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EXPERT OPINION

Challenges and Strategies for Improving Access to Cancer Drugs in Malaysia: Summary of Opinions Expressed at the 2nd MACR International Scientific Conference 2022

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Abstract: Considerable progress has been made in cancer drug development in recent decades. However, for people in low- and middle-income countries, including Malaysia, many of these drugs are not readily available. During the 2nd Malaysian Association for Cancer Research (MACR) International Scientific Conference, a forum discussion was held to address these challenges and explore strategies to improve access to cancer medicines in the country. This paper presents the results of the said forum discussion. A few challenges to cancer drug access were highlighted, including lengthy approval and regulatory practices, cost of medicines, and manufacturing barriers. Besides, a few strategies for mitigating some of these challenges were proposed, such as mechanisms for cost reduction, uptake of biosimilars and generics, local manufacturing, public-private partnerships, strengthening the role of insurance companies, funding and regulation, and advocacy for fair pricing, by drawing examples from cancer medicines access initiatives in Malaysia and initiatives for different disease groups. Overall, this paper provides a comprehensive overview of the challenges and strategies for improving access to cancer medicines in Malaysia and provides valuable insights for policymakers, healthcare providers, the pharmaceutical industry, cancer patients, cancer support groups, and other stakeholders working on this important issue.

Keywords: cancer drug access, cancer treatment, Malaysia, non-equitable cancer drug distribution

Introduction to the Malaysian Association for Cancer Research

The Malaysian Association for Cancer Research (MACR) (https://macr-cancer.org) is a non-profit organization (NGO) that aims to harness research discoveries to revolutionise cancer treatment. It was established in October 2017, with a vision to become the leading association in cancer research in Southeast Asia, and a mission for fostering cancer research in Malaysia, as well as promoting the dissemination of the latest research discoveries among scientists, health care professionals, and related stakeholders. On December 7 and 8, 2022, MACR in partnership with the Malaysian Oncological Society (https://mymos.my) and local public and private universities organised the 2nd MACR International Scientific Conference with the theme "Next Generation Cancer Therapeutics - Where Are We Heading?" to provide a major convening platform for cancer research communities based locally and abroad. One of the main events of the conference is a forum on Cancer Drugs Access, where six panelists representing cancer survivors, cancer advocates, clinicians, and the pharmaceutical industry discussed challenges and potential strategies to improve access to cancer drugs. The forum was moderated by Dr. Shing Cheng Tan (a cancer geneticist from Universiti Kebangsaan Malaysia), and the panelists included Professor Dr. How Soon Hin (a chest physician from the International Islamic University

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Malaysia), Dr. Murallitharan Munisamy (a public health physician from the National Cancer Society Malaysia), Dr. Yolanda Augustin (a clinical oncologist from St. George's, University of London), Professor Datin Dr. Rozi Mahmud (a radiologist from Universiti Putra Malaysia, and an advocate in cancer survivorship), Professor Dato' Dr. Fuad Ismail (a clinical oncologist from Universiti Kebangsaan Malaysia), and Mr. Jegatheswaran Panderengen (the Country Public Affairs Head of Novartis Corporation Malaysia). This paper presents the results of the above forum discussion.

Overview of Cancer Epidemiology and Available Systemic Treatment Options

Cancer is a major health problem and a leading cause of death worldwide. In 2020 alone, there were an estimated 19.3 million new cases and nearly 10 million deaths due to cancer.[1] Although cancer is less prevalent in low- and middle-income countries (LMICs) based on the World Bank classification compared to high-income countries, the number of cancer diagnoses in LMICs is rapidly increasing every year.[1] This can be attributed to several factors, including inadequate healthcare infrastructure, low public awareness of cancer prevention and early detection, and exposure to risk factors such as tobacco and pollution.[2,3] Fortunately, significant advances in cancer drug development in recent decades have led to a substantial improvement in 5-year survival rates from 50.4% in 1975–1977 to 66.4% in 2006–2012.[4] The prognosis and quality of life of patients with late-stage cancer are also improved by advances in cancer treatment. Nevertheless, the mortality rate for cancer remains high in LMICs.[5,6]

