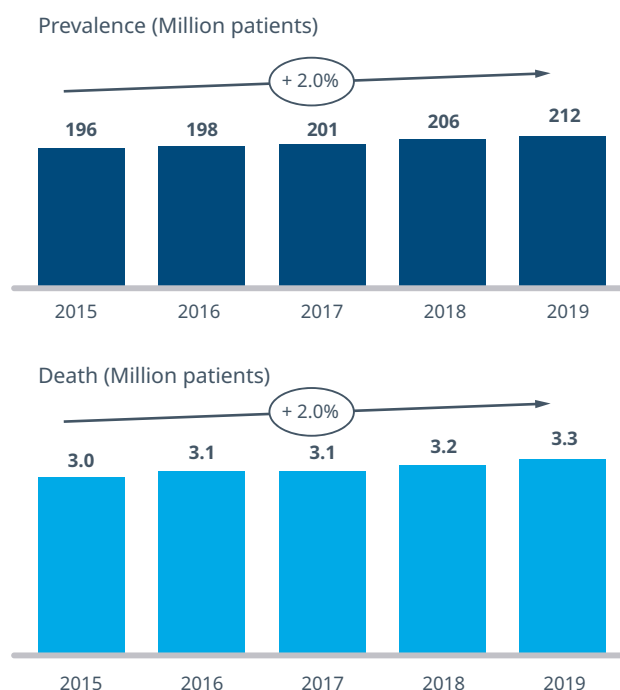


Figure 1. COPD disease characteristics¹

Definition

A heterogeneous lung condition characterized by chronic respiratory symptoms (dyspnea, cough, sputum production and/or exacerbations) due to abnormalities of the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that lead to persistent and progressive airflow obstruction

Symptoms

- Breathlessness or difficulty breathing
- Chronic cough, often with phlegm
- Fatigue

Chronic Obstructive Pulmonary Disease (COPD)



An irreversible chronic respiratory condition that can lead to severe complications including respiratory failure, and death

Risk factors

- **Tobacco exposure:** From addictive smoking and vaping or passive exposure. In Malaysia, more than 80% of COPD patients have smoking history.
- **Others:** Occupational exposure to dusts, fumes, or chemicals, indoor air pollution, childhood asthma, etc.

Complications

- **Exacerbations and repeated hospitalization** are common
- **Lung cancer:** Prevalence in COPD patients is ~5%
- **Cardiovascular disease:** COPD patients are more than twice as likely to have cardiovascular disease
- **Other comorbidities,** e.g., osteoporosis and depression, and death

Global recognition and response

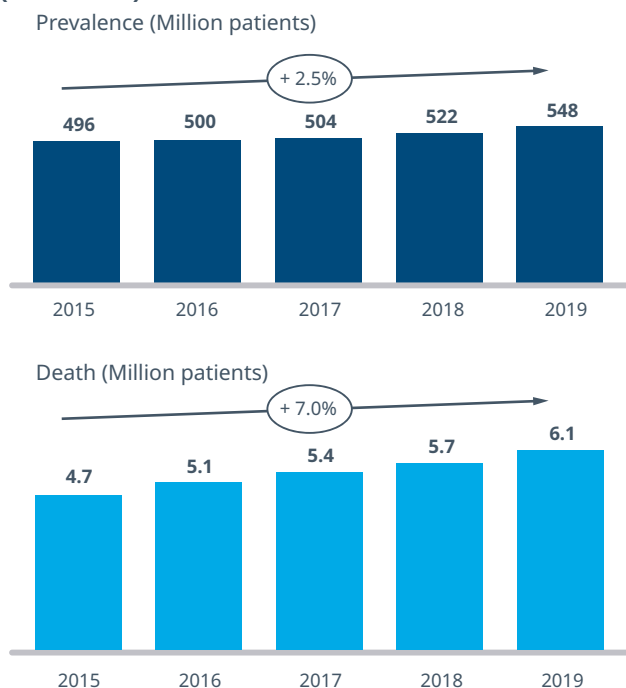
The extensive healthcare and economic burden of COPD has elevated it to become one of the priorities among global health organizations. COPD is now incorporated into major health frameworks including the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases (NCDs) and the United Nations 2030 Agenda for Sustainable Development.⁴

In response, WHO has implemented major initiatives to improve diagnosis of and treatment for COPD, including establishing protocols to help improve disease management in primary health care in low-resource settings and Rehabilitation 2030 program to draw attention to the profound unmet need for pulmonary rehabilitation.⁴

COPD in Malaysia: a growing concern

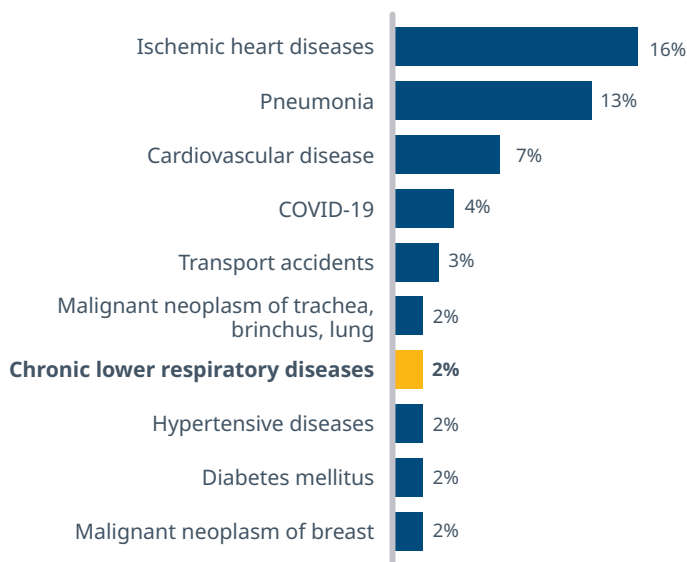
Like many other countries globally, chronic lower respiratory disease which includes COPD represent a significant and growing public health challenge in Malaysia. With an estimated prevalence of 6.1%, this translates to approximately 548,000 individuals living with COPD, though experts suggest significant underdiagnosis means the actual number could be considerably higher (Figure 3).⁵

