

The Survey of Analysis, Availability, Affordability, and Pricing of Diabetes Mellitus Medications in Pharmacies in Medan, North Sumatera, Indonesia

Sri Raudoh Rezki MR¹, Khairunnisa Khairunnisa², Wiryanto²

¹Master in Pharmaceutical Science Program, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia,

²The Department of Pharmacology and Clinical Pharmacy/Community, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia.

Corresponding Author: Khairunnisa Khairunnisa

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ABSTRACT

Pharmacies face difficulties in providing the various types of medicines needed by the public, especially for conditions requiring ongoing treatment, forcing pharmacies to adjust drug prices to maintain business continuity and potentially affecting the affordability of drugs for the public. This study aimed to evaluate the availability, affordability, and pricing of drugs for diabetes mellitus in pharmacies in Medan, North Sumatera Utara, Indonesia, in 2023 based on the guidelines established by the World Health Organization (WHO), the National List of Essential Medicines, and the National Formulary. This study used both retrospective and concurrent methods, employing a survey to collect data on medications for diabetes based on the WHO. The survey covered 100 pharmacies in 21 subdistricts of Medan. It showed that of the 17 drugs examined, only four were available in pharmacies. The drug that was almost always available was metformin 500 mg, which had 100% availability. Only 10 drugs were available in pharmacies, with the highest availability being metformin 500 mg, which reached 100%. Fifteen drugs were available, with metformin 500 mg being the most widely available drug, achieving 100%

availability. The lowest price for diabetes medication, such as metformin, ranges from Rp750 to Rp1,050 per day, which is still considered affordable. There is still a gap between the current situation and the desired goals, so we recommend updating the list of essential medicines, ensuring their availability in all health institutions, and increasing public awareness.

Keywords: Availability, affordability, diabetes mellitus, pricing, pharmacies.

INTRODUCTION

The prevalence of diabetes in Indonesia is 8.2%, which is somewhat higher than the 7.5% average for all low- and middle-income (LMIC) nations [1]. The health systems of many low- and middle-income nations are ill-equipped to handle this rising burden of diabetes, despite the fact that these rates are comparable to those in Western civilizations. Manne-Goehler et al. [2], found, less than half of all diabetics in a sample of 28 LMICs had received a diagnosis [2]. Only half of those with diagnoses are well managed, even though the majority get some kind of therapy. About 21% of Indonesians have been diagnosed with diabetes, and just a third of those cases (or 7% of all cases) are under acceptable management. There are economic

ramifications to this health burden as well. According to estimates by Bommer et al. [3], the worldwide cost of diabetes in 2015 was 1.3 trillion US dollars, or 1.8% of the world's gross domestic product. Direct expenses in Indonesia came to almost 3.6 billion US dollars, which is equal to 13.7% of all health spending in Indonesia and 0.4% of GDP. Since the labor market losses were comparable in size, the overall cost of diabetes was 0.8% of GDP. From a quality of life and financial standpoint, this emphasizes how critical it is to lower the number of new diabetes cases and enhance treatment for those who already have the disease.

Global healthcare systems are facing increasing issues in terms of medication availability and affordability [4]. The cost of medications is the largest household expense after food in developing nations, accounting for 25–66% of all public and private health expenditures [5]. Diabetes medications now account for a significant amount of healthcare expenditures worldwide, with both people and healthcare systems spending more on them. 4.2 million individuals worldwide suffer with diabetes, mostly in lower-middle-income nations. Every year, diabetes claims the lives of 1.5 million individuals. In recent decades, the prevalence of diabetes has skyrocketed globally. According to a research, diabetes is more common among those between the ages of 39 and 70 who have low or middling incomes. Globally, 10.5% of people have diabetes, and by 2045, that number is expected to rise to 12.2%. According to the International Diabetes Foundation macro study, 537 million people were expected to have diabetes in 2021. By 2030, it is anticipated to reach 643 million, and by 2045, it will reach 783 million.