Apart from late diagnosis, one of the possible reasons for the high cancer mortality rate in LMICs in Asia is the limited access to cancer treatments, including cancer drugs, in these regions.[7] Although basic cancer drugs are usually available, new innovator drugs such as biologics, which can significantly improve survival rates, are prohibitively expensive in these regions. This results in patients not being able to receive appropriate cancer treatment and adhere to their treatment plans. The problem of limited access to drugs is made worse by pharmaceutical companies, which tend to focus their efforts on developing treatments for cancers commonly found in high-income countries, as this gives them a greater profit potential.[8] Finding solutions to high drug costs is complex because pharmaceutical companies need to generate profits to research and develop new drugs, and cancer drug development is often costly and difficult.[9] In addition, patients in regions with limited cancer drug access may have to pay out-of-pocket for their cancer treatment instead of having it covered through a reimbursement plan.[10] The current system of cancer drug development and distribution needs to be improved so that underprivileged patients in this region are not deprived of effective treatment. As academics, pharmaceutical companies, and governments are involved in the research, development, and regulation of cancer drugs, a collaboration between these parties is necessary to circumvent the problem of limited access to drugs.

In Malaysia, a country with a population of 32.4 million, approximately 0.395% of the population has been diagnosed with or cured of cancer, with 48,639 new cases and 29,530 deaths reported in 2020.[1] It is estimated that approximately one in ten Malaysian men and one in nine Malaysian women will be diagnosed with cancer before reaching the age of 75.[11] The five most common cancers in Malaysia are breast, colorectal, lung, nasopharyngeal, and liver cancers, with the first three accounting for nearly half of all cancer cases reported by the Malaysia National Cancer Registry.[11] Certain risk factors play a role in the incidence of cancer in Malaysia and modifications to these factors could potentially reduce the risk of developing various cancers.[12] These risk factors include lifestyle choices such as excess weight and tobacco use.[12]

When a patient is diagnosed with cancer, it is important that they have quick access to quality and affordable cancer treatment to have a better chance of survival. Cancer facilities in Malaysia can be found in healthcare institutions managed by the Ministry of Health (MoH), teaching hospitals of universities, and private hospitals. The country currently has just over 150 practicing oncologists, which corresponds to a ratio of approximately 1 oncologist per 220,000 population. Although this proportion is considered suboptimal, it is noteworthy that the number of oncologists has tripled over the past two decades. This growth has been accompanied by an increase in the number of specialty surgeons, molecular diagnostic laboratories, centers providing oncology and radiation therapy services, and non-government organisations (NGOs) that support cancer care and advocacy.[13]

Overview of Drug Registration, Procurement, and Reimbursement/ Payment Systems in Malaysia

In Malaysia, drugs are reviewed by the National Pharmaceutical Regulatory Agency (NPRA, previously known as the National Pharmaceutical Control Bureau) and approved by the Drug Control Authority (DCA). DCA is an executive body established under the Control of Drugs and Cosmetics Regulations 1984 and is responsible for ensuring that drugs marketed in Malaysia are safe, effective, and of high quality. It is important to know that not all approved drugs are included in the government formulary (the Malaysian Ministry of Health's Medicines Formulary, also known as the Blue Book), as other factors such as cost-effectiveness, safety, effectiveness, budget impact and patient survival and quality of life are also considered.[14] Among the drugs listed in the Malaysian Ministry of Health's Medicines Formulary are those in the Malaysian National Essential Medicines List (NEML),[15] which is a list of basic medicines including anti-neoplastic agents (cancer drugs) that satisfy the national healthcare needs of the majority of the population. The NEML is formulated based on the WHO Model List of Essential Medicines.[16] Health policymakers employed cost-effectiveness analyses and the resulting cost-effectiveness ratios as guiding factors in resource allocation decisions and to assess the efficiency of alternative health interventions.[17] A cost-effective threshold simply means a set of values used to decide if a medical treatment or healthcare programme is worth the cost. If the cost per health benefit (eg quality-adjusted life year) is below this threshold, the treatment is considered cost-effective. If the cost exceeds the threshold, it may be seen as less cost-effective and further evaluation is required. The frequently referenced cost-effectiveness thresholds are derived from the country's per-capita gross domestic product (GDP) and the Commission on Macroeconomics and Health's associated assessment of the economic value of a year of healthy life.[17] In global health, interventions that incur costs of less than three times a country's gross domestic product (GDP) per capita per disability-adjusted life year (DALY) averted are typically deemed cost-effective.[18] Assuming the cost of treating a cancer patient with a particular drug is 300,000 MYR (approximately 67,700 USD) per year, which is seven times the Malaysian per capita GDP, thus the drug would be considered cost-ineffective, and it is a limiting factor for patients' access to expensive innovative cancer treatments.[19–21] This is because fewer people can benefit from the treatment if an expensive drug is used. With the cost of treatment rising faster than GDP, it is very difficult for any country to keep up with the cost of cancer drugs.