Figure 3. Malaysia COPD prevalence and death (2015-2019)³



Indeed, as of 2022, lower respiratory diseases rank as the seventh leading cause of death in the country, reflecting a broader regional trend of the increasing non-communicable disease burden.⁶

Figure 4. Top 10 leading causes of deaths in Malaysia, 2022⁶



Economic impact

COPD poses a substantial and growing economic burden on Malaysia's healthcare system and broader economy, with current estimates placing the total annual cost at RM 2.8 billion.⁷ This significant financial impact manifests across multiple sectors, with particularly heavy concentration in the public healthcare system where 70-80% of COPD patients receive their treatment. Of particular concern is the high proportion of severe cases, which constitute approximately 40-50% of the diagnosed adult patient population in Malaysia, placing disproportionate pressure on healthcare resources and economic systems.⁸

The economic impact extends far beyond direct healthcare costs, creating significant workforce and productivity challenges. Individual COPD patients, predominantly working adults, face substantial personal economic burdens. The annual indirect cost resulting from lost work productivity and premature death averages

RM 7,020 per patient, representing approximately 34% of annual household income per capita. This translates to between 12-18 days of work absenteeism annually and a 22-35% reduction in work capacity, significantly impacting both individual livelihoods and national productivity.^{7,9}

2. Current challenges of COPD management in Malaysia

The management of COPD faces significant challenges. In a recent survey of thirteen multidisciplinary experts conducted in 2024, results revealed that less than one-third of them were satisfied with the current management of COPD, highlighting room for improvement in the Malaysian healthcare system's approach to this chronic condition.^{10j}

The magnitude of these challenges is particularly evident in diagnostic practices. The BOLD (Burden of Obstructive Lung Disease) collaborative study, published in 2015, identified three critical gaps in COPD diagnosis in Malaysia¹¹ :

Undiagnosed cases: More than 90% of COPD cases remain unidentified, representing a vast population of patients who are not receiving necessary care

Under-diagnosis: A significant portion of COPD cases are not recognized in their early stages, leading to delayed intervention

Misdiagnosis: Cases are frequently incorrectly diagnosed, resulting in inappropriate treatment approaches

In a recent survey of thirteen multidisciplinary experts conducted in 2024, results revealed that less than one-third of them were satisfied with the current management of COPD, highlighting room for improvement.

These gaps in diagnosis represent not only missed opportunities for early intervention but also indicate potential inefficiencies in healthcare resource utilization and increased long-term costs to the healthcare system. This can be categorized into three primary areas of concern as follow:



1. Awareness and clinical capability challenges



2. Infrastructure, tool and treatment barriers



3. Governance and strategy limitations



2.1 Awareness and clinical capability

2.1.1 Primary care provider awareness

The level of COPD awareness among Primary Care Providers (PCPs) remains a significant challenge in Malaysia. In a survey conducted in 2024, it revealed that PCPs typically initiate COPD screening only when patients present with three or more symptoms, indicating a reactive rather than proactive approach to diagnosis.¹⁰ This practice contributes to three critical diagnostic gaps as mentioned previously. The challenge is further compounded by: 1) the limited training opportunities for PCPs; 2) insufficient exposure to current diagnostic guidelines; and 3) scarcity of COPD specialists for consultation and referral.⁸ The awareness gap extends to occupational health, where healthcare professionals often demonstrate low index of suspicion in recognizing workplace and environmental hazards that contribute to COPD.¹⁰

Of particular concern in primary healthcare settings is the limited use of spirometry, where studies to date have identified it as one of the strongest predictors for incorrect COPD diagnosis.^{12,13} This diagnostic gap affects both the identification of new cases and the accuracy of existing diagnoses. For instance, despite the



requirements under the Occupational Safety and Health Act, implementation of spirometry screening for at-risk workers remains inconsistent.¹⁰

2.1.2 Patient education and treatment compliance

There are currently few public health programs and campaigns targeted at promoting COPD awareness and prevention. Research indicates that approximately 80% of patients are unaware of COPD prior to their diagnosis.¹⁰ This lack of awareness affects both smokers and non-smokers, challenging the common misconception that COPD is exclusively a smoker's disease.

Even among patients with COPD, many demonstrate insufficient proficiency in proper inhaler technique, leading to suboptimal treatment outcomes.⁸ This is further compounded by some patients who use multiple inhalers which can reduce treatment compliance.



2.2 Infrastructure, tool and treatment barriers

2.2.1 Diagnostic and rehabilitation infrastructure

The Malaysian healthcare system faces critical infrastructural deficiencies in COPD management. The most pressing challenge is the limited availability

of spirometry equipment, which is predominantly restricted to tertiary centers and largely absent in primary care settings¹⁴. With only approximately 200 trained personnel in spirometry testing nationwide, the diagnostic capacity falls severely short of national requirements¹⁰. This limitation fundamentally impairs COPD diagnosis and monitoring at the primary care level, where most patients first present.