Complications of macrovascular disease These are the primary expenses associated with diabetes. The growing expenses of diabetes are a worldwide issue, particularly in underdeveloped countries. The economy is strained as the incidence of diabetes rises along with healthcare costs. Research

indicates that diabetes-related medical expenses have lowered productivity and economic activity [6]. Access to medications is impacted by a number of variables, including high costs and limited supply. Views of the State Council and the Central Committee of the Communist Party of China on Strengthening the Reform of the Health Care System [7]. Numerous reasons, including high costs, inadequate prescription practices for both innovator brands and generics, inefficient supply chains, and noncompliance by patients, might contribute to the limited availability of medications [8]. Despite the fact that over 95% of the medications on the WHO Essential Medicine List are no longer copyrighted, it is anticipated that many individuals still lack regular access to medications. Simplifying the procurement and distribution of quality-assured medications can improve access, encourage more appropriate and rational prescribing and use, and reduce costs for patients and health care systems by designating a small number of essential medications as essential while taking into account clinical need and the national disease burden [9,10]. This indicates that there is a gap in availability to medication. It's also important to stress that a reduced procurement price does not always mean that the patient will pay less.

The term "endocrine disorders" refers to a group of illnesses that interfere with the endocrine system's ability to produce and regulate hormones in the body. The most prevalent endocrine condition is diabetes mellitus dysfunction [11]. Hyperglycemia is a hallmark of diabetes mellitus, a chronic metabolic disease caused by deficiencies in either insulin action or secretion, or both [12]. Globally, non-communicable diseases (NCDs) are becoming a significant public health concern. In 2019, 74.5% of all fatalities worldwide were attributable to NCDs. According to WHO [13], 47% of NCD deaths in low- and middle-income countries occurred prematurely, or before the age of 70. One of the most prevalent NCDs, diabetes mellitus (DM), causes chronic

hyperglycemia, which is linked to long-term harm and malfunction of several organs, including the kidneys, heart, brain, eyes, and nerves [14]. Its high frequency and cardiovascular consequences have made it a global health concern [15]. According to the International Diabetes Federation, 536.6 million persons between the ages of 20 and 79 had diabetes in 2021. According to the International Diabetes Federation, 6.7 million fatalities worldwide in this age range were attributed to diabetes or its complications in the same year, accounting for 12.2% of all deaths worldwide [16].

The WHO package of fundamentals for non-communicable disease interventions in low-resource countries states that two key tactics for lowering the burden of NCDs are early diagnosis and the supply of reasonably priced and efficient medications [17]. Improving health outcomes and preventing, treating, and controlling the rapidly increasing prevalence of diabetes depend on well-functioning health systems [18]. Patients with diabetes mellitus (DM) need essential medications (EMs) for the rest of their lives, hence access to these drugs is crucial [19]. However, there are a number of factors that affect access to important medications, including sensible medication selection and usage, availability and cost, sustainable health care finance, and a dependable supply chain of high-quality goods [20]. Nearly 2 billion people lack access to EMs, according to the WHO [21,22]. In order to manage major NCDs in healthcare facilities by 2025, the WHO took the initiative and voluntarily established 80% objectives for the availability of EMs and other health technologies [23].

The National Formulary is a list of selected drugs required and used as a reference for prescribing in healthcare services within the health insurance program. The National List of Essential Medicines serves as a guideline for drug services for healthcare participants at healthcare facilities. The National List of Essential Medicines contains a national list of essential drugs, which is a list of selected essential drugs that are most needed and must

be available at Primary Healthcare Facilities and Advanced Healthcare Facilities according to healthcare needs. This national essential list must be consistently and continuously implemented in the provision of healthcare services at healthcare facilities. Thus, it is hoped that by implementing the use of drugs according to the National List of Essential Medicines in health services at health care facilities, optimal health services will be achieved through rational use of drugs, and patients will receive the right, efficacious, high-quality, safe, affordable, and cost-effective drugs [24].