An alternative to innovative drugs is biosimilars. However, in Malaysia, the NPRA guidelines state that interchangeability between innovator drugs and biosimilars is not currently recommended and that the decision to switch between a reference biologic product and a biosimilar should be made on a case-by-case basis by the treating physician. However, based on the available scientific evidence and safety considerations, it was established that in the Malaysian context, physicians should make this decision in the best interest of patients. The NPRA guidelines state that extrapolation of indications is allowed in certain circumstances, but the decision to approve a biosimilar for an indication that has not been studied in clinical trials must be based on scientific justification and supporting data. The NPRA requires that the biosimilar demonstrate comparable safety, efficacy, and quality for all indications, including extrapolated indications, based on a comprehensive data package that includes data from clinical trials, nonclinical studies, and quality data.[22]

In public hospitals in Malaysia, healthcare for basic cancer drugs is heavily subsidised by the Malaysian government. On the other hand, residents who seek treatment in private hospitals must pay the cost of treatment out of pocket or it is reimbursed by their insurance.[23] Coverage for cancer drugs in private insurance schemes varies significantly depending on the insurance provider and the drug in question.[24,25] Some insurance plans may have annual or lifetime maximums, and some treatments may be classified as experimental and not covered. Formulary management, which consists of lists of drugs covered by a particular insurance plan, could ensure that the most effective and cost-effective drugs are available to patients. Preauthorisation by the government, however, may be required for certain cancer drugs before they are covered by insurance. Utilisation management tools, such as step therapy and quantity limits, are used to manage the use of certain cancer drugs and ensure their effectiveness and cost-effective use.

Challenges to Access

Regulatory

A key factor that contributes to the problem of cancer drug access in Malaysia is the lengthy process of drug approval and inclusion in the government formulary. The time for approval of a new drug/biologic in Malaysia is 245 days or less,

which is much quicker than other regulatory bodies in the world.[26,27] Despite this, the timeframe is still considered not feasible, especially for life-threatening diseases such as cancer. Therefore, accelerated approval was introduced to shorten the time it takes for drugs with high clinical benefits to become publicly available. In Malaysia, this is known as the Priority Review, for which the timeframe for evaluation ranges from 100 to 120 days, depending on the drug category.[27]

It is critical that regulators revise the drug approval timeline from time to time to meet current requirements. Lengthy approval processes and unnecessary bureaucracy can sometimes impede rapid access to the healthcare system for certain life-threatening diseases. Therefore, for certain critical diseases such as cancer, it is important to consider implementing streamlined approval processes that maintain rigorous standards for quality, safety, and efficacy, while reducing the time needed for cancer drug approval. This may seem like a daunting challenge, particularly for new drugs or complex biologics. One possible way forward might be to increase reliance on and collaboration with stringent authorities such as the FDA and EMA, a strategy that has been adopted in several LMICs.[28] This could include aligning local regulatory processes with these agencies or establishing mechanisms for expedited approval of already approved drugs. Nevertheless, this must be done carefully and with consideration of the local context and epidemiology of the disease. In addition, it may be beneficial to consider the use of advanced data analytics and artificial intelligence to expedite the review of clinical trial data and other information submitted in support of regulatory submissions.[29,30] Apart from that, capacity building within regulatory agencies in LMICs is critical to enable these agencies to conduct drug assessments efficiently, thus investments in human resources, training programs and knowledge-sharing initiatives and collaboration with stringent international regulators should be promoted.

Cost Barriers

Access to essential medicines is central to the progressive realisation of the right to health.[31] In recent years, the introduction of high-priced medicines for previously untreatable diseases such as cancer has raised questions about whether these medicines are affordable to both patients and health systems. Some countries have applied the right to health, as declared in Article 12 of the International Covenant on Economic, Social and Cultural Rights, to seek reimbursement for these expensive drugs. However, with limited budgets, ensuring fair access to expensive but essential medicines can be a daunting task for any government.