The scarcity of pulmonary rehabilitation facilities further compounds the challenges in delivering comprehensive COPD care. Among major district hospitals, only one facility currently offers a structured pulmonary rehabilitation program¹⁵. This severe shortage significantly impacts family medicine specialists' ability to provide complete care, particularly given the absence of standardized referral protocols. The lack of clear guidelines and limited facilities creates a substantial gap in the continuum of care, preventing patients from accessing crucial rehabilitation services that could improve their quality of life and reduce exacerbation rates.

2.2.2 Treatment access and affordability

Access to pharmacological interventions presents another significant barrier, especially the lack of availability of long-acting bronchodilators in primary care facilities.

Public clinics, operating under tight budget constraints, struggle to provide recommended dual or triple therapy for Group B and E patients¹⁰. This financial limitation often forces healthcare professionals to deviate from treatment guidelines, resulting in suboptimal outcomes. Recent research by Anees ur Rehman et al. demonstrated the consequences of these constraints, with approximately 31% of COPD patients requiring emergency department visits and 42% facing hospital admission due to exacerbations⁷. The situation is further exacerbated by the lack of insurance coverage for COPD medications, making non-subsidized treatments financially inaccessible for many patients⁸.

2.2.3 Preventive care and discharge management

The healthcare system faces additional challenges in preventive care, particularly regarding vaccination supply for COPD patients¹⁰. This shortage is especially concerning given COPD patients' increased vulnerability to respiratory infections and exacerbations¹¹. The absence of a standardized hospital discharge protocol further compromises patient care continuity. Research indicates that implementing structured COPD discharge protocols can significantly reduce hospital readmissions, lower mortality risk, and enhance patient quality of life¹⁶.



2.3 Governance and strategy limitations

2.3.1 National strategic planning and prioritization

A fundamental governance issue is the absence of a comprehensive national COPD strategic plan. Despite COPD being the seventh leading cause of death in Malaysia, the National Strategic Plan for Non-Communicable Disease (2016-2025) focuses primarily on other conditions such as cardiovascular diseases, diabetes, and cancer¹⁷. This omission reflects a critical gap in disease prioritization and results in:

- Inadequate resource allocation for COPD management
- Lack of coordinated disease control efforts
- Increased economic burden on the healthcare system
- Suboptimal patient outcomes due to fragmented care approaches

The situation is further exacerbated by the lack of insurance coverage for COPD medications, making non-subsidized treatments financially inaccessible for many patients.

2.3.2 Clinical guidelines and practice standards

The Malaysian COPD Clinical Practice Guidelines, last updated in 2009, have fallen significantly behind contemporary international standards. Recent advancements in the 2023 GOLD Reports, including the merger of Groups C and D into Group E and recommendations for triple combination therapy as first-line treatment for specific patient populations¹, are not reflected in current national guidelines. This misalignment creates a disconnect between international best practices and local clinical care delivery.

2.3.3 Care integration and coordination

The integration of COPD care across healthcare levels remains problematic, particularly evident in referral patterns between primary and specialist care. According to market research, only approximately 20% of COPD patients are referred from primary care to pulmonologists, with the majority being identified through emergency department presentations⁸. This low referral rate suggests:

- Missed opportunities for early intervention
- Suboptimal disease management at primary care level
- Increased burden on emergency services
- Higher healthcare costs due to crisis-driven rather than preventive care

Taken together, these limitations across the 3 key areas create a cycle of challenges. As such, breaking this cycle requires a comprehensive policy approach that addresses both immediate infrastructure needs and long-term strategic planning and is described in the next section.



3. Strategic recommendations to improve COPD management in Malaysia

Success in improving COPD care in Malaysia depends on addressing the interlinked challenges as described above through coordinated interventions at both the operational and strategic levels. The following are recommendations which can help to pave the way for effective and sustainable enhancements of COPD management in Malaysia.

3.1 Addressing awareness and capability challenges

The enhancement of awareness and capability represents a fundamental pillar in improving COPD management across Malaysia's healthcare system. A comprehensive healthcare professional development program should be established, focusing on systematic training in early screening protocols and diagnostic procedures. In a recent study by Markun and colleagues, the authors examined how care bundles which included an educational intervention for primary care physicians in COPD management found that such enhancement could improve care elements in patients with COPD.¹⁹

Some key elements the program should prioritize include the validation and implementation of screening tools such as the PUMA questionnaire, enabling healthcare providers to identify potential COPD cases at earlier stages. Furthermore, the development of a specialized certification program in spirometry testing, particularly targeted at primary care practitioners, would significantly enhance diagnostic capabilities across the healthcare network.

To build sustainable capability, the establishment of COPD excellence centers is crucial. These centers could then serve as educational hubs, connecting healthcare professionals across various specialties and facilitating comprehensive training programs. The centers can be designed to foster collaboration between respiratory physicians, family medicine specialists, cardiologists, physiotherapists, and pharmacists, ensuring a multidisciplinary approach to COPD management. As part of this endeavour, a standardized curriculum and certification program should be developed, specifically targeting primary care doctors, nurses, pharmacists, and allied health professionals.

Patient education initiatives require significant enhancement, particularly in device usage and self-management techniques. The implementation of


structured inhaler technique education programs, modelled after successful initiatives like Singapore’s Airway Program, has demonstrated significant improvements in patient outcomes, including reduced hospital stays and improved survival rates (see Case Study 1). Special attention should be given to elderly patients who may face challenges with device coordination, incorporating specialized training approaches and support mechanisms.