In this context, this study aimed to measure the availability, price, and affordability of diabetes medications based on the WHO, the National Formulary, and the National Essential Medicines List in Medan pharmacies across 21 sub-districts. Measuring the price and availability of medications will contribute to a better understanding of the actual prices paid by patients at pharmacies and the affordability of essential medications for diabetes treatment. Informed pricing will enable governments and funding agencies to negotiate prices with pharmaceutical companies [25].

MATERIALS & METHODS

Study design

This descriptive cross-sectional study collected concurrent (prospective) and retrospective data. The study examined antidiabetic medicine availability, pricing, and affordability in Medan community pharmacies. Pharmacy staff interviews and field observations were used to obtain primary data during the study.

Reviewing pharmacy records and documentation from 2023, particularly those connected to antidiabetic medicine availability and pricing, provided retrospective data. This approach provided a complete picture of diabetic medication distribution according to national legislation and WHO criteria.

Data collection

This study aimed to assess the availability and affordability of diabetes medications listed in the WHO Essential Medicines List, the Indonesian National Formulary, and the National Essential Medicines List within pharmacies in Medan City. Data collection was conducted using both concurrent (prospective) and retrospective methods. Primary data were gathered through direct observation and structured interviews with pharmacy staff at 100 pharmacies across 21 subdistricts in Medan. During data collection, the availability of antidiabetic medications was recorded based on whether these essential medicines were stocked at the pharmacies. Affordability was evaluated by comparing the retail prices of these drugs to government-set maximum price limits as well as local income levels. Medications priced above the government-established thresholds were classified as less affordable. Additionally, secondary data were collected retrospectively by reviewing procurement records, inventory reports, and distribution data of diabetes medications from 2023 at the pharmacies. All collected data were then analyzed descriptively to provide a comprehensive overview of the current state of availability and affordability of diabetes medications in Medan pharmacies.

Instrument

The instruments used in this study included a structured questionnaire and an observation checklist developed based on diabetes medications listed in the WHO. Essential Medicines List, the National Essential Medicines List, and the Indonesian National Formulary. The questionnaire aimed to collect data on the availability, pricing, and dispensing practices of antidiabetic drugs in pharmacies. The observation checklist was used to directly record the stock availability of diabetes medications during data collection. Medications observed included

insulin, metformin, sulfonylureas, and other antidiabetic drugs listed in the referenced formularies. The instruments were tested for validity and reliability through a pilot study conducted in several pharmacies outside the main sample.

Statistical analysis

Data were analyzed using descriptive and inferential statistics. The Availability Index was calculated by comparing the stock of diabetes medications in pharmacies against the essential medicines listed by WHO, the National Formulary, and the National Essential Medicines List. A higher Availability Index indicates better access to medications. The Affordability Evaluation Index was determined by comparing medication prices to the average daily income (IDR 120,000). Medications priced below this threshold were classified as affordable, while those above were considered unaffordable. The Median Price Ratio (MPR) was computed by dividing the median price of medications found in pharmacies by the official price listed in the government's e-catalog. A Median Price Ratio greater than 1 indicates prices above the official standard, highlighting potential issues with pricing or distribution.

RESULT AND DISCUSSION

Pharmacy demographics in Medan

Medan, the capital of North Sumatera Province, consists of 21 subdistricts with a continuously growing population. In 2023, there were a total of 700 pharmacies playing a crucial role in providing healthcare access to the community. To obtain a representative overview of the distribution of pharmacies and healthcare accessibility, a survey was conducted with a sample of 100 pharmacies out of the total 700 in Medan. The sampling was carried out proportionally using the Reasoftware method, based on the number of pharmacies [26].

$$\frac{\text{Number of pharmacies surveyed}(100) \div}{\text{Total pharmacies}(700) \times} \times \text{Number of pharmacies per subdistrict}$$