In Malaysia, many factors are considered for inclusion in the government drug formulary, including favorable clinical performance, current best treatment options, disease prevalence, and prescribing patterns.[32] However, one of the most important factors to consider is the cost.[6] Some very promising drugs could not be included in the formulary even after several clinical trials, not because of their efficacy, but because of cost.[33] An important factor contributing to these high costs is the rationale that the high prices are necessary to cover research and development (R&D) costs.[34] However, industry estimates of R&D costs are unsubstantiated. Partnerships such as the Drugs for Neglected Diseases Initiative (DNDi) have shown that actual R&D costs can be significantly lower than industry estimates.[35] These gaps in the transparency of actual R&D costs further complicate the cost issue. A survey by the World Health Organisation reported that only 22% of African and 43% of Southeast Asian nations have access to these treatments, which is in stark contrast to the situation in Europe, where the availability of anticancer therapy reportedly surpasses 90%.[36] Similarly, a study of access to essential cancer medicines in a middle-income country (Mexico) shows that both the public and private sectors have failed to meet the World Health Organisation's target of 80% for medicine availability.[37] Affordability is also below optimal levels, with only seven medicines in the public sector and five in the private sector considered affordable.[37] These findings point to the urgent need for a comprehensive pricing policy and the potential benefits of a national health insurance system to improve access to and affordability of cancer medicines.

In Malaysia, the availability of drugs may vary from government hospitals to private hospitals. If the desired or preferred drugs are not available in government hospitals, patients may need to obtain them at their own expense at a private hospital. Since medications are not subsidised in private hospitals, patients must bear considerable costs for them. For lung cancer, for example, a checkpoint inhibitor therapy costs about 12,000 Malaysian Ringgit (MYR) (approximately 2700 USD) per dose in 2022 and needs to be taken every 3 weeks until disease progression or when unacceptable toxicity occurs, or for up to 24 months.[38,39] This exorbitant cost not only burdens patients from the low-income group but also the middle-income group in the country. Osimertinib, another newer *epidermal growth factor*

receptor (EGFR) tyrosine kinase cancer drug, can cost up to 80,000 MYR (approximately 18,000 USD) per month in 2023.[40] Even patient assistance programs, such as those offered by some pharmaceutical companies, while seemingly beneficial, often serve to maintain the high price structure and perpetuate government and patient dependence on corporate decisions.

It is important to note that the production costs for most of these drugs are a fraction of the selling price, often less than 1%, which further calls into question the justification for the high prices. In addition, pharmaceutical companies often pursue a low-volume, high-benefit model for drugs that target the top 5% of the population, rather than making the drugs more affordable and accessible to a broader population. Some patients may not have the privilege of using this type of medication, even though it is of clinical benefit to them. These high prices not only prevent many patients from accessing potentially life-saving treatments, but also place a large financial burden on the healthcare system.

The principle of progressive realisation of the right to health can be helpful in prioritising access to essential medicines.[31] This approach states that states should maximise available resources to achieve the highest attainable standard of health for all, but not immediately, but incrementally.[31] This includes prioritising treatments based on transparent and independent assessments of their cost-effectiveness, ensuring efficient use of resources, and gradually realising the right to health for the greatest number of people at the lowest possible cost, without discrimination.[31]

Manufacturing Barriers

There are only 28 drug manufacturers in Malaysia, of which 23 are locally owned and 5 are foreign-owned.[41] Although this appears to be a small number, competition among these manufacturers is intense. They not only have to deal with competition among themselves but also with price competition from imported generic drugs.[41] This fierce competition and lack of market power are reflected in their financials – the average net profit margin of the 20 manufacturers for which data were available was only 12% in 2014/2015.[41]

Despite this lack of market dominance, barriers to entry into pharmaceutical manufacturing remain. The high capital costs associated with setting up new production facilities are a significant hurdle for potential entrants.[41] In addition, stringent regulatory requirements and the mandatory introduction of bioequivalence testing for all controlled drugs by 2019 add to these challenges. These regulatory requirements, while critical to maintaining the quality and safety of medicines, may unintentionally increase production costs for manufacturers, particularly smaller or newer companies.[41] Moreover, the requirement for bioequivalence testing presents another unique challenge given the limited number of testing centers available in Malaysia.[42] These centers, which are primarily university-based and not-for-profit, struggle to meet the demand from local generic manufacturers for the required testing. This bottleneck is potentially slowing the market introduction of new drugs. In addition, the situation is further complicated by drug manufacturers' perceptions and attitudes toward government policies and regulations.[43] A previous study found that generic drug manufacturers have ambiguous perceptions of the effectiveness of the Malaysian government's strategies to promote generic drugs.[42,44] Uncertainty also existed regarding the Malaysian exception provision (Bolar provision), which allows generic drugs to be developed before the originator drug's patent expires, creating an additional layer of complexity in the competitive pharmaceutical manufacturing landscape in Malaysia.[42,44]

