



MINISTRY OF HEALTH MALAYSIA

Estimation of Total Pharmaceutical Expenditure (TPE) Using National Health Accounts Framework Report 2018–2023



MALAYSIA NATIONAL HEALTH ACCOUNTS
PLANNING DIVISION
MINISTRY OF HEALTH MALAYSIA

2025

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PREFACE

This report presents an estimation of Total Pharmaceutical Expenditure (TPE), a crucial measure for understanding the financial spending towards pharmaceuticals in the Malaysia healthcare system. The estimation process follows a structured methodology based on the National Health Accounts (NHA) framework to ensure a comprehensive and insightful analysis. Nevertheless, it is crucial to acknowledge that this estimation may differ from the official accounting figures, due to variations in the methods and frameworks used.

While every effort has been made to ensure the robustness of this estimation, variations may arise due to differences in data sources, analytical frameworks, and underlying assumptions. As such, the results presented should be interpreted within the context of the methodology adopted. It is hoped that this report will serve as a useful reference for policymakers, researchers, and healthcare professionals in understanding pharmaceutical expenditure trends and supporting informed decision-making.

I would like to extend my sincere gratitude to the Pharmacy Service Program for their invaluable guidance and support throughout the development of this estimation. Their expertise and insights have been instrumental in shaping the approach taken in this report. Additionally, I appreciate the contributions made by all individuals and stakeholders who provided data, feedback, and constructive discussions that enhanced the accuracy and relevance of the findings. Lastly, my sincere appreciation is extended to the committed officers of the MNHA Section for their invaluable contributions. In particular, I wish to acknowledge and thank Dr. Muhammad Hafizuddin bin Hamdan for his unwavering commitment, professionalism, and steadfast dedication which played a pivotal role in the successful completion of this report.

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LIST OF ABBREVIATIONS

AG	Accountant General
AGD	Accountant General's Department of Malaysia
BNM	Bank Negara Malaysia (Central Bank of Malaysia)
CAGR	Compound annual growth rate
CHE	Current Health Expenditure
CORPS	Corporations
DOSM	Department of Statistics Malaysia
EPF	Employees Provident Fund
GDP	Gross Domestic Product
HC	ICHA code for functions of health services
HC.R	ICHA code for health-related services
HER	Health Expenditure Report
HF	ICHA code for sources of financing for health services
HP	ICHA code for providers of health services
ICHA	International Classification for Health Accounts
IQVIA	Quintiles and IMS Health, Inc.
IMF	International Monetary Fund
MF	MNHA code for functions of healthcare
MNHA	Malaysia National Health Accounts
MOD	Ministry of Defence
MOF	Ministry of Finance
MOH	Ministry of Health
MOHE	Ministry of Higher Education
NA	Not Available
NGO/NPISH	Non-Governmental Organization/Non-profit institutions serving households
NHA	National Health Accounts
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket
PE	Pharmaceutical Expenditure
RM	Ringgit Malaysia (Malaysia Currency)
SHA	System of Health Accounts
SHA 2011	System of Health Accounts, 2011 Edition
SOCSSO	Social Security Organisation
SSB	State statutory body
TEH	Total Expenditure on Health
TPE	Total Pharmaceutical Expenditure
WHO	World Health Organization

EXECUTIVE SUMMARY

This report explores the estimation of Total Pharmaceutical Expenditure (TPE) in Malaysia, using the standardized and internationally recognized National Health Accounts (NHA) framework.

Pharmaceutical expenditure is a significant component of Malaysia's healthcare spending, accounting for approximately 18% to 20% of the Total Expenditure on Health (TEH). The Ministry of Health (MOH) allocates around 11% to 13% of its total budget for pharmaceuticals, except in 2021 when this proportion rose to 20% due to the procurement of COVID-19 vaccines. Within the public sector, MOH hospitals remain the largest providers of pharmaceuticals, ensuring access to essential medicines for the population. Meanwhile, community pharmacies serve as the main pharmaceutical providers in the private sector, catering to individuals seeking medication outside government facilities.

A notable trend is the dominance of private-sector pharmaceutical spending, which exceeds public-sector spending by two to threefold, highlighting the increasing reliance on privately funded medications. The post-pandemic trend emphasizes the growing demand for pharmaceuticals and underscores the need for sustainable healthcare financing strategies to ensure equitable access to essential medicines across all sectors in Malaysia.



SUMMARY 2023 TOTAL PHARMACEUTICALS EXPENDITURES (TPE) ESTIMATION

RM 16,921m



TPE as % of TEH

Total Pharmaceutical expenditure as
Percentage of Total Expenditure of Health

20.1 %



TPE MOH as % of MOH

Total Pharmaceutical expenditure of Ministry
of Health as Percentage of Ministry Health
Expenditure

12.4 %

TPE consist of costs of



Medicines



Vaccines



Medical
Gasses



Overhead Costs
Public Sector



Selling Price
Private Sector



Who paid for it? SOURCE



Public
28.1%
RM4,751
million



Private
71.9%
RM12,170
million



Where was it spent? PROVIDER



Hospital
49.2%
RM8,322 million



Retail Pharmacy
29.6%
RM5,012 million



Ambulatory Provider
21.2%
RM3,584 million

CHAPTER 1

BACKGROUND

INTRODUCTION

Total Pharmaceutical Expenditure (TPE) refers to the total financial resources allocated to the procurement, distribution, and consumption of pharmaceutical products within a healthcare system⁽¹⁾. It encompasses expenditures by public healthcare systems, private insurers, and out-of-pocket expenses by individuals. TPE includes expenditures on prescription medications, over-the-counter drugs, vaccines, other therapeutic agents used for disease prevention, and indirect costs of handling TPE, such as management costs⁽¹⁾.

As a critical component of healthcare spending, TPE plays a significant role in determining the efficiency and sustainability of healthcare systems worldwide. It not only reflects the direct cost of pharmaceutical products but also the broader dynamics of drug accessibility, innovation, and the impact of healthcare policies. Monitoring and analyzing TPE is essential for healthcare stakeholders, including policymakers, researchers, and economists, as it provides insights into cost trends, resource allocation, and the effectiveness of interventions aimed to optimize pharmaceutical expenditure and ensure financial sustainability in healthcare systems⁽¹⁾.

GLOBAL TRENDS IN PHARMACEUTICAL EXPENDITURE

Pharmaceuticals are one of the central components of the health sector, accounting for a significant share of resources allocated to healthcare.

Globally, the market for medicines is projected to reach USD 1.9 trillion by 2027, reflecting the expanding role of pharmaceuticals in healthcare systems worldwide⁽²⁾. This growth is fueled by demographic changes such as aging populations, breakthroughs in innovative treatments like biologics and precision medicine, and increased accessibility in developing markets where the healthcare infrastructure is

rapidly expanding⁽²⁾. Such trends highlight the growing importance of systematically tracking and managing pharmaceutical expenditure to ensure sustainable and equitable healthcare services.

Low- and middle-income countries spend between 20% to 60% of their health budgets on medicines, compared to 18% in Organization for Economic Co-operation and Development (OECD) countries⁽³⁾. This high proportion underscores the significant financial burden placed by pharmaceutical expenditure on these countries' healthcare systems, making efficient spending and better access critical priorities.

Traditionally, international reporting on pharmaceutical expenditure has focused on spending at community pharmacies and retail outlets. However, such methods often neglect pharmaceuticals consumed in hospital and ambulatory care settings, leading to an incomplete view of total pharmaceutical expenditure. For instance, an OECD report highlights that pharmaceuticals used in hospitals can account for 25 – 33% of overall spending, but are frequently excluded due to definitional and methodological inconsistencies⁽¹⁾.

Over the past few decades, global pharmaceutical spending has experienced consistent growth, driven by several factors. These trends can be categorized into economic, demographic, and technological factors.

Rising Drug Prices

The increasing cost of innovative therapies, particularly biologics and specialty drugs, has significantly contributed to the growth in TPE. The development and production of these advanced treatments often involve complex and expensive processes which are reflected in their market prices.

Malaysia has experienced a significant rise in medicine prices in recent years, impacting both public healthcare expenditure and patient access to essential treatments⁽⁴⁾. Between 2015 and 2023, government spending on medications rose by 30%, reaching RM3 billion in 2023, an increase from RM2.3 billion in 2015⁽⁵⁾. This surge is attributed to several factors, including the global post-pandemic market dynamics, which have led to substantial price hikes for certain medicines. For instance, prices increased by 200% for Hepatitis B vaccines, 300% for tuberculosis treatment drugs, 140% for oral rehydration salts, and 50% for steroid inhalers⁽⁵⁾.

Aging Population

Malaysia is experiencing a demographic shift towards an aging population, with projections indicating that by 2040, 17.3% of the population will be aged 60 and above, an increase from 11.6% in 2024⁽⁶⁾. This demographic shift has led to higher demand for long-term medication and healthcare services, consequently driving up the cost of TPE.

Increased Drug Consumption

Another significant driver is increased drug utilization, particularly in the post-pandemic period⁽⁵⁾. Improved access to healthcare services and advancements in medical diagnostics have increased the demand

for pharmaceutical products. The proliferation of awareness campaigns and preventive healthcare measures has also contributed to greater drug consumption. The COVID-19 pandemic played a crucial role in accelerating this demand, as individuals sought medications for both preventive and symptomatic treatment⁽⁵⁾. Additionally, the rise of emerging and re-emerging infectious diseases has further intensified the need for pharmaceuticals, requiring sustained investments in drug procurement and distribution.

Technological Advancements

Progress in drug research and development has yielded more effective treatments for conditions that were previously considered untreatable. Nevertheless, these advancements, while enhancing patient outcomes, are often associated with higher costs⁽²⁾.

Policy and Regulatory Changes

Government policies and healthcare reforms, such as price controls and reimbursement schemes, can influence pharmaceutical spending⁽¹⁾. In some regions, regulatory changes aimed at increasing access to generics have helped to mitigate the rise in TPE⁽¹⁾.

PHARMACEUTICAL EXPENDITURE DATA & REPORTS

Based on the International Monetary Fund (IMF) report, data on TPE specifically for the public sector is limited. Although several international organizations and databases, such as the OECD and World Health Organization (WHO), do attempt to track pharmaceutical expenditure, much of the available information focuses on retail pharmaceutical spending, excluding public hospitals and other inpatient pharmaceutical expenditure⁽⁷⁾.

The IMF report mentions key data limitations, such as the absence of a cross-country dataset for public sector pharmaceutical expenditure, particularly for hospitals. It emphasizes the need for better reporting and data collection frameworks to capture spending in hospitals and other healthcare facilities funded by public resources. It notes that procurement of pharmaceuticals is often handled by the public sector, which plays a crucial role in cost-effective drug access. However, on a global level, specific data for pharmaceuticals remains fragmented and inconsistent⁽⁷⁾. The availability of TPE data varies significantly across different countries and regions. While some high-income countries maintain comprehensive and transparent records of healthcare and pharmaceutical expenditures, data from low- and middle-income countries are often uncoordinated and less accessible⁽⁷⁾.

In developed countries with well-established healthcare systems, such as the United States, Canada, and those in the European Union, TPE data is typically collected and published by government agencies, health ministries, and independent research organizations⁽¹⁾⁽⁷⁾. These data are often readily accessible and regularly updated.

In contrast, many developing and low-income countries face challenges in collecting and maintaining accurate TPE data. Limited financial and technical resources, as well as disjointed healthcare systems, hinder the collection of comprehensive expenditure data⁽¹⁾⁽⁷⁾.

Fortunately, international organisations such as the World Health Organization (WHO) and the Organization for Economic Co-operation and

Development (OECD) have made efforts to compile and disseminate global TPE data⁽¹⁾⁽⁷⁾. Nevertheless, due to inconsistencies in reporting and data collection methodologies, there are still gaps remaining.

Below are several challenges which complicate the collection and analysis of pharmaceutical expenditure data, which can affect the accuracy and comparability of findings:

Data Fragmentation

In many healthcare systems, data on pharmaceutical spending is dispersed across multiple sources, including public healthcare programs, private insurers, and out-of-pocket expenditures by patients⁽¹⁾⁽⁷⁾. Integrating these data sources is a complex and resource-intensive process.

Inconsistent Reporting Standards

Different countries and organisations may use varying definitions and classifications for pharmaceutical expenditure⁽¹⁾⁽⁷⁾. This inconsistency makes it difficult to compare data across regions and time periods.

Limited Data Coverage

In some countries, TPE data may exclude key components such as over-the-counter drugs, traditional medicines, or medications purchased from non-registered suppliers⁽¹⁾. This selective coverage can underestimate the true extent of pharmaceutical spending.

Data Accuracy and Timeliness

The lack of up-to-date and accurate data is a common issue, particularly in low- and middle-income countries. Delays in data collection and reporting can hinder timely analysis and decision-making.

Privacy and Confidentiality Concerns

The collection and sharing of healthcare expenditure data must comply with privacy regulations and data protection laws. Balancing data transparency with patient confidentiality can be challenging.