Public health programs also need to be expanded through the development of culturally appropriate terminology and messaging. This includes creating localized terms for COPD in the Malay language to improve public understanding and awareness. Integration with existing smoking cessation programs and collaboration such as the “Tak Nak Merokok” campaign coupled with occupational health authorities including Department

Case study 1: The airway program in Singapore ^{19,20}

Singapore’s approach to COPD management is integrated into its chronic disease management framework, with specific initiatives launched under the Ministry of Health’s (MOH) strategic healthcare plans. One such initiative is the Airway Program whereas part of their comprehensive approach to managing respiratory conditions, all patients diagnosed with community acquired pneumonia and/or COPD at the

National University Hospitals (NUH) will be evaluated for clinical severity and the need for hospitalisation. The program was initially implemented across three major hospitals to improve COPD patient outcomes through structured education and crisis management. Initial results suggest that enrolment in the programme was associated with a 0.4 fewer hospitalisation days as well as ~39% lower mortality rates.

| INITIATIVE | EVERY PATIENT IS ASSIGNED A CASE MANAGER WHO | BENEFITS |
|--|---|--|
|  <p>THE AIRWAY PROGRAM (TAP)</p> | <ul style="list-style-type: none"> • Ensure patients and caregivers are able to comprehend the medication regimes and techniques. • Provide education on the care of equipment and safety measures of home oxygen, nebulizer and home ventilation • Send reminders for follow-up appointment and ensure treatment continuity • Provide advice during crisis conditions on coping strategies and action plan • Refer patients for pulmonary rehab and medical social work | <p>Hospital stay duration reduction: TAP patients had significantly lower length of stay</p> <p>Survival rate improvement: TAP patients lived longer than non-TAP patients</p> |

The program suggests several potentially transferable elements:

- Structured patient education approaches
- Focus on practical skills development
- Integration of crisis management protocols
- System-wide implementation strategies

Source: IQVIA analysis

of Occupational Safety and Health (DOSH) and Social Security Organisation (PERKESO) would create a comprehensive approach to raising awareness about COPD risk factors and prevention strategies.

3.2 Overcoming infrastructure, tool and treatment barriers

To address infrastructure and treatment barriers described above, this requires a systematic approach to expanding access to diagnostic tools and treatment options. The primary focus should be on enhancing

diagnostic capabilities in primary care settings through the strategic distribution of portable spirometers.¹⁰ Drawing lessons from China’s successful national screening program, which deployed 30,000 portable spirometers and screened 1.5 million individuals, Malaysia could implement a similar scaled approach adapted to local needs and resources (*Case Study 2*).²¹

Treatment infrastructure enhancement should focus on expanding rehabilitation services and improving access to maintenance therapy. A comprehensive system of

Case study 2: National COPD screening program using portable spirometer in China²¹

In 2020, the Chinese government initiated a national project to reduce COPD prevalence and burden by improving capabilities in early detection of the condition. Over 30,000 portable spirometers were distributed to healthcare facilities including primary care facilities across the country. This led to more than 1.5 million individuals being screened for COPD between 2021 and 2023.

| GAP | OBJECTIVE | INITIATIVES | IMPACT |
|---|---|---|--|
| <p>8.6% (~100 million) of adults (20 years or older) had spirometry defined COPD in 2015</p> <p>But only 10% of them have received a pulmonary function test</p> | <p>In order to close the gap, the government aimed to:</p> <ul style="list-style-type: none"> Increase early detection and diagnosis rate Improve capability of healthcare professionals, especially those at primary care settings | <ul style="list-style-type: none"> Portable spirometer (2020): Allocated funds for purchase of over 30,000 portable spirometer and distributed them to ~50% of primary care facilities nationwide HCP training (2020-23): Over 140,000 primary healthcare workers trained on pulmonary function tests National screening (2021-23): Screened 1.5 million individuals for COPD | <ul style="list-style-type: none"> Increase in diagnosed COPD patients: ~1.5 million individuals were screened for COPD over 2 years, leading to increase in diagnosis rate Early intervention: Those that were classified as high-risk individuals received education, e.g., smoking cessation and underwent repeat spirometry after 1 year |

Public-private partnerships present another viable solution for expanding access to both diagnostic and treatment services. These partnerships should be structured similarly to the successful dialysis service model, which significantly improved treatment accessibility across Malaysia. The implementation of similar resource-sharing agreements and subsidized testing programs would help ensure equitable access to diagnostic services while managing costs effectively.

Source: IQVIA analysis

Success will depend on strong leadership commitment, effective stakeholder engagement, and continuous monitoring and adaptation of strategies based on measured outcomes and emerging needs.

pulmonary rehabilitation centers, supported by both public and private sectors, should be established. This system should include clear referral pathways and feedback mechanisms to ensure continuity of care. Access to maintenance therapy, particularly long-acting bronchodilators, should be improved through strategic partnerships with pharmaceutical companies and insurance providers. This can include a well-structured patient support program, potentially including treatment subsidies and value-based agreements to help manage long-term costs while ensuring treatment adherence.

The standardization of care protocols, particularly discharge procedures, is essential for improving treatment outcomes. A comprehensive discharge checklist should be implemented across all healthcare facilities, incorporating elements such as treatment adherence monitoring, follow-up scheduling, and patient education verification. This standardization would help reduce readmission rates and improve long-term disease management outcomes.

3.3 Strengthening governance and strategy framework

The development of a robust governance framework begins with the integration of COPD management into the National NCD Strategy Plan, aligning with WHO's Global NCD Action Plan.²² A comprehensive national strategy for COPD, similar to the successful Malaysian National Strategic Plan for Cancer Control,²³ should be developed with clear objectives, timelines, and measurable outcomes. This strategy should encompass screening protocols, diagnostic standards, treatment pathways, and monitoring systems.

The implementation of a hub-and-spoke healthcare delivery model would optimize resource utilization and improve care coordination. Under this model, tertiary care centers would serve as specialized hubs, connected to a network of primary care facilities that function as spokes. This structure would facilitate efficient patient referrals, knowledge sharing, and resource distribution while ensuring consistent quality of care across all levels of the healthcare system.