Strategies for Improving Cancer Drug Access

Mechanism for Cost Reduction

Oncologists often look for other ways to provide their patients with the best cancer treatment without burdening them financially. To this end, some oncologists may opt for off-label practices, such as changing the frequency of taking long half-life drugs from daily to every other day.[45] Lowering the dose of the cancer drug is also a strategy to reduce the cost of cancer treatment. For osimertinib, a third-generation tyrosine kinase inhibitor used to treat metastatic non-small cell lung cancer patients with specific *epidermal growth factor receptor* (*EGFR*) mutations, for example, results of the AURA1 clinical trial showed that the response rates among patients with detectable *EGFR* mutation T790M was similar across all dose levels (20 mg, 40 mg, 80 mg, 160 mg, and 240 mg).[46] Preliminary results from a small group of 29 patients in an ongoing clinical trial also showed that prescribing half the dose (40 mg instead of the conventional 80 mg)

resulted in an acceptable response rate and median progression-free survival in the patients.[45] Thus, if positive results are obtained in future larger-scale trials, the cost of treatment with osimertinib may be reduced to half.

Immunotherapy is another expensive cancer treatment that has gained increasing attention in recent years. A forum panelist reported that one of his patients took only one dose of treatment and received no further doses due to financial constraints. Surprisingly, after one dose, the tumor began to shrink and there were no more symptoms. Currently, the patient is symptom-free in the third year. A case report also documented that a single dose of pembrolizumab resulted in a profound and durable response in a patient with non-small cell lung cancer.[47] However, further studies are needed to investigate whether one dose is sufficient for other patients receiving immunotherapy.

Another possible way to reduce the financial burden of patients is by using an ultra-low dose of an immunotherapeutic agent in addition to standard chemotherapy. A cost-saving regimen of methotrexate, celecoxib, erlotinib, and low-dose nivolumab has been shown to improve overall survival in patients with head and neck cancer.[48] The use of immunotherapies or other costly anti-cancer modalities should also be guided by biomarkers that predict a positive response.[49] This prevents the administration of ineffective treatments in patients who are unlikely to respond favorably.

Some experts suggest that cancer drugs should be reappraised to better align the prices with the clinical benefits expected in real-world settings. The inflated prices of cancer drugs are attributed to a fear-driven demand and an inordinate willingness to pay for the potential cure of a disease known for its high mortality rate. Therefore, value-based pricing, whereby drug prices are based on the magnitude of expected clinical benefit, is advocated to reduce the cost of cancer therapy.[50,51]

Other cost-reduction strategies are mainly related to the technicalities of treatment administration. Weight-based dosing should replace one-size-fits-all dosing because most patients are likely to require doses lower than those recommended by the manufacturer.[52] Current practices for handling drug vials should be optimised to minimise wastage. Guidelines dictating that drug vials are intended strictly for single use should be considered outdated. It should be acceptable for single-use vials to be "reused" for more than one patient, provided sterility is carefully maintained between uses.[53,54] In this way, "excess" doses could be shared between patients rather than being discarded (and wasted). Alternatively, the number of drug vials needed can be reduced by rounding down the treatment dose to one vial size, provided the final dose is within 10% of the ordered dose.[55]

Uptake of Biosimilars and Generics

Generics contain the same active ingredients as branded drugs and have been thoroughly evaluated in bioequivalence trials; biosimilars are biologics that have been proven to be as effective as reference biologics used for the same therapeutic indications. When possible, patients should be offered the less costly options of generics and biosimilars. Healthcare professionals should strive to dispel the public misconception that generic drugs are inferior alternatives to branded drugs. Such a misconception leads patients to reject generic substitution, precluding any positive impact that generics could have on rapidly rising healthcare spending in many countries.[56] Generics cost only a fraction of the high prices of branded drugs, so the potential cost savings from prescribing shifts to generics are substantial;[50] biosimilars are considerably more expensive than generics but still less so than branded drugs. Previous estimates of cost savings, although noted to vary depending on the assumptions made for the calculations, placed biosimilars within price brackets 25–80% lower than reference products (innovator drugs).[57,58] Evaluations of therapeutic efficacy showed that generics and biosimilars are comparable to branded drugs.[57,58] For example, in an observational retrospective study, most patients successfully switched to generic imatinib with no loss of therapeutic efficacy.[59]