DEFINING THE SCOPE OF PHARMACEUTICAL EXPENDITURE

The scope of pharmaceutical expenditure can vary significantly depending on the definitions and parameters applied during measurement. Establishing clear boundaries is essential to ensure consistency and comparability across studies, reports, and international benchmarks. In the context of Malaysia, aligning definitions of expenditure with the country's healthcare landscape is vital for supporting evidence-based policymaking, enhancing transparency, and promoting accountability in pharmaceutical spending.

Inclusion of Expenditure Categories

TPE typically includes spending on prescription drugs, over-the-counter medications, and vaccines⁽¹⁾. However, some analyses may exclude certain categories such as dietary supplements, traditional medicines, medical non-durables consumables, or medical devices.

Healthcare Setting

Pharmaceutical expenditure can occur in various healthcare settings, including hospitals, clinics, and retail pharmacies. Some reports may focus solely on outpatient drug spending, while others encompass both inpatient and outpatient expenditures.

Public vs. Private Spending

Distinguishing between public and private sources of pharmaceutical spending is another critical component. While some analyses focus exclusively on government-funded expenditures (e.g., through the Ministry of Health or public healthcare schemes), others include spending by private health insurers, corporate providers, and direct out-of-pocket payments by individuals. A comprehensive assessment of TPE should consider both public and private sectors to reflect the true financial burden and distribution of spending across stakeholders⁽¹⁾.

Temporal Scope

The time period over which pharmaceutical expenditure is measured can significantly impact findings and their interpretation. Longitudinal studies, which track data over multiple years, are valuable for identifying trends and evaluating policy impacts. In contrast, cross-sectional studies provide a snapshot of spending at a specific point in time, which is useful for benchmarking and annual reporting⁽¹⁾.

Geographical Scope

TPE analyses may be conducted at various geographical levels, namely national, regional, or even global. The scope selected will influence the applicability and relevance of the findings. For example, a national-level study is essential for informing country-wide policy decisions, whereas regional studies can highlight subnational disparities and guide targeted interventions.

TRACKING PHARMACEUTICAL EXPENDITURE USING NATIONAL HEALTH ACCOUNTS (NHA) FRAMEWORK

There is a growing need for a more comprehensive and integrated framework to capture pharmaceutical expenditure in Malaysia. This includes both retail and non-retail pharmaceutical spending, such as hospital-based medications, which are often excluded from conventional tracking systems. Currently, pharmaceutical costs are embedded within curative care services provided by hospitals and clinics. As a result, these expenditures are frequently underreported and underestimated, leading to an incomplete understanding of actual drug-related spending.

This lack of clear categorization and comprehensive accounting for hospital-based pharmaceutical expenditure creates significant challenges for policymakers. It hampers accurate evaluation of pharmaceutical resource allocation, inhibits the monitoring of expenditure trends, and obstructs the implementation of effective cost-containment strategies.

The issue is further compounded by the fragmented and inconsistent approach in collecting pharmaceutical expenditure data. Without granular data—particularly on hospital pharmaceutical use—Malaysia struggles to align with international best practices. This deficiency undermines efforts to detect inefficiencies in drug procurement and utilisation, highlighting the urgent need for a robust and systematic approach to analysing pharmaceutical expenditure.

While Malaysia has adopted the System of Health Accounts (SHA) 2011 framework for national health expenditure reporting, the estimation of TPE as a distinct sub-account remains a relatively new and evolving initiative. The SHA 2011 framework offers a comprehensive tool to systematically track health expenditures from funding sources to their final use, including pharmaceuticals. It enables better categorization and allows for more accurate analysis and international comparisons.

In line with international recommendations, the OECD emphasizes the importance of leveraging SHA 2011 to track both retail and non-retail pharmaceutical spending. Countries such as Germany serve as benchmarks, having successfully integrated hospital-based pharmaceutical expenditure into their national health accounts (reference). This comprehensive approach facilitates more informed decision-making and supports policies which are grounded in reliable, system-wide data.

To further enhance comparability and data accuracy, the OECD has introduced TPE as a special reporting item under the SHA 2011 framework. This initiative aims to standardize the classification of pharmaceutical expenditure across countries, making it easier to benchmark and analyze trends.

For Malaysia, the development of a detailed and reliable TPE sub-account is critical to enable more meaningful comparisons with other countries and regions, and support strategic decision-making. The Malaysia National Health Accounts (MNHA) recognizes the value of this initiative and aims to provide policymakers with crucial insights into pharmaceutical spending patterns. A comprehensive TPE study, grounded in the SHA 2011 framework, is necessary not only to improve data quality but also to align Malaysia's health expenditure reporting with global standards—ultimately contributing to a more efficient and transparent healthcare system.

OBJECTIVES

General Objective

To estimate Malaysia's TPE by consolidating spending on pharmaceuticals, including medicines, vaccines, and medical gases, across all health service episodes (e.g., inpatient and outpatient care), while accounting for overhead costs and retail prices in alignment with the international SHA 2011 framework

Specific Objectives

1. To identify potential data sources related to pharmaceutical expenditure from both public and private healthcare sectors in Malaysia.
2. To track TPE comprehensively, including expenditures embedded within treatment packages provided by hospitals and other healthcare facilities.
3. To identify the sources of financing and the healthcare providers involved in pharmaceutical spending across the healthcare system.

CHAPTER 2

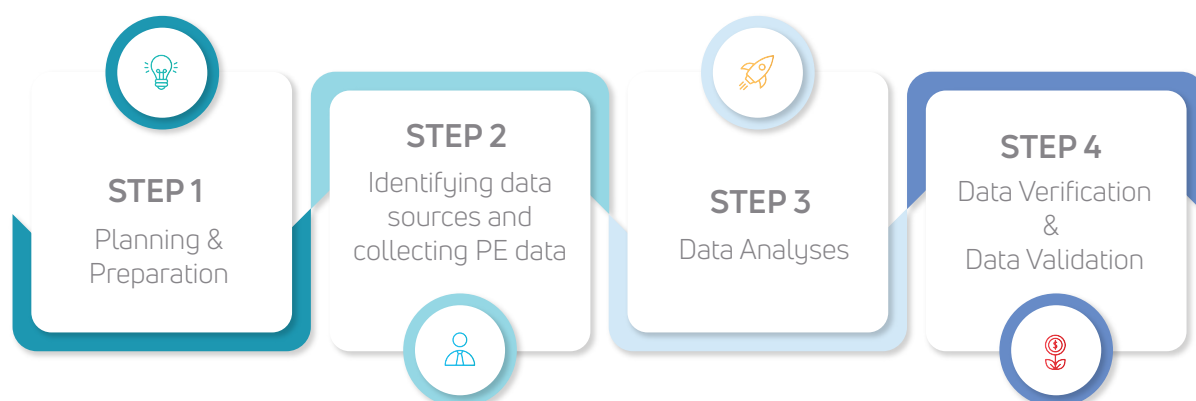
METHODOLOGY

INTRODUCTION

This chapter outlines the methodology employed in this study, encompassing key components such as planning and preparation, identification of data sources, data collection, data analysis, and data verification and validation processes. A general understanding of the National Health Accounts (NHA) estimation methodology is essential to fully appreciate the reliability and significance of the results presented.

The methodology adopted by the Malaysia National Health Accounts (MNHA) for estimating Total Pharmaceutical Expenditure (TPE) is structured into four main stages:

Figure 1. Methodology of TPE estimation using NHA frameworks



PLANNING & PREPARATION

The first step in the estimation of TPE involves a comprehensive review of the national pharmaceutical policy. Understanding the priorities and strategic directions of the policy enables the identification of a feasible and context-specific approach for conducting the study on pharmaceutical expenditure tracking.

In Malaysia, as in many other countries, pharmaceuticals are integral to a wide range of healthcare activities, including health promotion, disease prevention, treatment, and rehabilitation. These activities contribute significantly to improved health outcomes and overall well-being. Variations in the provision, accessibility, and expenditure of pharmaceutical products are influenced by individual behavior, healthcare utilisation patterns, and national health policies and practices.

Pharmaceutical expenditure is considered a subset of the broader Total Expenditure on Health (TEH) within the NHA framework. Estimating this component requires a clear delineation of the boundaries that define “Total Pharmaceutical Expenditure,” along with a solid understanding of the methodologies applied in the accounting process to derive accurate estimates.

To ensure comparability of TPE data across countries, it is recommended that estimations adhere to standardised definitions and boundaries. For the purpose of this report, the System of Health Accounts (SHA) 2011 framework is proposed as the basis for defining and classifying pharmaceutical expenditure.

Definition & Boundaries

In the context of this report, the term “pharmaceuticals” refers specifically to medicines, vaccines, and other medicinal products. This definition excludes medical devices and non-durable consumable medical goods, in accordance with the recommendations outlined in the SHA 2011 framework.

As illustrated in Table 1, the SHA 2011 classification framework comprises three key categories through which total or partial Pharmaceutical Expenditure (PE) can be captured:

Table 1: SHA 2011 categories that can capture partial or total PE

Term	Definition
HC.RI.1 TPE	<p>Reporting item created in the SHA 2011 framework for countries that wish to track total pharmaceutical expenditure, which captures all expenditure related to pharmaceuticals, regardless of the path of consumption. Also includes expenditure on processes related to pharmaceutical management in the medical facility and taxes.</p> <ul style="list-style-type: none"> Most comprehensive estimate of pharmaceutical expenditure
FP.3.2.1 Pharmaceuticals	<p>Factor of provision sub-category specifically for pharmaceutical commodities, which are defined in the SHA 2011 manual as “any chemical compound used in the diagnosis, treatment or prevention of a disease or other abnormal condition.”</p> <p>Includes expenditure on the actual pharmaceutical products but no other costs associated with pharmaceutical management and taxes (includes only the cost of the products but not the cost of the complementary distribution/usage services).</p> <ul style="list-style-type: none"> Comprehensive estimate of pharmaceutical commodities <u>excluding</u> other associated costs
HC.5.1.1 Prescribed medicines + HC.5.1.2 Over-the-counter drugs	<p>Two functional sub-categories which together include all consumption of pharmaceuticals, where the function and mode of provision are not specified.</p> <p>Includes pharmaceuticals that are purchased at pharmacies or retail outlets but are generally not used during a curative or preventive visit. Generally, excludes pharmaceuticals mapped to other functional categories, such as those consumed in hospitals and healthcare settings, and pharmaceuticals such as vaccines and contraceptives mapped to HC.6 Preventive care.</p> <ul style="list-style-type: none"> Not a comprehensive estimate of pharmaceutical expenditure, as it includes expenditure at retail outlets only

Accurate measurement of TPE requires a clear understanding of the various pathways through which pharmaceuticals are consumed within the healthcare system. In the SHA 2011 framework, pharmaceutical consumption is categorized under both final and intermediate consumption, each corresponding to different functional classifications.

The classifications HC.5.1.1 (Prescribed medicines) and HC.5.1.2 (Over-the-counter drugs) capture pharmaceutical expenditure made directly by consumers through retail channels, such as community pharmacies, drugstores, supermarkets, online platforms, and other outlets. However, these categories represent only the final consumption of pharmaceuticals occurring outside formal healthcare settings and they do not encompass the full scope of pharmaceutical use within the health system. Therefore, the sum of HC.5.1.1 and HC.5.1.2 alone does not constitute the total pharmaceutical expenditure.

A substantial portion of pharmaceutical use occurs as intermediate consumption within the delivery of healthcare services, such as in HC.1 (Curative care), HC.2 (Rehabilitative care), HC.3 (Long-term care), HC.4 (Ancillary services), and HC.6 (Preventive care). In accordance with the SHA 2011 framework, the cost of pharmaceuticals used in these settings is attributed to their respective functional classifications and must be included in any comprehensive estimate of TPE.

To derive a complete and accurate estimate of TPE, expenditures must therefore combine:

- Final pharmaceutical consumption (HC.5.1.1 + HC.5.1.2); and
- Intermediate pharmaceutical consumption (IPC), which includes the cost of medicines used within healthcare facilities as part of patient treatment across HC.1 to HC.6, along with associated labor and operational costs.

Intermediate Pharmaceutical Consumption (IPC) refers to pharmaceuticals administered as part of medical care before reaching patients directly, typically within hospitals, clinics, and other health institutions. This is distinct from pharmaceuticals dispensed for outpatient or personal use.

Within the SHA 2011 framework, these elements are consolidated under the classification HC.RI.1 – TPE, which provides the most comprehensive representation of a country's pharmaceutical spending.

Estimation Approaches

Under the SHA 2011 framework, countries utilizing the HC.RI.1 classification to estimate TPE may adopt varying methodologies to determine intermediate pharmaceutical consumption, i.e., pharmaceuticals used within healthcare settings such as hospitals and clinics. According to OECD, four (4) general approaches, each with distinct data sources and limitations, have been identified for measuring pharmaceutical expenditure in institutional settings⁽¹⁾:

1. Data from producers or suppliers, such as pharmaceutical manufacturers and wholesalers;
2. Data from the perspective of the healthcare provider, capturing procurement or usage data directly from hospitals, clinics, and other healthcare institutions;
3. Data from the healthcare financing perspective, which includes government accounting systems, insurance claims, and other financial records; and
4. Pharmaceutical market intelligence, such as commercially available data sources (e.g., IQVIA), which provide insights into market distribution, pricing, and consumption trends.