Performance monitoring and quality assurance systems need significant enhancement through the development of comprehensive KPIs. These indicators should cover various aspects of COPD management, including diagnostic rates, treatment adherence, patient outcomes, and service accessibility. Mandatory screening protocols for high-risk individuals, particularly those with cardiovascular diseases, should be implemented and monitored through these KPIs.

Data management and quality control systems should be strengthened through the establishment of a national respiratory disease registry. This registry would facilitate evidence-based decision-making, enable accurate cost-benefit analyses of interventions, and support continuous improvement of COPD management strategies. Regular evaluation of outcomes and adjustment of strategies based on collected data would ensure the continuous evolution and improvement of COPD care in Malaysia.

These strategic recommendations require coordinated implementation across all levels of the healthcare system, with clear timelines, responsibility assignments, and resource allocation. Success will depend on strong leadership commitment, effective stakeholder engagement, and continuous monitoring and adaptation of strategies based on measured outcomes and emerging needs.



Case study 3: Australia national strategic action plan for lung conditions – Select initiatives for COPD that could be implemented in Malaysia²⁴

| PRIORITY AREA | OBJECTIVE | ACTION AND IMPLEMENTATION |
|---------------------------------------|--|---|
| DIAGNOSIS, MANAGEMENT AND CARE | Translate science into quality diagnosis, management and care of lung conditions | Investigate, design and pilot clinical practice audits: Promote and actively facilitate uptake of clinical practice audits in primary care as a continuous quality improvement strategy. Test clinical practice audits to focus on lung conditions, in particular severe asthma, COPD , occupational lung disease, etc. |
| SELF-MANAGEMENT | Support people with lung conditions to participate in shared decision making and self-management | Develop and pilot innovative technologies and strategies that support patients to be actively involved in their lung health: Fund a three-year pilot of telephone coaching to support patient/cancer self management for lung disease including COPD , occupational lung disease, etc. |
| EQUITABLE ACCESS | Ensure equitable and timely access to evidence-based diagnosis and management of lung conditions | Expand service delivery of pulmonary rehabilitation beyond the hospital setting into the community and home setting to greatly increase access: Fund an increase in pulmonary rehabilitation programs in the community and home settings to maximize patient access and choice and ensure all with lung conditions can benefit from pulmonary rehabilitation programs. |
| | | Develop a workforce plan for lung conditions: Broaden the scope of asthma educators in primary care to extend beyond asthma to include the provision of respiratory services for people with other lung conditions such as COPD |

4. Way forward

The challenge of COPD management in Malaysia represents more than just a healthcare issue — it embodies a complex intersection of social, economic, and systemic challenges that require a transformed approach to chronic disease management. With an estimated 548,000 Malaysians affected by COPD and an annual economic burden of RM 2.8 billion, the imperative for change is clear. The findings presented in this document suggest that the Malaysian healthcare system is grappling with fundamental challenges in awareness, infrastructure, and governance, yet also showcase tremendous opportunities for meaningful reform.

The path forward requires acknowledging that current approaches, while well-intentioned, have fallen short of meeting the growing burden of COPD. The stark reality that over 90% of COPD cases remain undiagnosed serves as a powerful call to action. However, international success stories provide compelling evidence that transformation is possible. Malaysia’s journey toward improved COPD management must be both ambitious and pragmatic. The immediate horizon demands focus on foundational elements — enhancing healthcare professional capabilities, deploying diagnostic tools, and standardizing care protocols. These initial steps, while seemingly basic, are crucial building blocks for sustainable change.



As a medium-long term outcome, expanding institutional capacity building through the establishment of COPD excellence centers and the cultivation of public-private partnerships are crucial. These partnerships, modeled after Malaysia's successful dialysis care transformation, offer a proven pathway to expand access while managing costs. The proposed hub-and-spoke model represents more than just a structural change, it embodies a philosophical shift toward integrated, patient-centered care delivery.

However, the success of this transformation depends on several critical factors. First, sustained political will and policy support are essential to maintain momentum and resource allocation. Second, stakeholder engagement must extend beyond the healthcare sector to include employers, insurers, and community organizations. Third, regular monitoring and evaluation must guide adaptive management of interventions.

Implementation will undoubtedly face challenges. Resource constraints, competing healthcare priorities, and systemic inertia will test resolve. However, the cost of inaction both in human and economic terms far outweighs the investment required for change. The proposed strategies, while ambitious, are achievable through phased implementation and careful attention to local context.

As Malaysia continues its journey toward universal health coverage and improved population health, the transformation of COPD management represents an opportunity to demonstrate leadership in chronic disease management. Success in this endeavor will not only improve outcomes for COPD patients but also strengthen the healthcare system's capacity to address other chronic diseases.

The path forward is clear, though challenging. It requires commitment, collaboration, and courage to transform how Malaysia approaches COPD management. The recommendations outlined in this document provide a roadmap for this transformation. With coordinated action and sustained commitment, Malaysia can build a healthcare system that effectively prevents, diagnoses, and manages COPD, ultimately improving the lives of hundreds of thousands of Malaysians affected by this disease.

The time for action is now. The costs of delay are measured not just in economic terms but in the quality of life of affected individuals and their families. Through systematic implementation of these recommendations, Malaysia can create a model of COPD care that serves its population effectively and efficiently, potentially becoming a regional leader in chronic disease management.