Local Manufacturing

Another strategy to reduce the cost of cancer drugs is local manufacturing. When a drug is manufactured locally, the costs associated with transportation and import duties are eliminated.[60] The presence of a local production facility may also facilitate the implementation of special access programs. One example of this is the award of a three-year contract worth 90 million USD in 2022 to Biocon, a manufacturer of recombinant human insulin, by the Malaysian Ministry of Health to make its formulations available to patients in all Ministry of Health hospitals, district health offices, and clinics at an affordable price.[61] It is hoped that more local manufacturers of cancer drugs will enter the market, which will

eventually lead to price reductions for consumers. To this end, the government should take steps to address the bottlenecks that can potentially slow the introduction of new manufacturers and also restore drug manufacturers' perceptions of the government's effectiveness in promoting generic and Bolar provisions. Besides, Malaysia can also invest in molecular pharming, which is the production of therapeutic proteins and drugs using genetically modified organisms, such as the cultivation of antibodies and immunotherapies in plants.[62] This technology has the potential to significantly reduce the cost of cancer drugs by enabling large-scale production at a lower cost as compared with conventional methods. In addition, molecular pharming can provide a more controlled and reliable source of active pharmaceutical ingredients, reducing the risk of contamination and batch-to-batch variability.[62]

Cancer Access Drug Programs Through Public-Private Partnerships

Another approach to improve drug access is by encouraging public-private partnerships. For example, the Malaysian Ministry of Health has partnered with Novartis to provide imatinib treatment to chronic myeloid leukemia (CML) and gastrointestinal stromal tumor (GIST) patients under the global Glivec International Patient Assistance Program (GIPAP).[63] This program was later transformed into the Malaysian Patient Assistance Program (MYPAP), which features a co-shared contribution model in which treatment costs are covered partly by the government and partly by Novartis. To date, the program has helped more than 2000 CML and GIST patients in Malaysia.[64] Despite this, such programs should not be viewed as a long-term solution to the problem of high drug prices, as the high price is still maintained, and the government and the patients remain dependent on decisions by the drug manufacturer. Other more sustainable models should be considered.

The importance of public-private partnerships in reducing drug costs is also illustrated by the example of a hepatitis C drug, for which a partnership among the Malaysian Ministry of Health, the non-profit research and development organisation Drugs for Neglected Diseases Initiative (DNDi), the Egyptian pharmaceutical company Pharco Pharmaceuticals, the Malaysian pharmaceutical company Pharmaniaga Berhad and the NGO Doctors Without Borders (Médecins sans frontières) led to the development of a generic formulation of a hepatitis C drug in 2020.[35] This partnership has reduced the price of a 12-week treatment from approximately 17,000 USD to about 300 USD, making the drug more affordable and increasing access to hepatitis C treatment in Malaysia and Southeast Asia. It is hoped that such a partnership can also be established in the development of cancer drugs.

The government can also negotiate lower prices for cancer drugs with pharmaceutical companies. This has been done in the past for other drugs, where the Malaysian Ministry of Health, with the help of the Indian government, succeeded in procuring drugs at a 30% lower price from an Indian drug manufacturer. Such efforts should be continued for a wider range of drugs, including cancer drugs. Additionally, as noted above, since some patients have received lower doses or frequencies of cancer drugs without apparent adverse effects on treatment efficacy, basic research investigating the off-label use of cancer drugs should be encouraged. Drug repurposing, a strategy to identify and explore new uses for approved/proven drugs, is another way to reduce the cost of drug development and should be encouraged. Given that these drugs are already approved, repurposing them for use in cancer treatment can potentially shorten the time frame for inclusion in the government formulary.

A partnership between the government and private insurance companies is also important to allow cancer drug access to patients. An example of such a partnership is the launch of the mySalam national health protection scheme (https://www.mysalam.com.my/), in which Great Eastern Holdings Limited, a private insurance company, provided 2 billion MYR (approximately 447 million USD) in seed funding for the government to offer a free non-profit insurance scheme to the low-income groups. Under this scheme, the government plays a role in establishing a "primary" insurance policy responsible for covering certain types of losses, while coverage beyond that must be supplemented by "additional" or "secondary" policies. Multiple insurance plans can help reduce administrative costs and improve the overall quality of care for patients.