These approaches may be applied independently or in combination, depending on the context and the specific expenditure components being measured. The choice between a financing-side, provider-side, or consumption-side perspective is typically determined by the availability, completeness, and reliability of data from each source.

While each approach can yield robust estimates when supported by comprehensive data, challenges often arise, particularly in measuring private sector expenditures, where data transparency and consistency may be limited. In such cases, an integrative approach that triangulates multiple data sources is considered the most effective strategy for producing reliable estimates.

In Malaysia, MNHA adopts this integrative approach by combining data from:

- Healthcare providers (e.g., University Hospitals);
- Healthcare financing systems (e.g., the Accountant General System); and
- Pharmaceutical market intelligence (e.g., IQVIA).

This triangulated integrative approach enhances the accuracy and comprehensiveness of TPE estimates, particularly in capturing intermediate pharmaceutical consumption across both public and private healthcare sectors.

Valuation of Pharmaceuticals in Estimating TPE

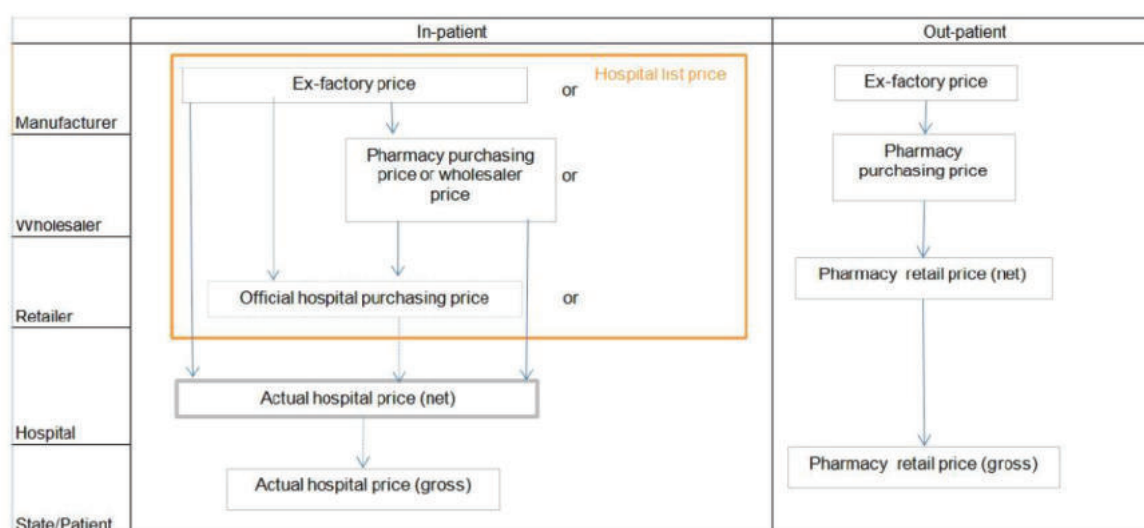
When valuing pharmaceutical expenditure, it is important to recognize that different price points exist across various levels of the supply chain, including manufacturer, wholesaler, retailer, and final consumer. The selection of appropriate price level for valuation significantly influences the accuracy and comparability of expenditure estimates⁽¹⁾.

For the public sector, the valuation of intermediate pharmaceutical use is typically based on the purchaser's price paid by the healthcare provider, reflecting the actual transaction cost incurred by public institutions in procuring pharmaceuticals. This method aligns with the SHA 2011 recommendation to use purchaser prices for measuring health expenditures.

In the private sector, however, valuation becomes more complex due to the presence of variable markup percentages between the pharmacy purchasing price and the pharmacy retail price. These markups, which may vary significantly depending on product type, provider, and setting, must be considered in the estimation process to avoid over- or underestimating pharmaceutical expenditure⁽⁸⁾.

In addition, the hospital sector may involve the use of different pricing structures, such as the official list price versus the actual price paid after negotiations or discounts. As illustrated in Figure 2, the selection between these price types can further influence the valuation outcome and should therefore be carefully assessed based on data availability and transparency.

Figure 2. Pharmaceutical prices in the inpatient sector compared to the outpatient sector



Note: 'Out-patient sector' refers to 'non-hospital' or 'retail' sector in the PHIS report.

Source: [Pharmaceutical Health Information System Hospital Pharma Report](#) accessed February 2022.

In estimating the value of pharmaceuticals used in intermediate consumption, it is essential to account not only for the input cost of the pharmaceutical products themselves, but also for the associated operational costs incurred during their preparation, storage, management, and delivery to patients within the healthcare facilities. These components contribute significantly to the true economic value of pharmaceutical use within institutional care⁽¹⁾.

Nevertheless, it is acknowledged that capturing these additional overhead and logistical costs presents practical challenges. In early-stage assessments or where data limitations exist, it may not always be feasible to fully incorporate these elements.

Therefore, the valuation of TPE should seek to approximate the 'final price' of pharmaceutical products. This includes, where possible, adjustments for overhead costs, distribution and handling expenses, and relevant markup components.

DATA SOURCES AND DATA COLLECTION

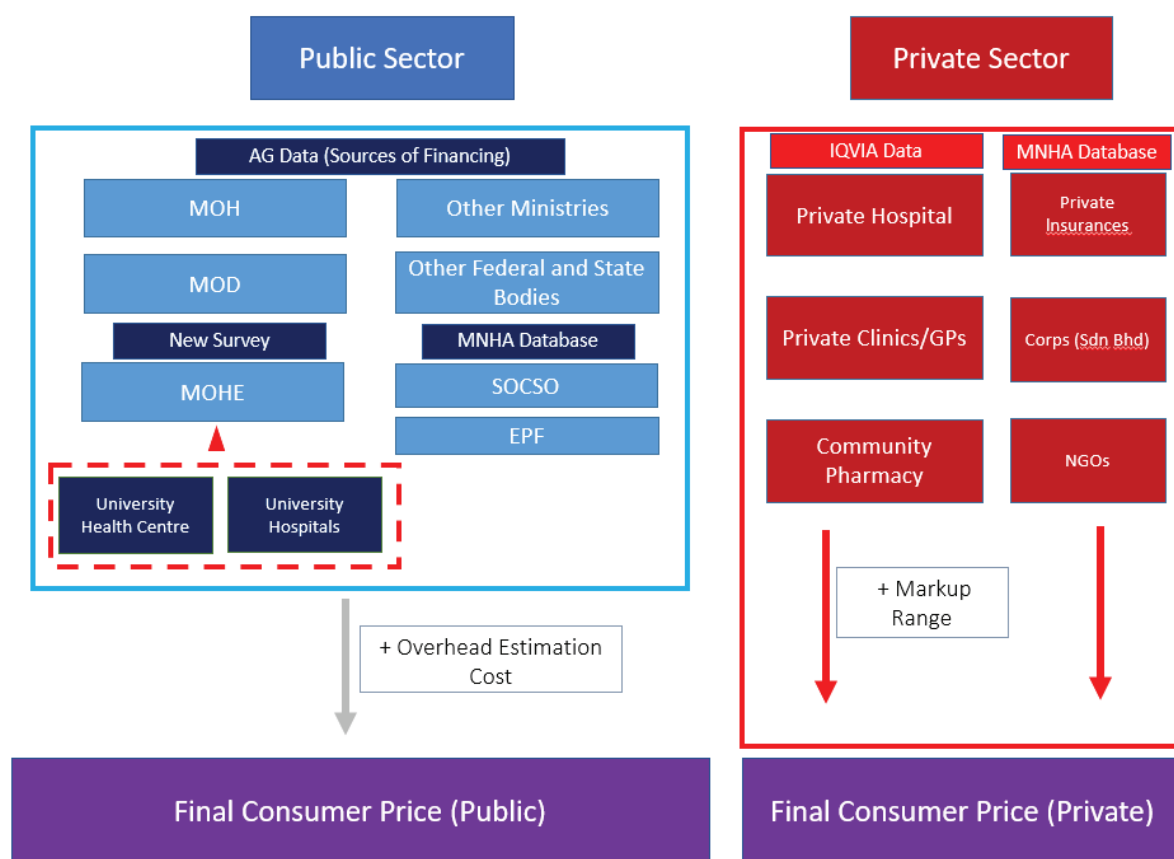
The second step in the estimation of TPE involves the identification of available data sources and the systematic collection of pharmaceutical expenditure data. This process requires active engagement with relevant stakeholders, the development of standardized data collection tools such as survey templates, and the compilation of data from both the public and private healthcare sectors.

To facilitate a structured approach, data sources are broadly categorized into two main groups, as illustrated in Figure 3:

- Public data sources, which include government ministries, public healthcare facilities, national procurement agencies, and official financial reporting systems; and
- Private data sources, encompassing private hospitals, community pharmacies, insurance companies, and market intelligence providers.

This classification supports targeted data collection efforts and ensures that both sectors are adequately represented in the estimation process, thereby enhancing the comprehensiveness and accuracy of the TPE estimates.

Figure 3. Overview of TPE Data Sources: Public and Private Sector



Public Sector

In Malaysia, most public sector agencies (including the Ministry of Health (MOH)) utilise the Accountant General's (AG) accounting system, a centralised financial management platform characterised by comprehensive documentation of all financial transactions. This system incorporates a detailed and structured coding framework, including the Specific Object and Detailed Object (SODO) codes, Cost Responsibility Centre Codes (CRCC), and Programs and Activities Codes, among others.

While the AG system is widely used by the MOH and other government entities, certain agencies, such as the Employees Provident Fund (EPF) and the Social Security Organization (SOCSO), operate independent accounting systems tailored to their respective financial and operational requirements.

As part of this study, the MOH AG database and its associated coding structures were reviewed to identify the most effective method for disaggregating pharmaceutical expenditure. Currently, pharmaceutical-related expenses are embedded within broader NHA functional classifications such as curative care, preventive care, and other health services.

The AG system uses SODO code 27400 to denote expenditure on pharmaceuticals and medical supplies, which is further broken down into the following five sub-categories:

Table 2. Five sub-categories of Pharmaceuticals and Supplies SODO Code	
SODO code	Items
27401	Drugs And Pharmaceuticals
27402	Medical Gases
27403	Reagents
27404	Vaccines
27405	Other Dental and Medical Supplies

This was among the key topics addressed during the 19th WHO-OECD Annual Meeting of Asia-Pacific Health Accounts Experts held on 27 – 29 August 2024 in Kuala Lumpur, Malaysia, whereby the MNHA team had discussed the inclusion of medical gases within the scope of TPE. Global NHA experts from OECD and WHO Geneva provided clarification that medical gases, such as oxygen and nitrous oxide, are primarily used in the treatment of patients and, as such, should be included within the boundaries of TPE under the SHA 2011 framework.

Further clarification specific to the Malaysia context revealed that medical gases are legally classified as registered poisons and regulated medicines, reinforcing their categorisation as pharmaceutical products. This regulatory status supports their inclusion in TPE estimates, in alignment with international health accounting standards and national pharmaceutical policies.

Limitations in Data Granularity and Coverage from the AG Accounting System

Upon evaluating the availability and feasibility of data for pharmaceutical expenditure estimation, it was found that the AG accounting system does not capture granular details of medicines procured, such as drug types, Anatomical Therapeutic Chemical (ATC) classification codes, therapeutic groups, or intended uses. The AG system is primarily designed for financial and transactional reporting and therefore lacks the clinical details necessary for mapping pharmaceutical expenditure to disease classifications. Consequently, the estimation of TPE in Malaysia cannot currently support linkage to disease-based expenditure categories.

Furthermore, the AG system are only able to provide six (6) years of historical expenditure data, as earlier data are unavailable due to ongoing system upgrades implemented in 2022. Despite these limitations, the AG database offers valuable insights by capturing pharmaceutical expenditure from both federal and state-level public entities, contributing to a broader understanding of public sector pharmaceutical spending.

MOHE University Hospital Engagement and Supplementary Data Collection

A review of pharmaceutical expenditure data under the Ministry of Higher Education (MOHE) revealed that data from university hospitals, which fall under the MOHE's jurisdiction, are limited in scope and significantly lower in value when compared to hospitals under the MOH. This notable discrepancy prompted further investigation to explore the underlying factors contributing to the variation, such as differences in reporting practices, procurement mechanisms, and institutional roles in the delivery of public healthcare services.

Prior to conducting the analysis, a series of engagements were held with representatives from university hospitals and the Pharmacy Services Program under the MOH to review and validate the findings derived from the AG data. The primary objectives of these sessions were to promote transparency, improve data accuracy, and encourage standardisation in pharmaceutical expenditure reporting across institutions.

Through these discussions, it was clarified that university hospitals operate under distinct accounting systems, each tailored to their own specific financial and operational requirements. Unlike the MOH facilities, university hospitals generate their own revenue streams to support their service delivery, including the independent procurement of pharmaceuticals. The financial representatives further confirmed that the MOHE does not manage centralised or pooled pharmaceutical procurement. Instead, each university hospital retains autonomy in selecting suppliers and distributors, leading to variations in procurement practices and reporting mechanisms.

Recognising the data gaps related to the MOHE university hospitals, a customised survey template has been developed and disseminated to each institution to facilitate the collection of relevant pharmaceutical expenditure data for this study.