The distribution of sampled pharmacies by subdistrict was as follows Medan Belawan (1 pharmacy), Medan Labuhan (2 pharmacies), Medan Marelan (6 pharmacies), Medan Deli (5 pharmacies), Medan Timur (6 pharmacies), Medan Perjuangan (5 pharmacies), Medan Tembung (4 pharmacies), Medan Barat (4 pharmacies), Helvetia (6 pharmacies), Medan Petisah (5 pharmacies), Medan Sunggal (8 pharmacies), Medan Baru (6 pharmacies), Medan Polonia (2 pharmacies), Medan Maimun (3 pharmacies), Medan Area (6 pharmacies), Medan Kota (5 pharmacies), Medan Denai (7 pharmacies), Medan Amplas (5 pharmacies), Medan Johor (11 pharmacies), Medan Tuntungan (5 pharmacies), and Medan Selayang (7 pharmacies). This proportional sampling ensures fair representation from all subdistricts in Medan. Therefore, the survey results are expected to provide an accurate

picture of healthcare access through pharmacies in Medan. This data will serve as an essential basis for planning and developing more effective healthcare services in the future [27].

Availability of diabetes mellitus drugs according to the WHO in Medan pharmacies in 2023

The availability of diabetes mellitus medications in pharmacies across Medan remains a significant issue, despite existing WHO guidelines aimed at ensuring adequate access to essential medicines. Based on the conducted survey, out of 17 diabetes medications evaluated, only 4 were commonly available. Metformin 500 mg was the only drug found in 100% of pharmacies, while others like empagliflozin 25 mg were available in only 3% of surveyed locations (Table 1) [28].

Table 1. Affordability and prices of drugs for diabetes mellitus according to the WHO in Medan pharmacies in 2023

No.	Name of Drug	Reference Price (e-Catalog)	Pharmacy Survey Price (IDR) Minimum-Maximum	Dose Minimum	Affordability
1.	Metformin HCl 500 mg tablet	250	250-350	3 x 1	Affordable
2.	Gliclazide 60 mg extended-release tablets	3.210	4,024-.,000	1 x 1	Affordable
3.	Gliclazide 80 mg tablet	309	300-400	1 x 1	Affordable
4.	Empagliflozine 25 mg tablet	28,280	29,766	1 x 1	Affordable

Key contributing factors to low drug availability include national healthcare policy and funding mechanisms. The national health insurance program often leads pharmacies to prioritize *fast-moving* drugs, which are in high demand and frequently reimbursed. As a result, *slow-moving* diabetes medications are less likely to be stocked [29]. Inefficiencies in the drug distribution and supply chain exacerbate this issue, particularly for low-demand drugs, which are often ignored by both suppliers and pharmacies. Patient preferences also play a role. A lack of public awareness regarding

WHO-recommended treatments contributes to low demand for essential medicines, shifting pharmacies' focus toward more popular brands or formulations. Additionally, *date-moving* medications approaching expiration are often removed from shelves or sold at discounts to minimize losses, further limiting availability [30]. This mismatch between clinical treatment needs and real-world drug availability highlights the need for regulatory oversight and strategic policy interventions. Pharmacies are less likely to stock WHO-recommended medications without proper incentives or enforcement

mechanisms. This research is crucial for informing healthcare authorities, policymakers, and health institutions. It provides insight into the current gaps in drug availability and can support efforts to improve access through better supply chain management, inventory control, and policy enforcement. Collaborative efforts between the government, healthcare providers, and communities are essential to ensure that all diabetes patients in Medan have equitable access to effective and affordable medications [31]. Such efforts will not only enhance the quality of life for patients but also contribute to the overall reduction of the diabetes burden, thereby supporting the achievement of broader public health goals [32,33].