Role of Insurance Companies

Insurance companies can also play a role in improving access to cancer drugs. As most people who need cancer treatment may have purchased their insurance some time ago, the scope and amount of coverage that seemed appropriate at the

time may no longer be appropriate today, as the cost of healthcare has increased exponentially.[65] In addition, many diseases and the latest treatments may not be readily covered under the policy. In other words, there are many grey areas as to what can and cannot be reimbursed. Thus, insurance policies need to evolve to match the current needs. Private insurance companies continually review and revise their policies to meet the changing health needs of their customers while ensuring that coverage remains affordable. Currently, the sum insured can be as high as 1 million MYR (approximately 225,630 USD) and is renewable annually. People have the option to revise the insurance policy; however, the older a person is when they take out a policy, the more expensive the premiums become.[65] In addition, capitation payments for specialty drugs can reduce costs for beneficiaries, thus improving access to medications.[64,66]

The government should also consider upgrading the current mySalam scheme (which insures low-income groups against a limited number of diseases) into a comprehensive national health insurance scheme that provides broader medical coverage to all citizens, including coverage for expensive cancer treatments such as immunotherapy. This would create a more equitable and accessible healthcare system in which everyone has access to the medical care they need, regardless of their financial status.[37] In addition, the government can collaborate with private insurance companies on information and risk sharing. Sharing information on healthcare trends, patient outcomes, and costs can be useful in identifying areas for improvement. Strategies could then be developed to improve the overall quality of health care. Finally, since profit is critical to the financial survival of private insurance companies as businesses, the government can also provide a financial backstop to cover unexpected losses while private insurance companies insure high-risk individuals. In this way, private insurance companies, which have been reluctant to offer coverage to high-risk groups, would no longer view this as a zero-sum game where only one wins.

Alternative Licensing Models and Advocacy for Fair Pricing

The pharmaceutical industry commonly claims that R&D costs are as high as 2.6 billion USD per drug.[34] However, the lack of transparency in actual R&D spending raises questions about the validity of such a claim.[67] In fact, DNDi and other public-private product development partnerships have proven that drug development can cost as low as 100–150 million USD per drug.[35] Detailed and transparent disclosure of R&D costs by pharmaceutical companies is therefore needed to allow for a more accurate assessment of the fairness of drug pricing and thus allow for more factual, informed discussions and negotiations about the pricing of these life-saving medicines.[67] The government should resist the urge to simply accept high prices for cancer drugs. Instead, active negotiations with pharmaceutical companies to lower cancer drug prices, such as pushing for volume-based pricing models, is a critical aspect of improving cancer drug accessibility.[68]

In cases where negotiation and voluntary licensing have proven unsuccessful, the government can implement compulsory licensing or government use orders to allow the production of a patented product without the consent of the patent holder, to make cancer drugs more affordable. While controversial, this strategy has been used by several LMICs, including Malaysia, in the past to increase access to essential drugs for their populations and it is worth noting that all cancer drugs recommended in the WHO Model List of Essential Medicine are listed in the formulary.[14,69]

Funding and Regulation

The quality and accessibility of healthcare services in Malaysia are also affected by the healthcare budget, as government hospitals in Malaysia are highly dependent on government subsidies. Lack of funding can lead to shortages of healthcare workers, inadequate healthcare facilities, and limited access to care, especially in rural and underserved communities. Limited funding for public health systems also affects access to cancer drugs and can result in patients facing long wait times for cancer treatments. Inadequate reimbursement policies also limit access for patients who cannot afford the high cost of cancer drugs. It can also be a major challenge for oncologists who know what is best for their patients, but it is not available due to extremely high costs.

Although it may not be feasible for the government to continuously increase healthcare funding, the government actively conducts educational campaigns from time to time to inform the general public about cancer and its treatment options, including drugs.[13] The goal of these campaigns is to improve the public's understanding of cancer, reduce the stigma associated with the disease, and provide information about early detection and treatment options.[13] In addition,

the government also plays a role in regulating the approval and pricing of cancer drugs to ensure affordability for patients.[70]

Finally, the government should consider implementing the Lancet Commission's recommendations on essential medicines and adjusting the policies on cancer drugs.[71] Among the key policies recommended is the need for the affordability of medicines. One way to achieve this is for governments to establish information systems to routinely monitor data on the affordability, pricing, and availability of drugs in both the public and private sectors.[71] There is also a need for comprehensive efforts to make drugs affordable. This includes building capacity at the national level to create drug benefit packages that guide procurement and reimbursement processes.[71] In addition, governments, health systems and the pharmaceutical industry are urged to actively promote transparency of health and medicines information.[31,71] Apart from that, the Commission also emphasises the necessity of providing sufficient financing to ensure the inclusion of drugs in public sector provisions and all health insurance schemes, ensuring the quality and safety of drugs, promoting the quality use of drugs, and developing missing drugs.[71]