In addition to university hospital data, pharmaceutical expenditure data from other public sector institutions, such as the EPF and SOCSO, were also incorporated. These entities are already part of the routine MNHA health expenditure database, and their inclusion supports a more comprehensive estimation of public sector TPE.

Estimation of Overhead Costs in Public Sector Pharmaceutical Expenditure

In practice, accurately estimating overhead costs remains a significant challenge due to the complexity of identifying, isolating, and categorizing such expenses within healthcare settings⁽¹⁾. To address this issue in the context of Malaysia's public sector pharmaceutical expenditure, several consultations were held with the Pharmacy Research and Development Division under the Pharmacy Service Program, which led to the following key findings:

- **Scarcity of Local Costing Studies**

There is a notable lack of detailed costing studies within public pharmacy facilities in Malaysia. Consequently, reliance on international costing studies is necessary to complement local data and provide a basis for validating assumptions and estimations.

- **Salaries as a Key Overhead Component**

Salaries represent the most significant component of overhead costs, accounting for an estimated 80% of total overhead expenditure⁽¹⁰⁾⁽¹¹⁾. Salaries are also the most readily available and reliable proxy for estimating overhead in settings where detailed cost data are not available. Disaggregating other cost elements, such as capital and material costs, is particularly difficult, especially where shared infrastructure and multi-purpose resources are used across different services.

- **Global Estimated Overhead Contribution to TPE**

Overhead costs are estimated to contribute between 14% and 20% of TPE, based on findings from regional and international studies⁽¹¹⁾⁽¹²⁾.

Following these discussions, and with the approval of the MNHA Technical Advisory Committee, it was agreed that overhead costs would be estimated based on the salaries of pharmacists and pharmacy assistants directly involved in the delivery, dispensing, and management of pharmaceuticals within public healthcare facilities, including hospitals and clinics. Personnel based in central administrative or regulatory offices were excluded from this calculation so that only operational, delivery-related overhead was captured.

As such, the final valuation of pharmaceutical expenditure in the public sector includes an overhead cost percentage derived from the identified salary components, which is then added to the procurement prices obtained from the AG data. This approach ensures that the estimated cost more accurately reflects the final consumer price borne by the public sector for pharmaceutical products.

Private Sector

Malaysia currently faces several challenges in the governance and monitoring of pharmaceutical expenditure within the private healthcare sector⁽⁸⁾. A key limitation is the absence of a centralised regulatory or reporting body responsible for overseeing and documenting pharmaceutical procurement activities in private healthcare facilities. As a result, each private entity operates independently, using its own accounting systems and engaging with pharmaceutical suppliers or distributors according to their specific budgets, service models, and institutional needs.

Private healthcare providers in Malaysia consist of a wide spectrum of entities, primarily:

- Private hospitals;
- Private medical and dental clinics; and
- Private community pharmacies.

To address data limitations and improve the visibility of private sector pharmaceutical spending, the primary data source used for this study is IQVIA Malaysia. IQVIA collects and compiles pharmaceutical expenditure data from a wide network of retailers, distributors, community pharmacies, private clinics, and private hospitals that subscribe to its services.

The data provided by IQVIA includes purchaser/distributor price-level information for each private healthcare provider and encompasses both generic and originator drug categories. This data plays a crucial role in estimating private sector pharmaceutical expenditure, given the lack of uniform reporting mechanisms in the private domain.

Medicine Price Monitoring Reports

In line with the recommendations of SHA 2011, the valuation of pharmaceutical items should reflect the end-user price or final consumer price, which includes both the distributor price and any markup percentages applied. However, as previously noted, Malaysia lacks a centralised body to oversee and document the pharmaceutical procurement activities of private healthcare facilities. Additionally, medicine prices are not subject to legal regulation, contributing to pricing inconsistencies across the private sector⁽⁴⁾⁽⁸⁾.

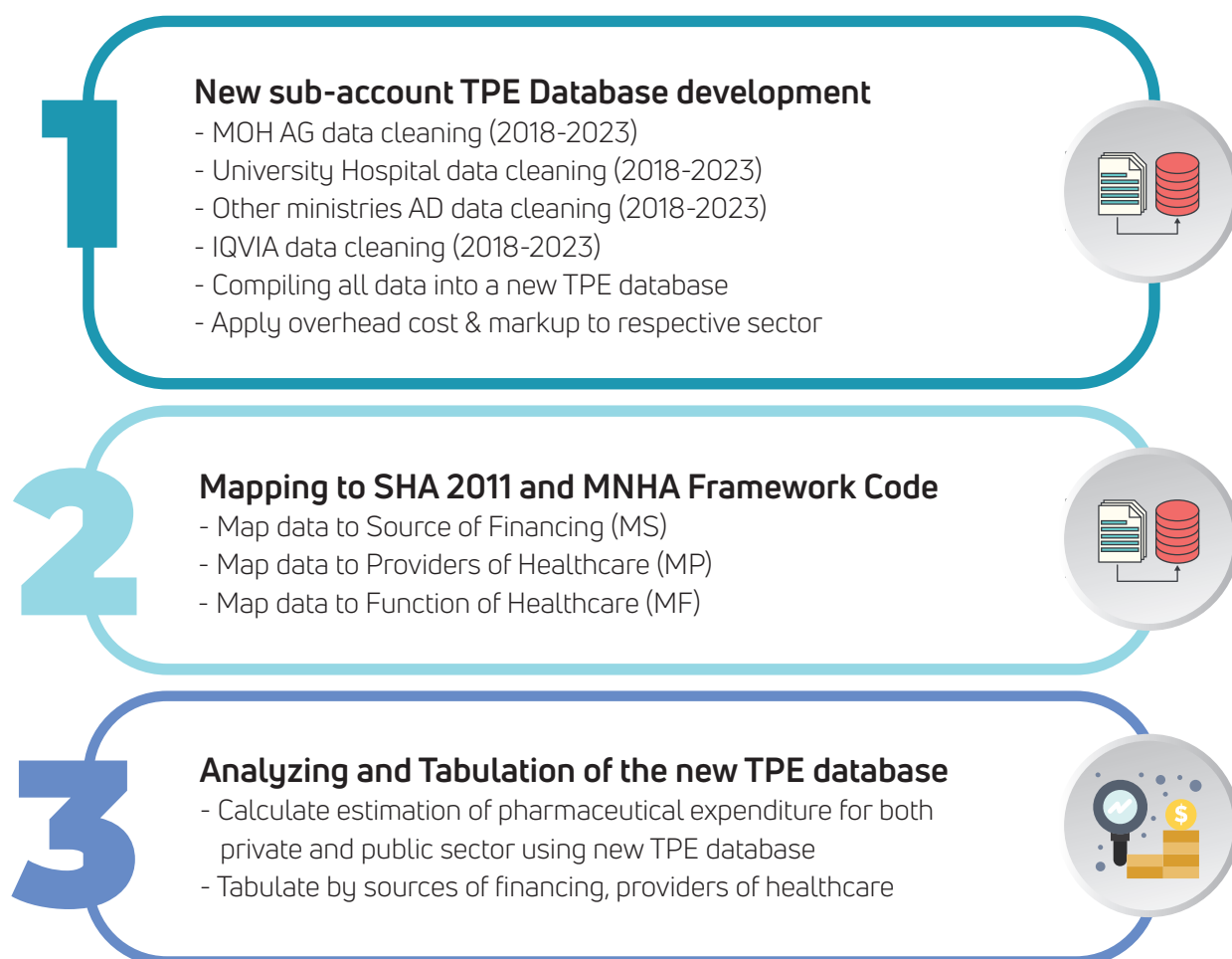
To address pricing concerns and promote affordability in both the public and private sectors, the MOH has implemented a comprehensive monitoring strategy known as the Medicine Prices Monitoring (MPM) in Malaysia or "*Kajian Pemantauan Harga Ubat*" (KPHU) ⁽⁴⁾⁽⁸⁾⁽¹³⁾. The study aims to gather reliable information on the cost, availability, and affordability of selected medicines across Malaysia's pharmaceutical supply chains. This data serves as a foundation for developing drug pricing policies to improve access to essential medicines in both public and private health facilities.

In addition to providing insights into drug prices, the MPM also tracks price markup percentages, which are crucial for refining the estimation of TPE in the private sector. With the availability of MPM data, the MNHA can now incorporate markup percentage information into its pharmaceutical expenditure analysis, particularly when using IQVIA data as a primary source for private sector spending.

DATA ANALYSES

Pharmaceutical expenditure data from both public and private sectors were compiled for further analyses. A summarised process for data analyses is shown in Figure.4, which is further categorised into three key steps.

Figure 4. Process of data analysis and mapping for TPE estimation



Sub-account TPE Database

The first step in the process involved the establishment of a new sub-account TPE database, where comprehensive data cleaning was conducted across various data sources, including the AG accounting system, university hospitals, other ministries, and IQVIA. The data spanned from 2018 to 2023.

The data provided by the AG accounting system is delivered in an Excel worksheet format, retaining its original accounting structure. To enhance completeness, additional labeling and tagging were applied. Notably, the AG data accounts for approximately 90% of the overall data points related to public sector TPE.

Upon completion of the data cleaning process, two (2) baseline pharmaceutical expenditure datasets were created—one representing the public sector and the other representing the private sector.

For the dataset representing the public sector, adjustments were made by incorporating overhead cost estimation percentages into the public pharmaceutical expenditure data. For the dataset representing the private sector, markup price percentages from MPM studies were applied to estimate the final consumer prices. Both datasets were then integrated into the main TPE database, ready for the subsequent mapping process.

Mapping to SHA 2011 frameworks

The compiled database is then mapped in accordance with the SHA 2011 and MNHA frameworks, categorising the data by sources of financing, providers of healthcare, and functions of healthcare.

Limitations in Classifying Private Sector Sources of Financing

Both public and private sector sources of financing were identified, with the public sector providing more granular detail. The MNHA is able to determine the sources of financing for the public sector and map them to the SHA 2011 framework accordingly.

However, the sources of financing for the private sector remain unclear due to insufficient detail from IQVIA.

While IQVIA provides valuable data on private sector pharmaceutical expenditure, it lacks detailed information from the financing perspective, making it challenging to accurately allocate spending across key financing categories such as out-of-pocket payments, private health insurance, and other third-party payers.

In the absence of such granularity, the MNHA has made a methodological decision to refrain from classifying TPE by subcategories of financing sources within the private sector. This approach ensures the integrity and reliability of the data presented, and will remain in place until statistically robust and nationally representative studies are available to support more precise allocation estimates.

Non-Traditional Healthcare Providers in Pharmaceutical Procurement

Analysis of data from the AG accounting system revealed that, in addition to conventional healthcare providers, a number of non-traditional public sector entities are also involved in the procurement of pharmaceuticals. For example, the Fire and Rescue Department of Malaysia and the Royal Malaysia Police acquire medications for first aid purposes during emergency and rescue operations, while military outposts and maritime enforcement divisions administer vaccinations to detained illegal immigrants prior to their detainment or transfer.

This issue was raised during the 19th WHO-OECD Annual Meeting of Asia-Pacific Health Accounts Experts, where NHA experts recommended that such providers be classified under the SHA 2011 category:

“All Other Industries as Secondary Providers of Healthcare” (HP.8.2).

This classification ensures consistency with international reporting standards and enhances the comprehensiveness of Malaysia’s health expenditure tracking by capturing health-related activities occurring outside the traditional health system framework.

Limitations in Differentiating Prescription and Over-the-Counter (OTC) Medicines

Differentiating between over-the-counter (OTC) and prescription medicines poses a significant challenge due to the limited level of detail available in both public and private sector data sources. While it is reasonable to assume that public healthcare facilities do not dispense medicines without prescriptions, thereby allowing most expenditures to be classified under HC.5.1.1 (Prescribed Medicines) in accordance with the SHA 2011 framework, the situation in the private sector is less clear.

The IQVIA data provided to MNHA does not specify whether dispensed medicines are OTC or prescription-based, making it difficult to assign accurate functional classifications. In light of this limitation, and to avoid misclassification or inaccuracies, all pharmaceutical expenditure data within the TPE database are retained under the general classification of HCR.1 (Reporting Item 1).

Tabulation of TPE database

Step three involves the final analysis and tabulation of the newly established TPE database to generate comprehensive estimates of pharmaceutical expenditure for both the public and private sectors. This step provides a structured overview of expenditure patterns, identifies key trends, and highlights the major contributors to TPE in Malaysia, thereby supporting evidence-based planning and policy development.

Assumptions

Two major assumptions underpin the estimation of TPE in this sub-account:

1. Final Purchaser Expenditure
 - For public sector sources, it includes procurement costs along with estimated overhead costs related to the management, distribution, and dispensing of pharmaceuticals.
 - For private sector sources, final purchaser expenditure is calculated as the sum of procurement costs and applicable markup percentages.
2. Pharmaceutical Utilisation
 - It is assumed that all pharmaceuticals procured within the reference year are fully consumed or utilised during the same period. This assumption supports annual expenditure alignment and simplifies estimation in the absence of detailed stock or wastage data.

DATA VERIFICATION & DATA VALIDATION

The MNHA team conducted a series of internal discussions prior to presenting the preliminary findings and methodology to the Planning Division of MOH for evaluation and feedback. As part of this process, data visualisations were refined through iterative discussions to enhance the clarity and effectiveness of information dissemination.