Appendix

PUMA Questionnaire

| | | Assigned Score |
|--|-------------------------------|----------------------|
| Gender | F (0) M (1) | |
| <input type="radio"/> Female | | <input type="text"/> |
| <input type="radio"/> Male | | <input type="text"/> |
| Age | 40-49 (1) 50 - 59 (1) 60+ (2) | |
| _____ | | <input type="text"/> |
| Has the patient ever smoked? | | No (0) |
| If yes: | | <input type="text"/> |
| Avg. no. of cigarettes per day X Number of years smoking / 20 = Total | | Yes, pack/year |
| <input type="text"/> | <input type="text"/> | < 20 (0) |
| | | 20 - 30 (1) |
| | | >30 (2) |
| | | <input type="text"/> |
| Does the patient suffer from chronic phlegm? | No (0) Yes (1) | <input type="text"/> |
| Does the patient suffer from dyspnea (shortness of breath/breathlessness)? | No (0) Yes (1) | <input type="text"/> |
| Does the patient suffer from chronic cough? | No (0) Yes (1) | <input type="text"/> |
| Has a doctor or healthcare professional ever asked the patient for a spirometry to test lung function? | No (0) Yes (1) | <input type="text"/> |
| Interpretation: | | Total Score |
| ▲ ≥ 5 points: request spirometry | | <input type="text"/> |

References

1. Global Strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (2023 Report). Global Initiative for Chronic Obstructive Lung Disease [Cited: 07.11.2023] <https://goldcopd.org/2023-gold-report-2/>
2. Chronic obstructive pulmonary disease (COPD). World Health Organization. [Cited: 07.11.2023] [https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-\(copd\)#:~:text=COPD%20isn't%20curable%2C%20but,airways%20are%20the%20main%20treatments](https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd)#:~:text=COPD%20isn't%20curable%2C%20but,airways%20are%20the%20main%20treatments)
3. Global Burden of Disease. Institute for Health Metrics and Evaluation. [Assessed: 07.11.2023] <https://vizhub.healthdata.org/gbd-results/>
4. Chronic obstructive pulmonary disease (COPD). World Health Organization. [Cited: 05.02.2024] [https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-\(copd\)](https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd))
5. COPD prevalence in 12 Asia-Pacific countries and regions: projections based on the COPD prevalence estimation model. Regional COPD Working Group. [Cited: 06.11.2024] <https://pubmed.ncbi.nlm.nih.gov/12753535/>
6. Statistics on Causes of Death, Malaysia, 2023. Department of Statistics Malaysia. [Cited: 19.01.2024] https://www.dosm.gov.my/uploads/release-content/file_20231030100000.pdf
7. Economic Burden of Chronic Obstructive Pulmonary Disease Patients in Malaysia: A Longitudinal Study. Anees ur Rehman, Mohamed Azmi Ahmad Hassali, Sohail Ayaz Muhammad, Sadia Shakeel, Ong Siew Chin, Irfhan Ali Bin Hyder Ali, Jaya Muneswarao, and Rabia Hussain [Cited: 07.11.2023] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7895885/>
8. IQVIA market research data. For primary market research, interviewee profiles are undisclosed for confidentiality.
9. Malaysia Household Income per Capita. CEIC [Cited: 07.11.2023] <https://www.ceicdata.com/en/indicator/malaysia/annual-household-income-per-capita>
10. Expert Survey and Meeting on Chronic Obstructive Pulmonary Disease (COPD) in Malaysia. *To add citation date and weblink*
11. Low prevalence of obstructive lung disease in a suburban population of Malaysia: A BOLD collaborative study. Li Cher Loh, Abdul Rashid, Siti Sholehah, Louisa Gnatiuc, Jaymini H. Patel, Peter Burney. [Cited: 05.02.2024] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416253/>
12. Undiagnosed and 'overdiagnosed' COPD using postbronchodilator spirometry in primary healthcare settings: a systematic review and meta-analysis. Jennifer Perret, Sui Wah Sean Yip, Nur Sabrina Idrose, Kerry Hancock, Michael J Abramson, Shyamali C Dharmage, E Haydn Walters and Nilakshi Waidyatillake [Cited: 09.09.2024] <https://bmjopenrespres.bmj.com/content/10/1/e001478#block-system-main>
13. Under- and over-diagnosis of COPD: a global perspective. Terence Ho, Ruth P. Cusack, Nagendra Chaudhary, Imran Satia, and Om P. Kurmi. [Cited: 09.09.2024] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6395975/>
14. Healthcare resources, organisational support and practice in asthma in six public health clinics in Malaysia. Norita Hussein, Rizawati Ramli, Su May Liew, Nik Sherina Hanafi, Ping Yein Lee, Ai Theng Cheong, Shariff-Ghazali Sazlina, Azainorsuzila Mohd Ahad, Jaiyogesh Patel, Jürgen Schwarze, Hilary Pinnock, Ee Ming Khoo [Cited: 09.01.2024] <https://www.nature.com/articles/s41533-023-00337-8>
15. Barriers and challenges of implementing pulmonary rehabilitation in Malaysia: Stakeholders' perspectives. Soo Chin Chan, Jaspreet Kaur Sekhon, Julia Patrick Engkasan, Jayakayatri Jeevajothi Nathan, Fatim Tahirah Mirza, Su May Liew, Norita Hussein, Anwar Suhaimi, Nik Sherina Hanafi, Yong Kek Pang, Saari Mohamad Yatim, Tracy Jackson, Genevieve Fernandes, G M Monsur Habib, Hilary Pinnoc, Ee Ming Khoo; RESPIRE Collaborators [Cited: 14.11.2023] <https://jogh.org/barriers-and-challenges-of-implementing-pulmonary-rehabilitation-in-malaysia-stakeholders-perspectives/>