Concluding Remarks

While universal access to early diagnosis and basic treatment of common cancers will yield significant progress in cancer management, this can only be realised when cancer drugs are readily accessible. The issue of non-equitable distribution of cancer drugs is a global problem and is especially severe in LMICs in Asia, including Malaysia. The lack of access to cancer drugs can be attributed to several factors, including but not limited to the high cost of the drugs and the lengthy approval process to add drugs to the government formulary. During the forum discussion, it was unanimously agreed that academics, researchers, scientists, industry, insurance companies, and policymakers should work together to improve access to cancer drugs in the country. It was emphasised that regulators need to accelerate the review and approval of generics and biosimilars, which can result in broader access to cancer drugs. The role of pharmacoeconomics was also highlighted, which has the potential to influence policy decisions on drug pricing and reimbursement to ensure more equitable access. The forum also acknowledged the importance of strengthening healthcare infrastructure, including laboratories and diagnostic facilities, to support more efficient drug delivery systems.

Some strategies that can be taken to this end include promoting collaboration between the public and private sectors and implementing various strategies to reduce the cost of drugs and make them more accessible to patients. The government should also encourage local drug manufacturing, invest in molecular pharming, and negotiate lower prices with other countries that manufacture drugs. In addition, it was suggested that Malaysia could use its position in ASEAN to facilitate regional cooperation in jointly negotiating drug prices and even pool resources for drug procurement, which could help lower prices. In addition, fiscal incentives for research and development could be introduced to attract investment in the local pharmaceutical industry, which in turn could encourage the production of drugs in the country and reduce reliance on imports.

Research into drug repurposing should also be encouraged, as this is a promising strategy that can improve access to cancer drugs by reducing the cost of drug development. One promising strategy is by leveraging big data and artificial intelligence to identify candidate drugs for repurposing and thus accelerate the discovery process. Promoting clinical trials of repurposed drugs with streamlined ethical and regulatory processes could also help get these drugs to patients faster and cheaper.

In addition, the introduction of a national health insurance system and the partnership with private insurance companies can improve affordability and access to cancer drugs for patients.[37] In this regard, the concept of risk-sharing agreements between the government and pharmaceutical companies was raised. Such agreements could help mitigate financial risks for patients and the healthcare system while ensuring access to innovative therapies. The establishment of patient assistance programs in collaboration with pharmaceutical companies can also provide additional financial support to patients who cannot afford their medicines, although this should be viewed as a short-term solution to the problem of high cancer drug prices. The government should also implement the Lancet Commission's recommendations for essential drugs and adapt these strategies to improve the accessibility and affordability of cancer drugs in particular.

Given the increasingly aging population in LMICs and escalating cancer incidence and mortality rates, increased investment in cancer prevention and control measures is urgently needed. Priority should be given to the four key areas stated by the World Health Organisation guideline on cancer control in LMICs, namely (1) risk factor modification and prevention, (2) early diagnosis, (3) treatment, and (4) palliative care.[6] An important component within the "treatment" category is improving access to cancer drugs.[6] Overall, a multifaceted approach is needed to address the problem of access to cancer drugs in Malaysia. This includes collaboration between academia, government, insurance companies, cancer patients, cancer support groups, and the pharmaceutical industry, as well as the adoption of various strategies to reduce the cost of drugs and make them more accessible to patients in need. The MACR will continue to engage regularly with these stakeholders to explore further strategies to improve access to cancer drugs in Malaysia. Additionally, MACR will communicate with politicians, policymakers and cancer advocates to address this important issue in cancer drug access. Recognising the pivotal role of public awareness, the MACR is planning campaigns aimed at educating the general population about the importance of access to treatment in improving cancer survival rates. It is hoped that this comprehensive strategy will not only improve access to cancer drugs in Malaysia, but also serve as a model for similar initiatives in other LMICs across the globe. The expected outcomes of this forum and subsequent interventions include improved cancer drug availability, reduced patient expenditures, and ultimately improved quality of life and survival rates for cancer patients in Malaysia.

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Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

Disclosure

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