Multiple engagement sessions were held with key stakeholders within the Planning Division, including representatives from the Health Informatics Centre (HIC), the National Health Financing (NHF) Section, the National Institute of Health (NIH), and the Health Policy and Planning Section (PDPK).

In parallel, the MNHA team also presented the findings to the Pharmacy Research and Development Subdivision under the Pharmacy Service Program to seek technical validation and verification, particularly in relation to pharmaceutical data sources and methodologies.

Following these engagements, the findings and estimates underwent formal review and validation by the MNHA Technical Advisory Committee (TAC), which comprises senior representatives from various health divisions within the MOH Headquarters.

Upon receiving endorsement from TAC members, the MNHA team proceeded to deliver a presentation to the MNHA Steering Committee on 24th December 2024 to gain their endorsement of the TPE estimation, developed in accordance with the NHA framework. This committee includes representatives from both public and private sector stakeholders, and the meeting was co-chaired by the Secretary General of MOH and the Director-General of Health Malaysia.

CHAPTER 3

RESULTS & DISCUSSION

OVERVIEW OF TOTAL PHARMACEUTICAL EXPENDITURE (TPE) ESTIMATION, 2018-2023

Pharmaceutical spending represents a critical component of total healthcare expenditure, reflecting the healthcare system's commitment to ensuring equitable access to essential medicines. Monitoring Total Pharmaceutical Expenditure (TPE) trends provides important insights into resource allocation, economic sustainability, and strategic policy planning.

The table below presents Malaysia's TPE estimates from 2018 to 2023, alongside the corresponding Total Expenditure on Health (TEH) and the proportion of TPE as a percentage of TEH. This data allows for a comprehensive understanding of how pharmaceutical spending has evolved over time relative to overall health expenditure.

Table 3. TPE Estimation, 2018-2023, (TEH and % of TEH), RM Million			
Year	TPE, RM Million	TEH, RM Million	TPE % TEH
2018	11,315	60,288	18.8%
2019	11,772	64,038	18.4%
2020	11,247	66,890	16.8%
2021	16,461	77,992	21.1%
2022	14,591	79,264	18.4%
2023	16,921	84,192	20.1%

Source: Total Expenditure on Health, Malaysia National Health Accounts, 2011-2023

Between 2018 and 2020, the share of TPE relative to TEH exhibited a declining trend, falling from 18.8% in 2018 to 16.8% in 2020.

However, a significant spike was recorded in 2021, with TPE increasing to RM16,461 million, representing 21.1% of TEH. This sharp rise is likely attributed to the increased demand for pharmaceuticals during the COVID-19 pandemic, particularly in relation to the procurement of vaccines and pandemic-related treatments.

In 2022, TPE decreased to RM14,591 million, constituting 18.4% of TEH, reflecting a reduction in pandemic-specific pharmaceutical demand.

By 2023, TPE rebounded to RM16,921 million, accounting for 20.1% of TEH. This suggests a gradual return to pandemic-era consumption patterns, while maintaining an elevated level of pharmaceutical spending compared to the pre-pandemic period, indicating a potential shift in long-term demand and utilisation trends.

Figure 5. Total Pharmaceutical Expenditure Estimation, 2018-2023, (TEH and % of TEH), RM Million

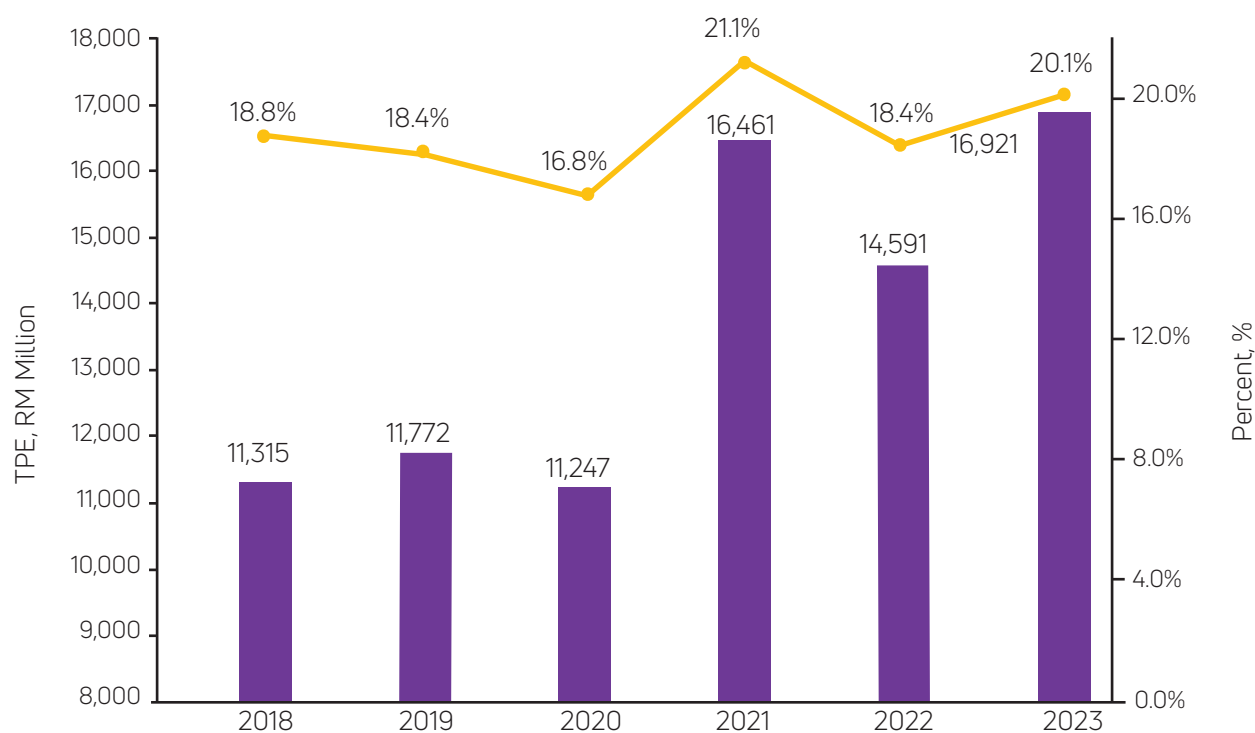
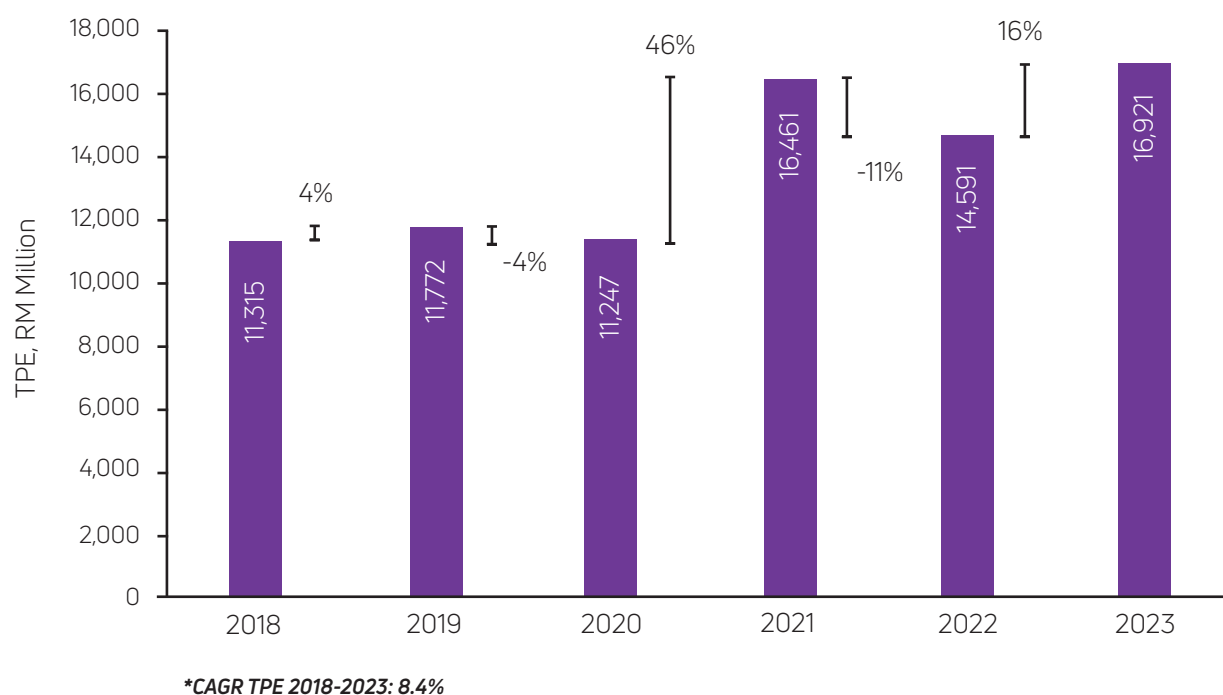


Figure 6. Year-over-Year (YoY) Growth of TPE, 2018-2023, Percentage, %



Year-over-Year (YoY) growth is a commonly used financial metric that compares a specific value, such as revenue, profit, or expenditure, of one year to the same period in the previous year. It serves as an important indicator for assessing annual growth trends and evaluating performance over time.

The YoY growth analysis of TPE from 2018 to 2023 in Figure 6 further illustrates Malaysia's evolving pharmaceutical spending patterns:

- Between 2018 and 2019, TPE registered a modest growth of 4%, reflecting steady expansion.
- In 2020, TPE contracted by 4%, likely due to a shift in healthcare priorities and service disruptions at the onset of the COVID-19 pandemic.
- A significant increase of 46% in 2021 was observed, corresponding to the heightened demand for pharmaceuticals, including vaccines and pandemic-related treatments.
- In 2022, TPE declined by 11%, indicating a stabilization phase as the immediate pandemic-related demand diminished.
- By 2023, TPE rebounded with a 16% growth, suggesting a recalibration towards a new expenditure norm in the post-pandemic landscape.

Over the six-year period, the Compounded Annual Growth Rate (CAGR) of 8.4% for TPE underscores a sustained upward trajectory, despite annual fluctuations. This steady growth reflects increasing demand for pharmaceuticals, driven by factors such as the expansion of healthcare services, rising medication costs, and changing healthcare needs across the population.

TOTAL PHARMACEUTICAL EXPENDITURE BY SOURCES OF FINANCING, 2018-2023

Pharmaceutical expenditure constitutes a key pillar of healthcare financing, with both public and private sector contributions playing vital roles in ensuring the population's access to essential medicines. Analysing the distribution of TPE by sources of financing offers important insights into the structure of healthcare funding, the balance between public provision and private consumption, and emerging resource allocation challenges.

Data spanning 2018 to 2023 reveals significant trends and shifts in Malaysia's pharmaceutical spending landscape. These patterns reflect the evolving roles of governmental funding, social security schemes, private insurance, and out-of-pocket payments, highlighting the need for continued monitoring and policy adjustments to ensure sustainable and equitable access to pharmaceuticals across all population groups.

Table 4. TPE by Sources of Financing, 2018-2023, RM Million

Year	Public Sources of Financing	Private Sources of Financing	TPE
2018	3,398	7,917	11,315
2019	3,925	7,848	11,772
2020	3,749	7,498	11,247
2021	8,074	8,387	16,461
2022	4,437	10,154	14,591
2023	4,751	12,170	16,921

As illustrated in Table 4, Malaysia experienced notable shifts in its sources of financing for TPE between 2018 and 2023. From 2018 to 2020, private sources predominantly financed TPE, with public contributions remaining relatively stable at approximately RM3.4 to RM3.9 billion. This trend underwent a dramatic shift in 2021, with public financing surging to RM8.1 billion, likely driven by the government's increased spending on pharmaceuticals in response to the COVID-19 pandemic. During the same year, private contributions also rose to RM8.4 billion, reflecting heightened demand for medications amid the global health crisis.

In 2022, public financing dropped significantly to RM4.4 billion, while private contributions increased to RM10.2 billion, signaling a return to higher reliance on the private sector as pandemic-related government support began to wane. By 2023, public financing modestly increased to RM4.8 billion, whereas private sector contributions surged to RM12.2 billion, marking the highest private sector share during this period.

These trends suggest a growing reliance on private sources of financing for pharmaceutical expenditure, which may raise concerns regarding affordability and access to essential medications, especially for lower-income populations.