16. Implementing an Evidence-Based COPD Hospital Discharge Protocol: A Narrative Review and Expert Recommendations. Marc Miravitlles, Mohit Bhutani, John R Hurst, Frits M E Franssen, Job F M van Boven, Ee Ming Khoo, Jing Zhang, Stephen Brunton, Daiana Stolz , Tonya Winders, Kazuhisa Asai, Jane E Scullion. [Cited: 17.09.2024] <https://pubmed.ncbi.nlm.nih.gov/37537515/>
17. National Strategic Plan for Non-Communicable Disease, 2016-2025. Ministry of Health, Malaysia. [Cited: 15.11.2023] https://www.iccp-portal.org/system/files/plans/MYS_B3_NSP%20NCD%202016-2025%2C%20FINAL.pdf
18. Care in Chronic Obstructive Lung Disease (CAROL): a randomised trial in general practice. Stefan Markun, Thomas Rosemann, Kaba Dalla-Lana, Claudia Steurer-Stey. [Cited: 06.11.2024] <https://pubmed.ncbi.nlm.nih.gov/29650559/>
19. Community-Acquired Pneumonia (CAP) Treatment: The Airway Programme. Health Hub, Singapore. [Cited: 05.02.2024] <https://www.healthhub.sg/a-z/medical-and-care-facilities/the-airway-programme#:~:text=The%20Airway%20Programme%20treats%20patients,major%20causes%20of%20hospital%20admissions>
20. Evaluation of The Airway Programme (TAP). National Healthcare Group, Singapore. [Cited: 05.02.2024] <https://corp.nhg.com.sg/HSOR/Documents/AR2011.pdf>
21. Advancing COPD care in China through a comprehensive approach. World Health Organization. [Cited: 14.02.2024] <https://www.who.int/news-room/feature-stories/detail/advancing-copd-care-in-china-through-a-comprehensive-approach>
22. Global Noncommunicable Diseases Action Plan 2013-2020. World Health Organization. [Cited: 14.08.2024] https://iris.who.int/bitstream/handle/10665/94384/9789241506236_eng.pdf?sequence=1
23. National Strategic Plan for Cancer Control Program 2021-2025. Ministry of Health, Malaysia [Cited: 17.11.2023] https://www.moh.gov.my/moh/resources/Penerbitan/Rujukan/NCD/Kanser/National_Strategic_Plan_for_Cancer_Control_Programme_2021-2025.pdf
24. National Strategic Action Plan for Lung Conditions. Australian Government. [Cited: 14.02.2024] <https://www.health.gov.au/resources/publications/national-strategic-action-plan-for-lung-conditions?language=en>

About the authors



DR MAT ZUKI MAT JAEB,
Respiratory Consultant and Head
Department of Medicine MTS
Kelantan Representative

Dr Mat Zuki Mat Jaeb is a respiratory consultant and head of the Department of Medicine at Hospital Raja Perempuan Zainab II in Kota Bharu, Kelantan. He leads medical and respiratory services for Kelantan and completed a fellowship in interventional pulmonology in France. He is active in national respiratory committees and international research, publishing extensively on tuberculosis, MDR-TB, TB-HIV, diabetes mellitus, and COPD. On 14 October 2022, he presented at an event covering topics such as NTM PD management and drug-resistant TB.



DR AHMAD IZUANUDDIN ISMAIL,
Associate Professor

Dr Ahmad Izuanuddin Ismail graduated from University College Dublin in 2002. He obtained his Diploma from Royal College of Physicians of Ireland in 2007 and embarked on training in Respiratory Medicine at Waterford Regional Hospital, Ireland. He joined the Faculty of Medicine, Universiti Teknologi MARA upon returning to Malaysia in 2010, and now is a Professor of Medicine. Dr Izuan is currently holding the post of Deputy Director of Hospital Al Sultan Abdullah Universiti Teknologi MARA, having previously served as Deputy Dean of Clinical Services, and Consultant Respiratory Physician at the Faculty. He is actively involved in

medical education as well as research in the field of Respiratory and Sleep Medicine. He is also a speaker on diverse topics in respiratory medicine. He is a member of European Respiratory Society, Asian Pacific Society of Respirology, Malaysian and Irish Thoracic Societies, and Sleep Disorder Society Malaysia. He was awarded with Fellowship of American College of Chest Physician (FCCP) in 2013. He is the current Vice President of the College of Physicians Malaysia and, current President of Malaysian Thoracic Society and Sleep Disorder Society Malaysia.¹



DATO AZMEE MOHD GHAZI,
Deputy Head Department,
Consultant Cardiologist, Clinical
Director, Heart Failure and
Heart Transplant

Dato' Dr Azmee Mohd Ghazi is the Head of Cardiology and Clinical Director of Heart Failure and Heart Transplant services at IJN Premier Healthcare Division. With expertise in adult cardiology, advanced heart failure management, and structural valve interventions, he specialises in innovative procedures, including coronary interventions, valve repairs, and mechanical heart support. Holding prestigious qualifications such as MBChB, MRCP (UK), and a fellowship in advanced heart failure, he actively collaborates on national and international research. Dr Azmee is a member of renowned organisations, including the Royal College of Physicians and the Malaysian Medical Council.