Affordability and price of diabetes mellitus medications according to the national formulary in pharmacies in 2023

The affordability of diabetes medication is essential to prevent complications. According to the National Formulary, access to low-cost drugs like metformin and glibenclamide is crucial. However, some patients still face financial barriers. Government support and patient education are needed to ensure easy access and proper use of these medications. According to the table, all diabetes mellitus medications listed in the National Formulary fall into the affordable category. With the regional minimum wage in Medan at IDR 120,000 per day, all surveyed drug prices are below this threshold. The most affordable drug is glibenclamide 5 mg, priced at IDR 220 per day, while the most expensive is acarbose 100 mg, ranging from IDR 3,600 to IDR 8,430 per day (Table 2). As all daily prices remain below the minimum wage, all the National Formulary-listed diabetes medications are considered affordable for the population of Medan [34].

Table 2. Affordability and Price of Drugs for Diabetes Mellitus according to the National Formulary in pharmacies in Medan in 2023.

No.	Name of Drug	Reference Price (e-Catalog)	Pharmacy Survey Price (IDR) Minimum-Maximum	Dose Minimum	Affordability
1.	Acarbose 50 mg tablet	1,000	1,000-1,250	3 x 1	Affordable
2.	Acarbose 100 mg tablet	1,060	1,200-2,810	3 x 1	Affordable
3.	Glimepiride 1 mg tablet	225	250-400	1 x 1	Affordable
4.	Glimepiride 2 mg tablet	333	450-500	1 x 1	Affordable
5.	Glimepiride 3 mg	3,945	1,500	1 x 1	Affordable
6.	Glimepiride 4 mg tablet	1,100	3,600	1 x 1	Affordable
7.	Gliclazide 60 mg Extended-release tablet	3,210	4,024-5,000	1 x 1	Affordable
8.	Gliclazide 80 mg tablet	309	300-400	1 x 1	Affordable
9.	Gliquidone 30 mg tablet	1,250	1,600-2,500	1 x 1	Affordable
10.	Glibenclamide 2.5 mg tablet	-	400	1 x 1	Affordable
11.	Glibenclamide 5 mg tablet	-	250	1 x 1	Affordable
12.	Glipizide 10 mg Tablet	3,300	5,000	2 x 1	Affordable
13.	Metformin 500 mg tablet	250	250-350	3 x 1	Affordable
14.	Metformin 850 mg tablet	510	500	2 x 1	Affordable
15.	Pioglitazone 15 mg tablet	529	700	1 x 1	Affordable

Affordability and price of diabetes mellitus medications according to the national essential medicines list in Medan pharmacies in 2023

The affordability of diabetes medications is crucial for disease control and complication prevention. In Medan, most drugs like metformin and glibenclamide are affordable.

Glibenclamide costs around IDR 250/day, and metformin costs IDR 300-800/day, which is well below the 2023 regional minimum wage of IDR 120,000/day. However, higher-cost drugs such as gliquidone (IDR 1,600-2,500/day) may burden patients over time (Table 3).

Table 3. Affordability and Price of Drugs for Diabetes Mellitus according to the National Essential Medicines List Pharmacies in Medan in 2023.

No.	Name of Drug	Reference Price (e-Catalog)	Pharmacy Survey Price (IDR) Minimum-Maximum	Dose Minimum	Affordability
1.	Metformin HCl 500 mg tablet	3 x 1	300	250-350	Affordable
2.	Metformin 850 mg tablet	2 x 1	550	500-600	Affordable
3.	Glibenclamide 2.5 mg tablet	1 x 1	-	400	Affordable
4.	Glibenclamide 5 mg tablet	1 x 1	-	250	Affordable
5.	Glimepiride 1 mg tablet	1 x 1	225	250-400	Affordable
6.	Glimepiride 2 mg tablet	1 x 1	333	450-500	Affordable
7.	Glimepiride 3mg tablet	1 x 1	3.945	1.500	Affordable
8.	Glimepiride 4 mg tablet mg	1 x 1	1.100	3.600	Affordable
9.	Gliclazide 80 mg tablet	1 x 1	309	300-400	Affordable
10.	Gliquidone 30 mg tablet	1 x 1	1.250	1.600-2.500	Affordable

Beyond pricing, limited patient awareness and insufficient outreach about health insurance programs also hinder access. Government and health authorities must ensure drug supply, patient education, and effective policy implementation. Further research is needed to develop strategies that enhance affordability and equitable access to diabetes treatment [35].