Figure 7. TPE by Sources of Financing, 2018-2023, RM Million

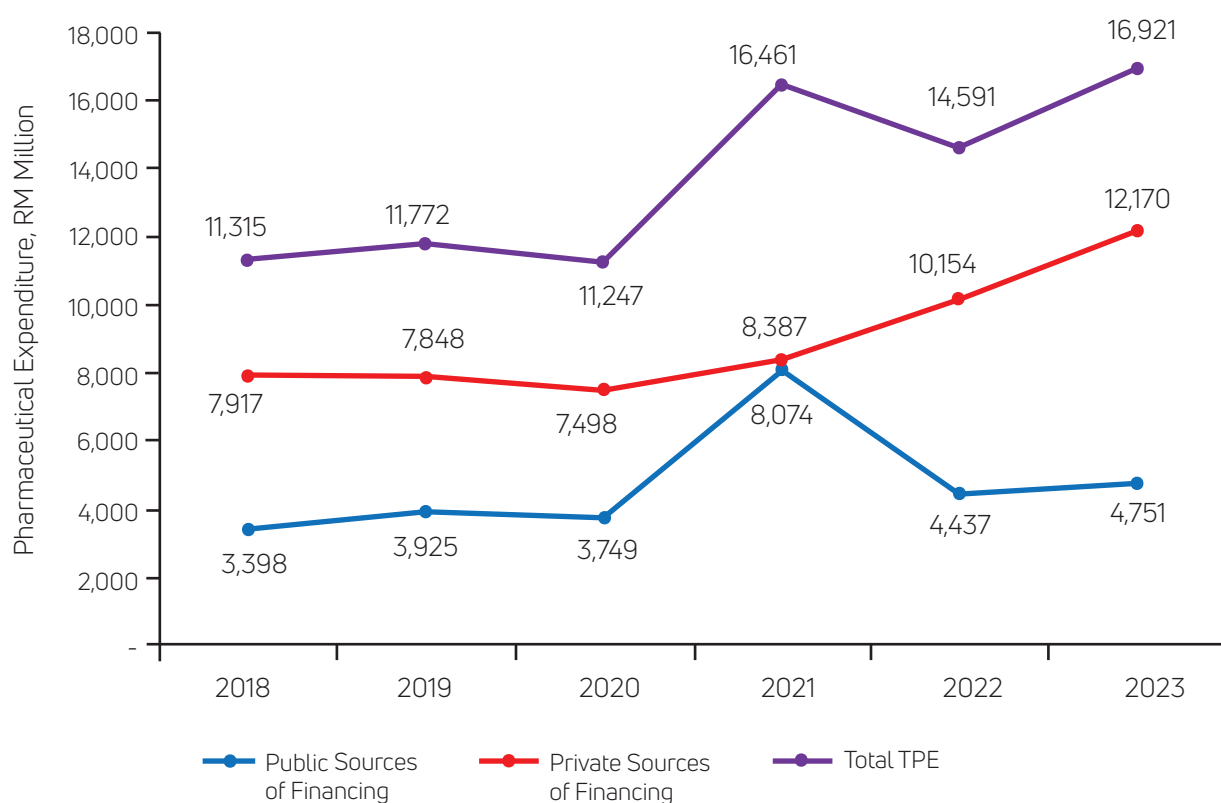
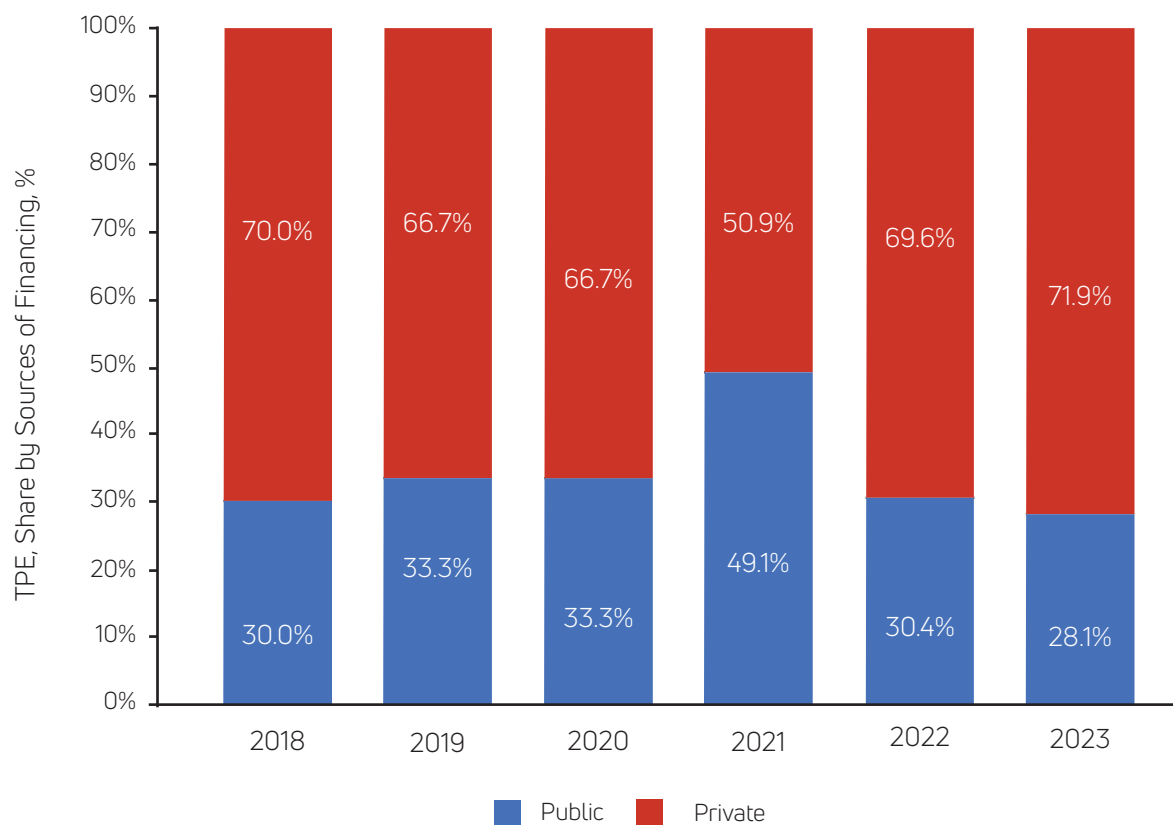


Figure 8. Public and Private Share by Sources of Financing, 2018-2023, Percentage, %



Total Pharmaceutical Expenditure of Ministry of Health, 2018-2023

Table 5 and Figure 9 present the TPE of the MOH as a percentage of the total MOH expenditure from 2018 to 2023. The data provides a clear overview of how pharmaceutical spending has fluctuated over the years in relation to the overall health expenditure, offering valuable insights into the evolving healthcare priorities and economic considerations within the country.

The graph highlights key changes in expenditure patterns, which are particularly important for understanding the shifts in healthcare demands, especially in response to external factors, such as the COVID-19 pandemic. These trends provide crucial context for policymakers and stakeholders seeking to address both long-term and short-term healthcare challenges.

Figure 9. Total Pharmaceutical Expenditure of the MOH as percentage of Total MOH Expenditure, 2018-2023, Percentage, %

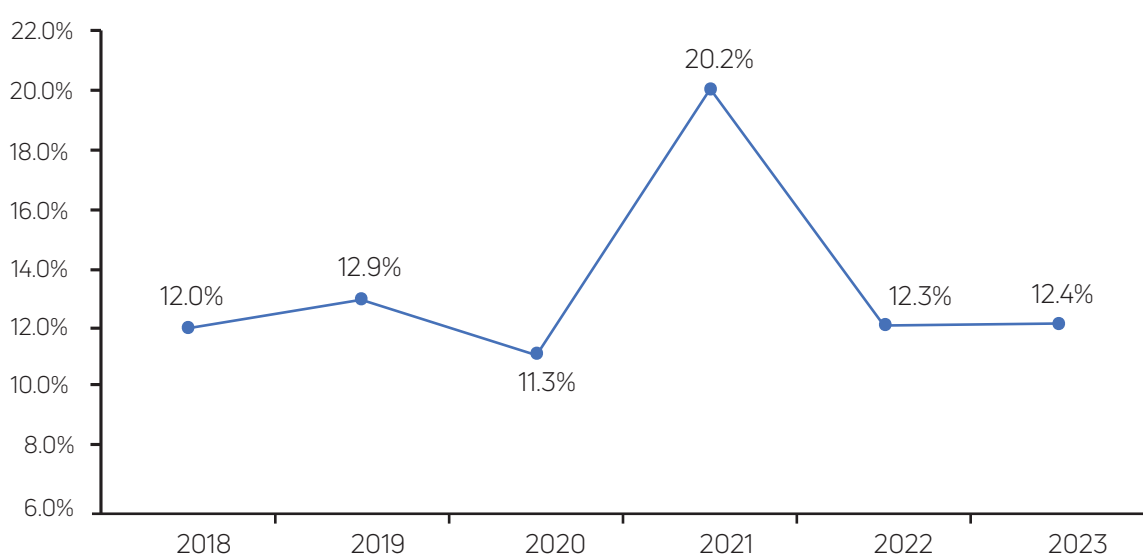


Table 5. Total Pharmaceutical Expenditure of the MOH (Total MOH and TPE MOH as % of Total MOH Expenditure)

Year	TPE of MOH, RM Million	Total MOH Expenditure, RM Million	TPE MOH as percentage of Total MOH Expenditure, Percent, %
2018	3,181	26,522	12.0
2019	3,715	28,860	12.9
2020	3,515	31,124	11.3
2021	7,839	38,767	20.2
2022	4,170	33,905	12.3
2023	4,470	36,181	12.4

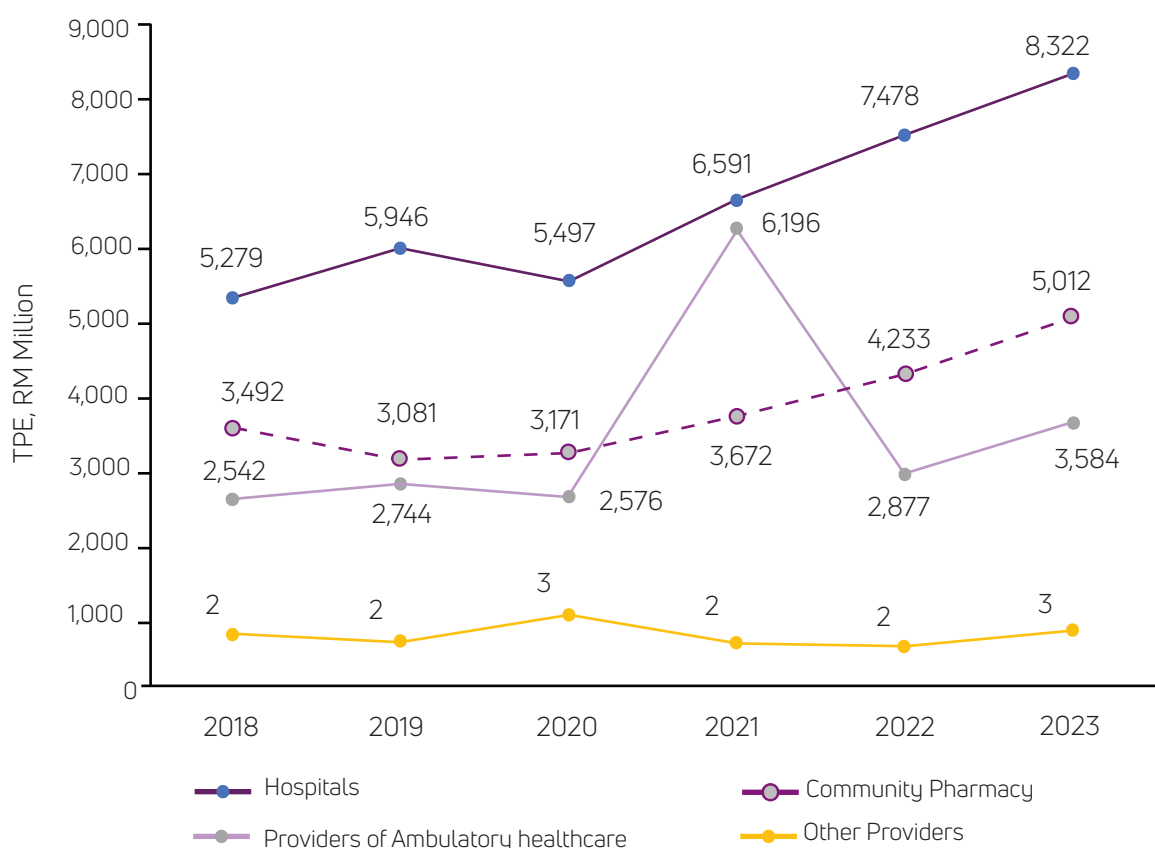
The data reveals notable fluctuations in pharmaceutical spending over the years, with a significant spike in 2021, when TPE made up 20.2% of the total MOH expenditure. This increase can be attributed to several factors, including the pandemic's impact on healthcare demands, particularly the need for COVID-19 vaccines, medications, and medical supplies.

In the years following 2021, the percentage gradually returned to a more stable range, hovering between 12-13%, reflecting a stabilisation of pharmaceutical expenditure as a share of the overall health budget. These trends offer valuable insights for future budget planning and resource allocation within the MOH, helping to guide healthcare funding strategies moving forward.

TOTAL PHARMACEUTICAL EXPENDITURE BY PROVIDERS OF HEALTHCARE, 2018-2023

The following analysis examines the total pharmaceutical expenditure across various healthcare providers, including hospitals, community pharmacies, ambulatory healthcare providers, and other healthcare entities, from 2018 to 2023. This data provides valuable insights into how healthcare resources have been allocated over the years, particularly in response to shifting healthcare demands and external factors, such as the COVID-19 pandemic.