DR NOR HAZLIN BINTI TALIB,
President, FMSA

Dr. Nor Hazlin Binti Talib is the President of the Malaysian Family Medicine Specialists' Association

(FMSA) for the 2022-2024 term. She has been actively involved in promoting the role of family medicine specialists in primary care. In her message to the association, she emphasized the importance of uniting to advocate for primary care and supporting each other through education and collaboration.² Under her leadership, the FMSA organized the 26th Malaysian Family Medicine Scientific Conference in 2024, focusing on the theme "Embracing the Challenges of Change – Road to Champion."³ Dr. Nor Hazlin has highlighted the unique roles of family medicine and public health medicine specialists as pillars of primary care, which shares common goals and aspirations.⁴



DR HO BEE KIAU,
President, FMSA Selangor

Dr. Ho Bee Kiau is the President of FMSA Selangor. She practices at Klinik Kesihatan Bandar Botanik in

Klang.⁵ Dr. Ho obtained her MBBS from the University of Malaya in 1993 and her Master of Medicine in Family Medicine from the same institution in 2000. She has been actively involved in various conferences and has contributed to publications in the field of family medicine.⁶



DEVARAJ SUBRAMANIAM,
Principal, IQVIA Asia Pacific

Devaraj is an Associate Principal and Malaysia Consulting Lead based out of Kuala Lumpur,

Malaysia. He leads engagements across Asia Pacific covering operations transformation, growth strategy and commercial excellence for clients in the healthcare and life-sciences sector. Devaraj has over 14 years of experience in management consulting and P&L roles, and has delivered projects across Asia-Pacific, the Middle East and the U.S. Prior to IQVIA, Devaraj had previously worked with McKinsey & Company and Schlumberger. Devaraj holds a Bachelor's of Mechanical Engineering from the University of Malaya (Malaysia).



ALAN TAN,
Associate Consultant, Consulting Services, IQVIA SEA and APAC RHQ

Alan is an Associate Consultant in the APAC consulting team based out

of Singapore. He has 3 years of management consulting experience for leading global and regional pharmaceuticals and healthcare providers. He has delivered engagements across the spectrum of go-to-market strategy, internationalization, supply chain, reimbursement, and funding. He started his professional journey at a genetic testing lab, overseeing the technical operations and involved in various functions including procurement and quality assurance. Alan holds an MBA from the Macquarie University, Australia, and Bachelor of Biomedical Sciences from the National University of Singapore.



KEAN MUN LAU,
Manager, Consulting Services, IQVIA SEA and APAC RHQ

Lau is a Manager in the APAC Consulting team based in Singapore.

He has over 17 years of experience in management consulting, operation management, and corporates strategy & implementation. He delivered multiple types of projects including, but not limited to, NGS market landscape studies, NGS lab partnership engagement, healthcare product launch strategy, financial feasibility studies, and operation excellence. His experience includes pricing strategy, operation improvement, opportunity assessment and partner search & prioritisation. Lau holds an MBA with Distinction grade from Imperial College Business School.

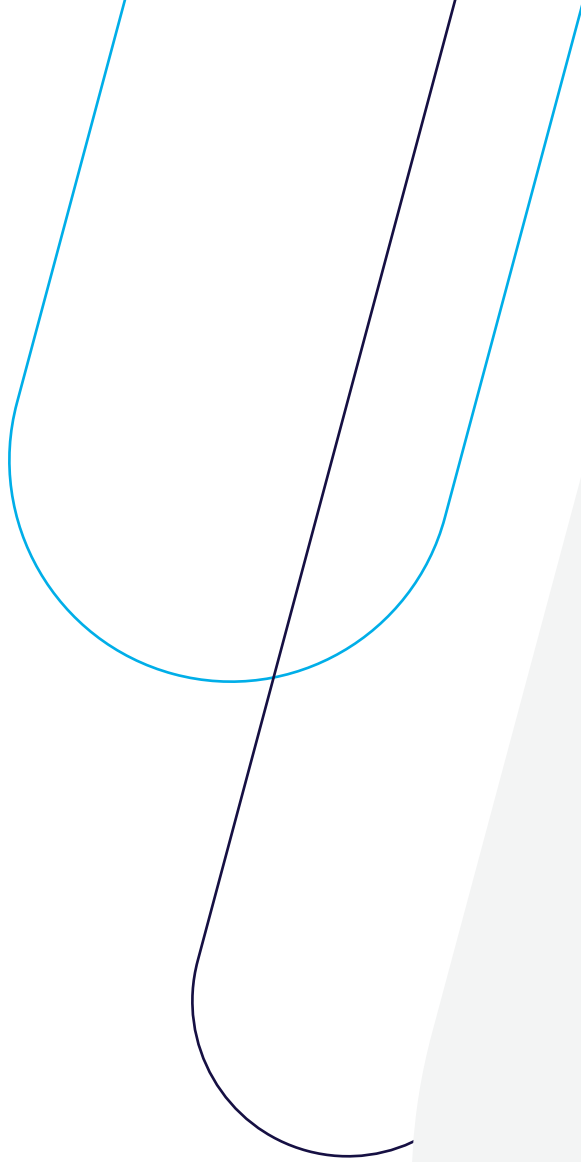
References Authors

- 1 Ahmad Izuanuddin Ismail - MTS Congress 2024. (n.d.). MTS 2024.
<https://2024.mts.org.my/user/view/822742:46691>
- 2 Malaysian Family Medicine Specialists Association. (2023, January 17).
President Message - FMS Malaysia Official site. FMS Malaysia Official Site.
<https://fms-malaysia.org/president-message/>
- 3 FMS Conference. (2024, August 27). Welcome message.
<https://fmsconference.my/welcome-message/>
- 4 CodeBlue. (2024, September 11). Family Medicine, Public health Medicine Specialists Pillar of primary care.
<https://codeblue.galencentre.org/2024/09/family-medicine-public-health-medicine-specialists-pillar-of-primary-care/>
- 5 National Specialist Register of Malaysia. (n.d.).
<https://www.nsr.org.my/list1viewdetails.asp?Account=N-0-102517>
- 6 <https://sciprofiles.com/profile/3094051>

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