Median price ratio of diabetes mellitus drugs according to the WHO in Medan pharmacies in 2023

All diabetes medications evaluated using WHO standards fall within the fair price category, with a Median Price Ratio (MPR) below 2 (Table 4). This means local prices do not exceed twice the international reference price. MPR assessment is crucial to ensure accessibility and treatment sustainability, as diabetes requires long-term medication. Keeping drug prices within a fair range helps reduce patients' financial burden and promotes a more equitable and efficient healthcare system [36].

Table 4. Median Price Ratio of Drugs for Diabetes Mellitus according to WHO in Pharmacies in Medan in 2023

No.	Name of Drug	Reference Price (e-Catalog)	Pharmacy Survey Price (IDR) Minimum-Maximum	MPR Minimum-Maximum
1.	Metformin HCl 500 mg tablet	250	250-350	1-1.4 Affordable
2.	Gliclazide 60 mg extended-release tablet	-	166	-
3.	Gliclazide 80 mg tablet	309	300-400	0.97-1.294 Affordable
4.	Empagliflozin 25 mg tablet	28,280	29,766	1.052 Affordable

Median Price Ratio assessment is crucial to ensure accessibility and treatment sustainability, as diabetes requires long-term medication. Keeping drug prices within a fair range helps reduce patients' financial burden and promotes a more equitable and efficient healthcare system [36]. Furthermore, ensuring that medications remain affordable can lead to higher adherence rates among patients, ultimately resulting in better health outcomes and reduced complications associated with diabetes [37]. By fostering a healthcare environment where essential medications are accessible, we can empower patients to manage their condition effectively and improve their overall quality of life [38]. This approach not only benefits individual

patients but also strengthens public health initiatives aimed at combating the growing diabetes epidemic globally.

Median price ratio of diabetes mellitus drugs according to the national formulary in Medan pharmacies in 2023

Table 1 shows that all diabetes drugs listed in the National Formulary fall into three price categories as low, fair, and high. Low-priced drugs such as metformin 850 mg, gliclazide 80 mg, and glimepiride 3 mg have MPR values indicating prices well below international standards, likely due to efficient production, generic availability, and strong market competition (Table 5).

Table 5. Median Price Ratio of Drugs for Diabetes Mellitus according to the National Formulary in Pharmacies in Medan in 2023

No	Name of Drug	Reference Price (e-Catalog)	Pharmacy Survey Price (IDR) Minimum-Maximum	MPR Minimm-Maximum
1.	Acarbose 50 mg tablet	1,000	1,000-1,250	1-1.25 Affordable
2.	Acarbose 100 mg tablet	1,060	1,200-2,810	1.132-2.65 Affordable
3.	Glimepiride 1 mg tablet	225	250-400	1.11-1.77 Affordable
4.	Glimepiride 2 mg tablet	333	450-500	1.35-1.50 Affordable
5.	Glimepiride 3 mg tablet	3,945	1,500	0.38 Cheap
6.	Glimepiride 4 mg tablet	1,100	3,600	3.27 Expensive
7.	Gliclazide 60 mg extended-release tablet	3,210	4,024-5,000	1.25-1.56 Affordable
8.	Gliclazide 80 mg tablet	309	300-400	0.97-1.29 Cheap and affordable
9.	Gliquidone 30 mg tablet	1,250	1,600-2,500	1.28-2 Affordable

10.	Glibenclamide 2.5 mg tablet	-	400	-
11.	Glibenclamide 5 mg tablet	-	250	-
12.	Glipizide 10 mg Tablet	3,300	5,000	1.52 Affordable
13.	Metformin 500 mg tablet	250	250-350	1-1.40 Affordable
14.	Metformin 850 mg tablet	510	500	0.98 Cheap
15.	Pioglitazone 15 mg tablet	529	700	1.32 Affordable