Figure 10. Total Pharmaceutical Expenditure by Providers of Healthcare, 2018-2023



***CAGR Hospital: 9.5%, Community Pharmacy: 7.5%, Ambulatory Providers: 7.1%**

Figure 11. Share of TPE by Providers of Healthcare, 2018-2023, Percentage, %

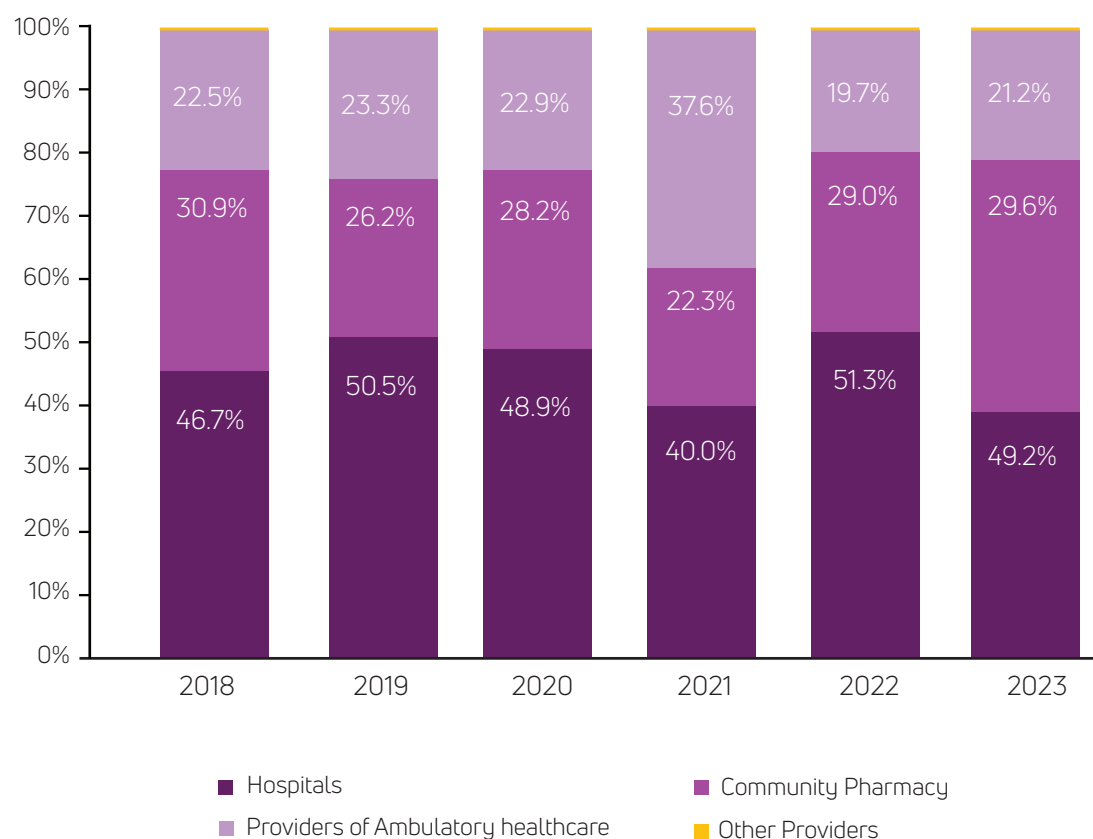


Figure 10 illustrates the trends in TPE across different healthcare providers from 2018 to 2023, focusing on hospitals, community pharmacies, ambulatory healthcare providers, and other healthcare entities. The graph highlights the TPE in RM Million, showing a consistent increase in spending by community pharmacies and hospitals over the years, with a sharp spike in 2021, particularly by providers of ambulatory healthcare. This surge likely reflects the massive involvements of providers of ambulatory healthcare during COVID-19 national vaccinations programme. In contrast, spending by other providers remained relatively stable throughout the years.

Meanwhile, Figure 11 provides a breakdown of the percentage of TPE allocated to each provider type. Historically, hospitals have consistently accounted for the largest share of total pharmaceutical

expenditure (TPE). However, in 2021 there was a notable shift, as ambulatory healthcare providers—mobilized in response to the COVID-19 pandemic—claimed a larger portion of the expenditure. By 2023, hospitals still took the largest share at 49.2%, followed by community pharmacies at 29.6%, indicating a relatively stable distribution of spending across these providers. The percentage allocated to other providers remained small throughout the period, with minimal fluctuations.

These trends indicate a strong focus on hospital and pharmacy-based pharmaceutical services, particularly in response to the global health crisis. They also provide valuable insights that can guide future decisions regarding healthcare resource allocation and spending priorities.

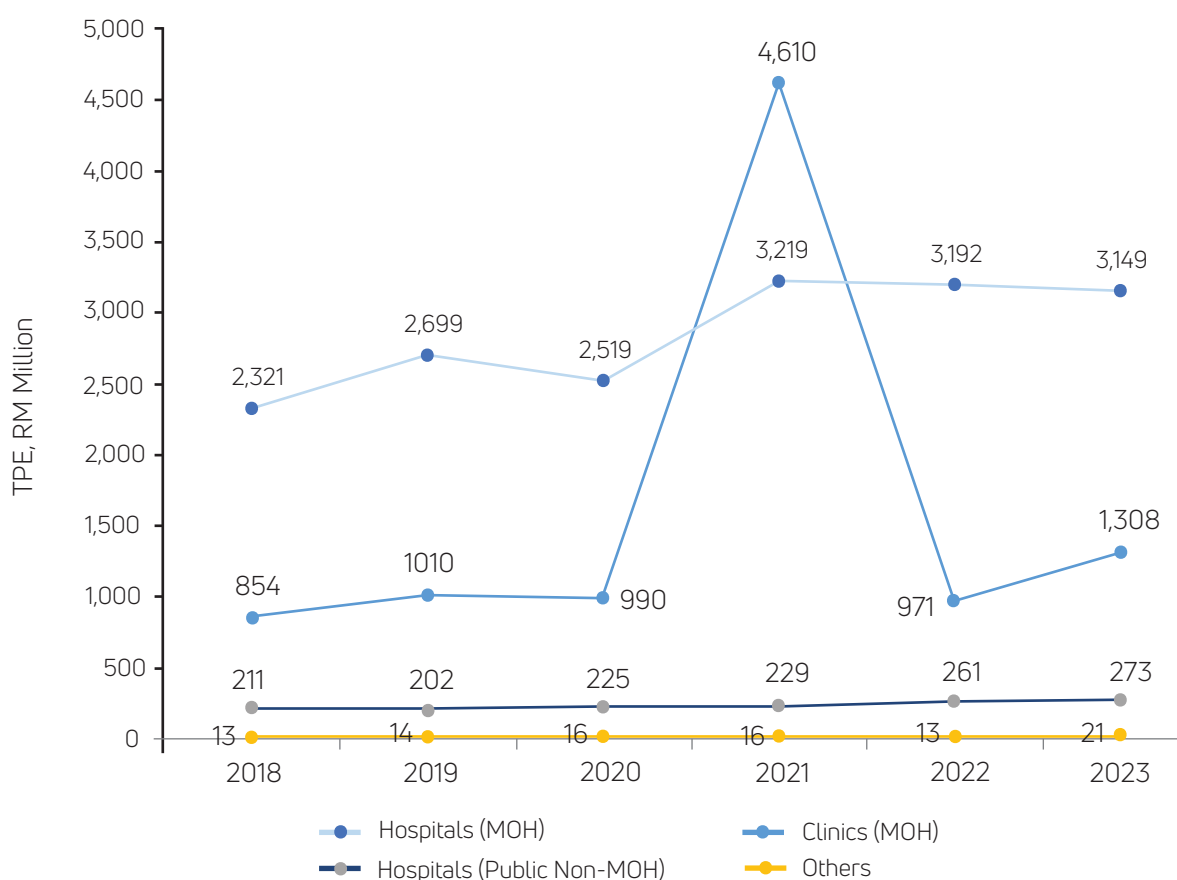
Total Pharmaceutical Expenditure by Providers of Public Healthcare Sector, 2018-2023

This analysis presents the breakdown of TPE across various providers within the public healthcare sector in Malaysia from 2018 to 2023. The data highlights significant variations in expenditure contributions across different public healthcare providers, reflecting shifts in demand and resource allocation over the years.

Key observations include:

- In the public sector, hospitals have consistently received the largest share of pharmaceutical expenditure, underscoring their critical role in the healthcare system. However, the allocation saw some fluctuation during the COVID-19 pandemic in 2021, aligning with increased pharmaceutical needs.
- Community pharmacies experienced a sharp increase in expenditure, particularly in 2021, due to heightened pharmaceutical demands driven by the pandemic. This trend aligns with the global surge in demand for medications, vaccines, and other essential products.
- Other providers, such as ambulatory healthcare services and smaller healthcare facilities, maintained a smaller and more stable share of the overall expenditure, with minimal fluctuations during the period.

Figure 12. TPE by Providers of Public Healthcare Sector, 2018-2023



***CAGR Hospitals (MOH): 6.3%, Clinic: 8.9%. Hospitals (Public Non-MOH) 5.2%**

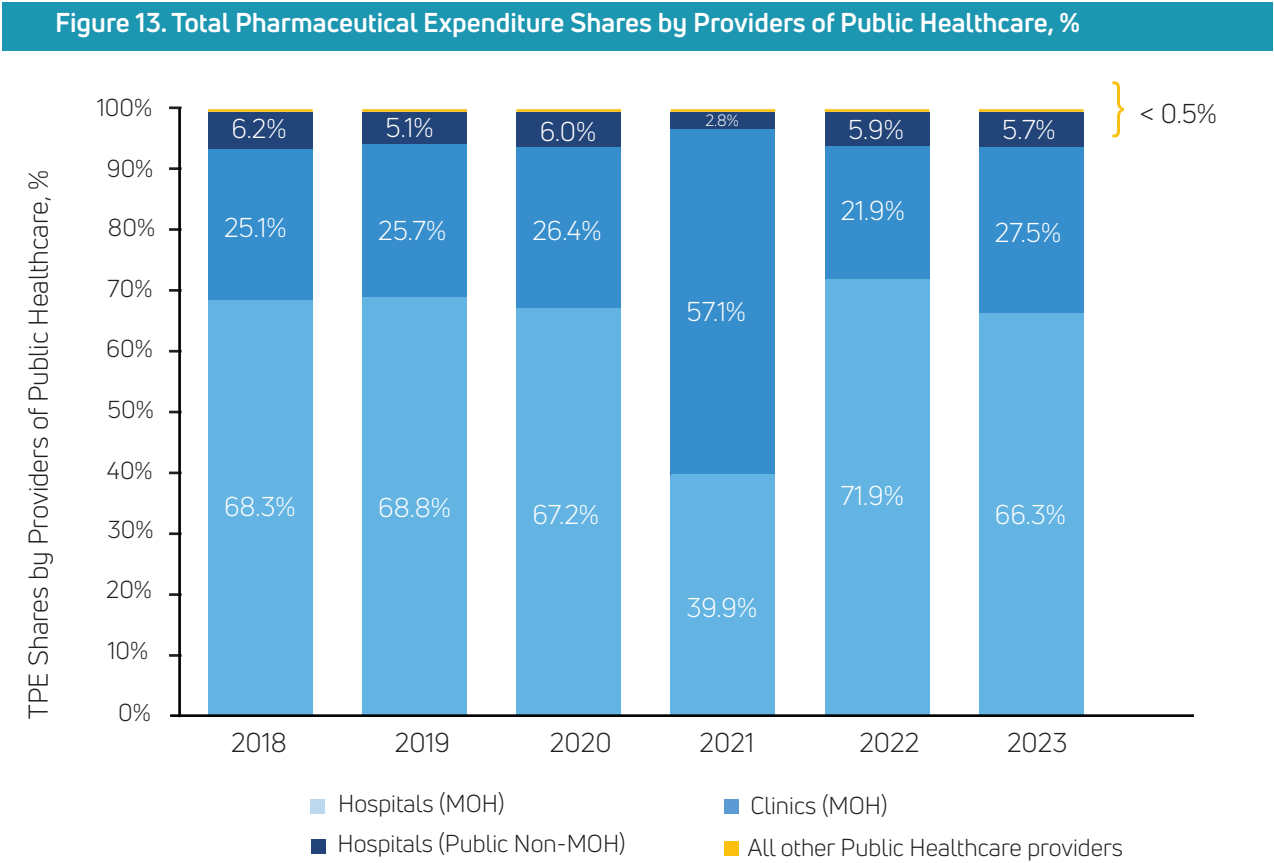
Figures 12 and 13 highlight the contribution of MOH hospitals to the TPE within the public sector in Malaysia. Hospitals under MOH have consistently been the largest contributors to TPE, accounting for over 50% of the total spending in most years. This demonstrates the pivotal role they play in providing medications for inpatient and critical care needs.

Key observations include:

- MOH hospitals recorded a significant peak in TPE in 2021, reaching RM3,079 million. This surge is attributed to the heightened pharmaceutical demand during the COVID-19 pandemic, as hospitals were on the frontline of the crisis, administering COVID-19-related treatments, vaccines, and medical supplies.
- MOH clinics also experienced a significant rise in expenditure, particularly in 2021, where spending spiked to RM4,610 million. This increase is aligned with the increased demand for outpatient services, testing, and vaccinations during the pandemic. By 2023, spending in MOH clinics stabilised at RM1,092 million, but still represented a higher baseline compared to pre-pandemic years.