Fair-priced drugs-including acarbose 50 mg, acarbose 100 mg, glimepiride 1 mg, glimepiride 2 mg, gliclazide 80 mg, gliquidone 30 mg, glipizide 10 mg, and metformin 500 mg-have prices not exceeding twice the international reference price, reflecting moderate production costs, expired patents, and competitive markets. Glimepiride 4 mg falls into the high-price category with an MPR exceeding two times the international price, potentially due to higher production costs, specialized formulations, lower competition, or active patent status. This price assessment is crucial to ensure affordable access to diabetes medications, support sustainable treatment, and reduce economic burden on the healthcare system [39].

Median price ratio of diabetes mellitus drugs according to the national list of essential medicines in Medan in 2023

Diabetes medications were categorized into low, fair, and high price groups based on WHO's MPR standards. Drugs like metformin 850 mg, glimepiride 3 mg, and gliclazide 80 mg were classified as low-priced due to MPR values well below international reference prices. Fair-priced drugs included metformin 500 mg, metformin 850 mg, glimepiride 1 mg, glimepiride 2 mg, and gliquidone 30 mg, with MPRs below 2. Glimepiride 4 mg was considered expensive, with an MPR exceeding the acceptable threshold (Table 6). These classifications support fair access and guide efficient, inclusive health policy [40].

Table 6. Median Price Ratio of Diabetes Mellitus Drugs

No.	Name of Drug	Reference Price (e-Catalog)	Pharmacy Survey Price (IDR) Minimum-Maximum	MPR Minimum-Maximum
1.	Metformin HCl 500 mg tablet	300	250-350	1-1.14 Affordable
2.	Metformin 850 mg tablet	550	500-600	0.90-1.09 Cheap and affordable
3.	Glibenclamide 2.5 mg Tablet	-	400	-
4.	Glibenclamide 5 mg tablet	-	250	-
5.	Glimepiride 1 mg tablet	225	250-400	1.11-1.77 Affordable
6.	Glimepiride 2 mg tablet	333	450-500	1.35-1.50 Affordable
7.	Glimepiride 3 mg tablet	3,945	1,500	0.38 Cheap
8.	Glimepiride 4 mg tablet	1,100	3,600	3.27 Expensive
9.	Gliclazide 80 mg tablet	309	300-400	0.97-1.29 Cheap and affordable
10.	Gliquidone 30 mg Tablet	1,250	1,600-2,500	1.28-2 Affordable

CONCLUSION

The availability of diabetes medicines in Medan remains limited despite the WHO, the National List of Essential Medicines, and the National Formulary guidelines, with metformin 500 mg being the most commonly available drug. Other essential diabetes drugs have low availability, mainly due to government policies, health insurance systems, and limited patient awareness. Most diabetes medicines are affordable relative to the regional minimum wage, and price assessments show that drug costs are generally reasonable. However, financial constraints and a lack of education still hinder patient access. Efforts to improve supply, affordability, and patient knowledge are essential to support effective diabetes management.

According to the WHO, the National List of Essential Medicines, and the National Formulary guidelines, drug affordability and pricing data show that most essential diabetes medications are within the affordable range compared to the Regional Minimum Wage. Despite relatively affordable drug prices, challenges remain for patients with financial constraints and a lack of understanding of the importance of treatment. Therefore, efforts by the government and stakeholders are needed to ensure availability, accessibility, and adequate education so that all patients can access the treatment they need to improve their quality of life.

Median Price Ratio according to the National List of Essential Medicines and the National Formulary guidelines, the majority of diabetes mellitus medications are within the reasonable price range, indicating that they are generally accessible to the public. Several medications are available at low prices, while relatively few are available at high prices. This suggests that, in general, these medications are financially accessible to the majority of the population

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