- Public non-MOH hospitals and clinics:
 - Public non-MOH hospitals (e.g., university hospitals, military hospitals, and other government-run facilities) consistently accounted for RM200–250 million in pharmaceutical expenditure per year.
 - Public non-MOH clinics showed minimal pharmaceutical expenditure, which remained relatively consistent over the years.
- Other public healthcare providers (including dentist clinics and small-scale providers) contributed a minor portion of the TPE, with relatively small annual spending that remained stable throughout the period.

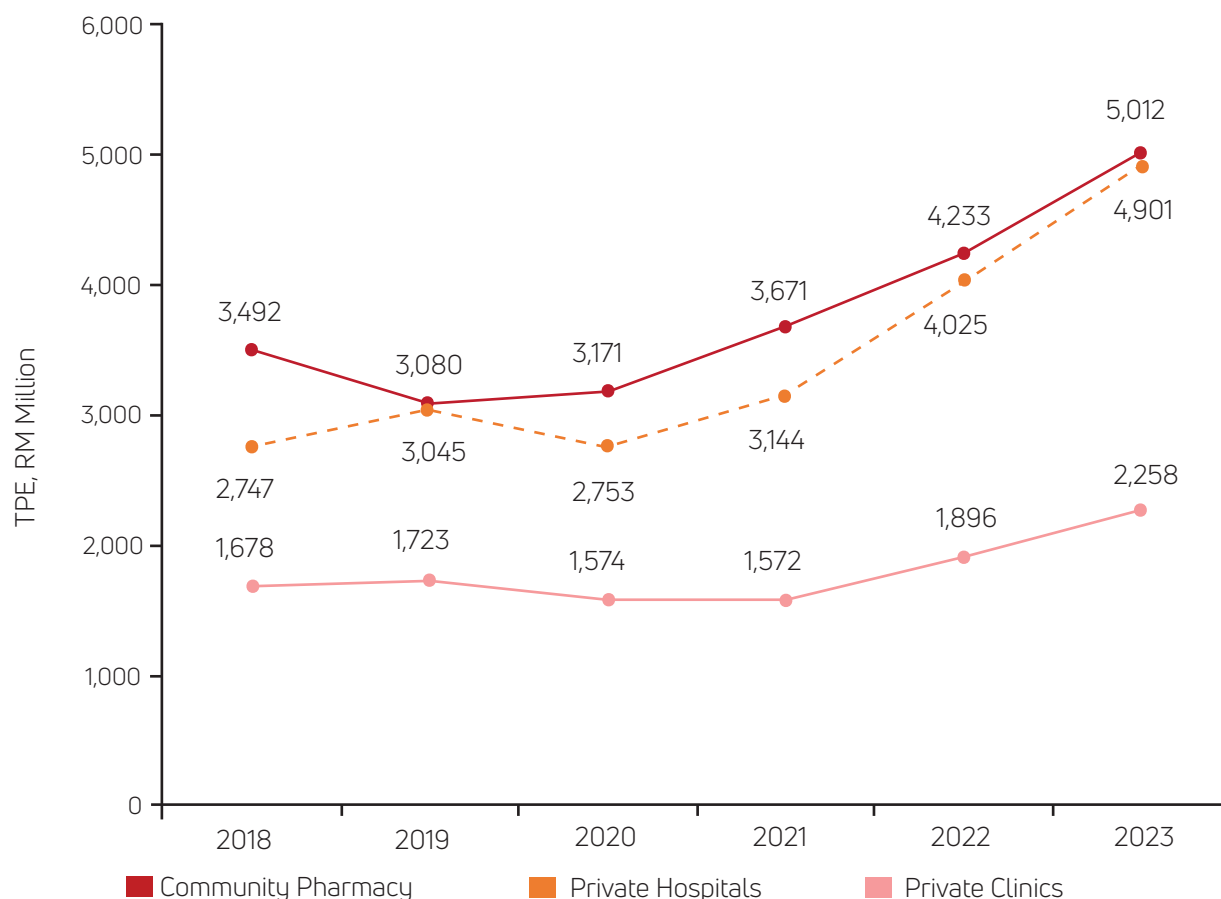
This analysis underscores the critical role of MOH hospitals and clinics in pharmaceutical expenditure, particularly during the pandemic. It also reflects the need to continue to allocate resources to these primary providers while continuing to support other healthcare sectors to ensure balanced resource distribution and access to medicines across Malaysia’s healthcare system.



Total Pharmaceutical Expenditure by Providers of Private Healthcare, 2018-2023

Figures 14 and 15 illustrate key trends in the TPE by different types of private healthcare providers in Malaysia, with focus given to community pharmacies, private hospitals, and private clinics.

Figure 14. Total Pharmaceutical Expenditure by Providers of Private Healthcare, 2018-2023



***CAGR Community Pharmacy: 7.5%, Private Hospitals: 12.3%, Clinic: 6.1%.**

Community pharmacies consistently emerge as the largest contributor to private sector pharmaceutical expenditure throughout the period from 2018 to 2023. Spending in this category grew by 40%, from RM3,492 million in 2018 to RM5,012 million in 2023, reflecting the growing demand for accessible, over-the-counter, and prescription medicines in private pharmacies. This trend indicates the central role of pharmacies in meeting outpatient and preventive healthcare needs.

Private hospitals also show a significant rise in pharmaceutical expenditure, with a compound annual growth rate (CAGR) of 12.2% year over year, particularly in the post-pandemic years. In 2022, pharmaceutical spending for private hospitals spiked

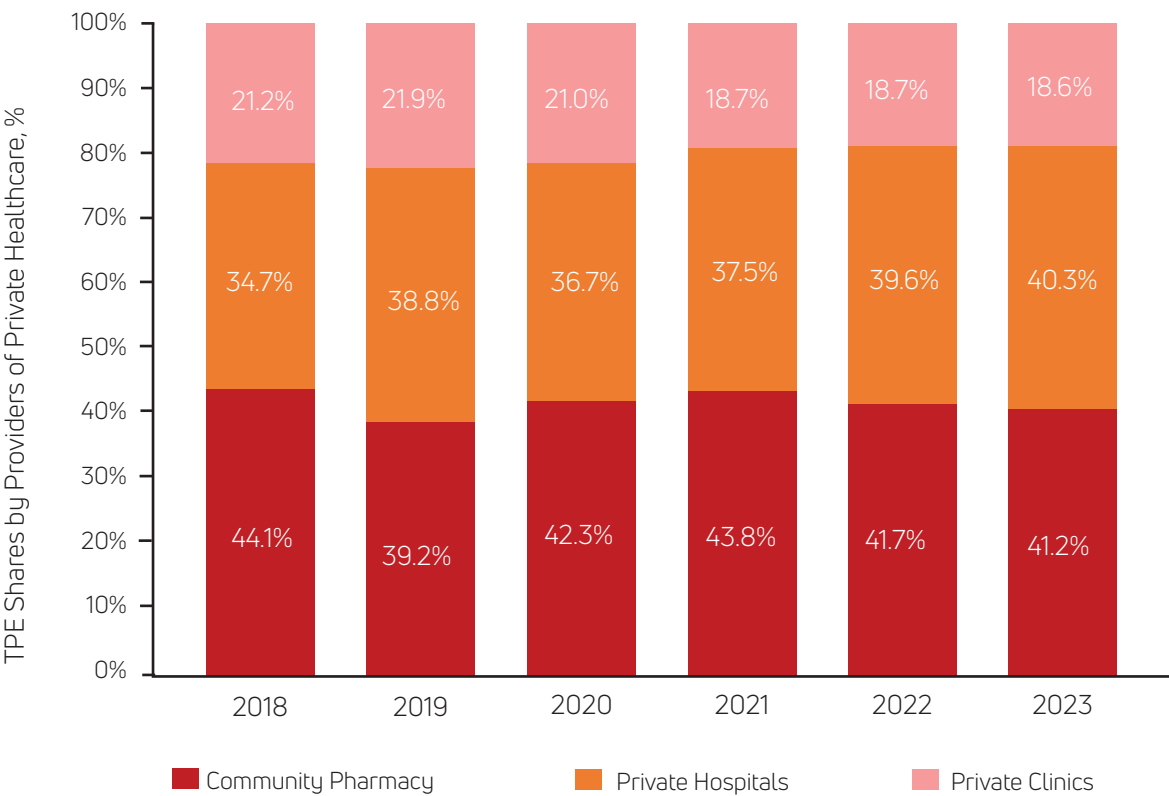
to RM4,025 million, rising even further to RM4,901 million in 2023. This increase can be attributed to the heightened demand for medical treatments, COVID-19 vaccines, and hospital-based care during and after the pandemic. It highlights the ongoing role of private hospitals in delivering specialised care and medicines, as well as their growing share in overall pharmaceutical expenditure.

Private clinics represent a smaller share of TPE compared to community pharmacies and private hospitals, but they still show an upward trend in expenditure. From RM1,678 million in 2018, spending by private clinics increased to RM2,258 million in 2023, reflecting a 34.6% increase over the said period. The upward trend, while smaller in scale, signals

an increasing demand for outpatient care, routine treatments, and prescription medications within private clinics, especially as access to healthcare remains a priority for the population.

These insights are crucial for future planning and resource allocation, suggesting a shift toward community pharmacies for accessible medications, while private hospitals remain central to the provision of specialised healthcare and hospital-based pharmaceutical services.

Figure 15. Total share of Pharmaceutical Expenditure by Providers of Private Healthcare, %



ATTRIBUTED FACTORS & TACKLING KEY CHALLENGES

The rising trends in TPE in Malaysia, particularly in the private sector, are influenced by several key factors that have amplified the financial burden on both consumers and healthcare providers. For discussion purposes, these are the primary drivers contributing to this increase:

Private Sector Price Variations

One of the most significant contributors to the rising TPE is the price variation within the private healthcare sector. Malaysia's open market system, while providing flexibility, has led to wide disparities in drug prices among the different healthcare providers⁽⁸⁾. This inconsistency creates significant financial challenges for consumers, making essential medications less accessible to lower-income populations. The lack of centralised price regulation further exacerbates such inequalities, highlighting the need for more consistent pricing policies to ensure fairness and transparency across the private sector.

Rising Drug Prices

Inflation in pharmaceutical prices has been another critical factor driving up TPE. According to the Medicines Consumer Price Index (CPI), the inflation rate for drug prices from 2018 to 2023 has been 4.3%⁽⁹⁾. The steady increase in medication costs

affects both public and private sectors, contributing significantly to the overall rise in pharmaceutical expenditure. The increasing prices of drugs can place additional strain on both healthcare budgets and consumer finances, particularly for essential medications that are critical for managing chronic conditions and other health needs.

As prices continue to climb, there is an increasing need for price control mechanisms to ensure that essential medications remain affordable and accessible to all segments of the population.

Increased Drug Utilisation (Post-Pandemic)

Another major factor contributing to increased TPE is the surge in drug utilisation, particularly following the COVID-19 pandemic. The demand for symptomatic-controlled drugs, such as those used to treat lingering COVID-19-related conditions, has surged as individuals seek treatment for post-viral health issues⁽⁵⁾. The public's heightened awareness of health and the continued demand for pharmaceuticals to manage post-pandemic symptoms have led to a noticeable rise in medication consumption⁽⁵⁾.

This increased utilisation puts pressure on the healthcare system, highlighting the need for effective resource planning and the implementation of strategies to manage growing pharmaceutical demand more efficiently.

Need For Strategic Procurement And Cost Containment

One important step is to implement more transparent pricing mechanisms in the private sector. This will help regulate the price variations and ensure affordability for consumers, making medications more accessible across different healthcare settings⁽⁸⁾⁽¹⁴⁾.

In addition to price regulation, strategic procurement strategies should be prioritised. By optimising procurement processes, the healthcare system can achieve better cost control, ensuring that essential medicines remain within budget while maintaining delivery of high-quality healthcare⁽⁸⁾. Improved procurement practices can also help mitigate the risk of price escalation by allowing for better bulk purchasing and long-term contracts that lock in prices, reducing the overall cost burden on the healthcare system.

Conclusion

The increasing trends in TPE in Malaysia reflect a combination of price variations, rising drug costs, and increased drug utilization, particularly in the post-pandemic period. These factors have led to escalating pharmaceutical spending across both public and private healthcare sectors, creating challenges related to affordability and access to essential medications. To address these issues, the implementation of **cost containment, price transparency, and strategic procurement strategies** will be crucial. These measures will help balance the growing demand for pharmaceuticals with the need to maintain financial sustainability, and ensure equitable access to healthcare for all segments of the population.

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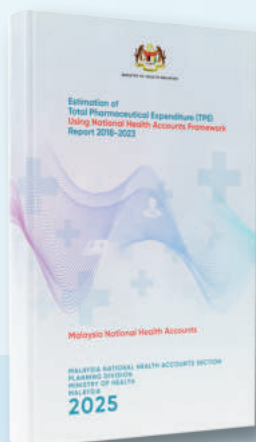
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