



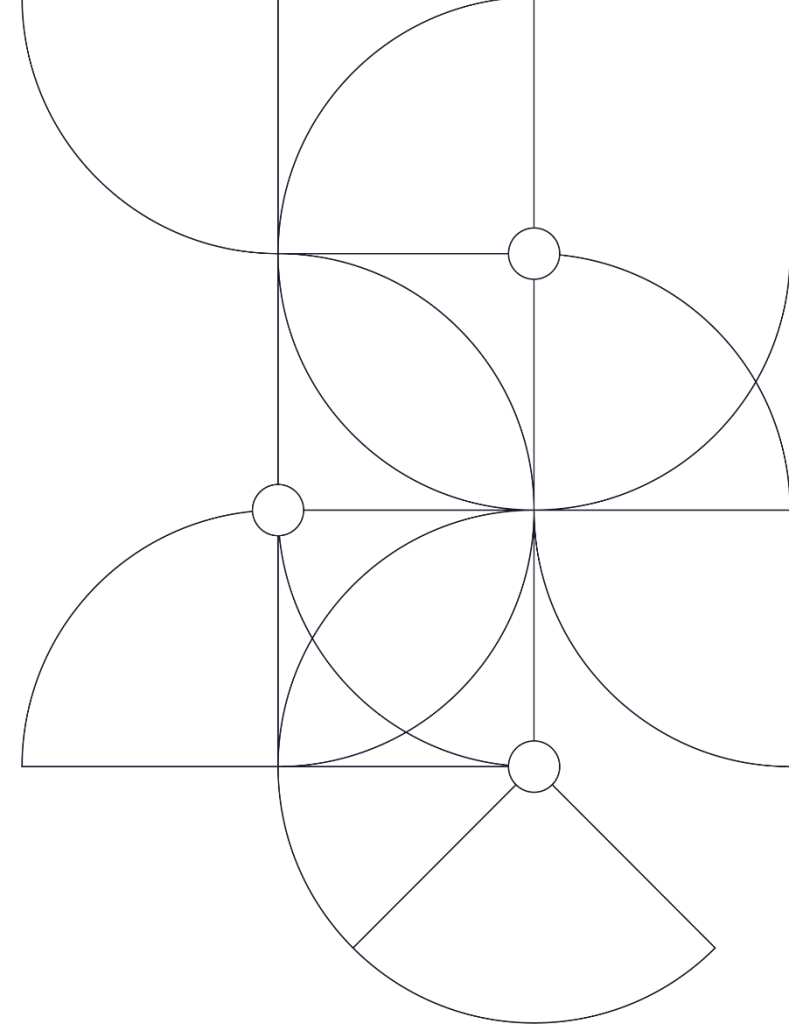
COST ANALYSIS OF BRANDED VERSUS GENERIC ANTIDIABETIC THERAPIES- THE INDIAN LANDSCAPE

Prepared in partial fulfilment of the requirements of
MBA Pharmaceutical Management

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Confidential
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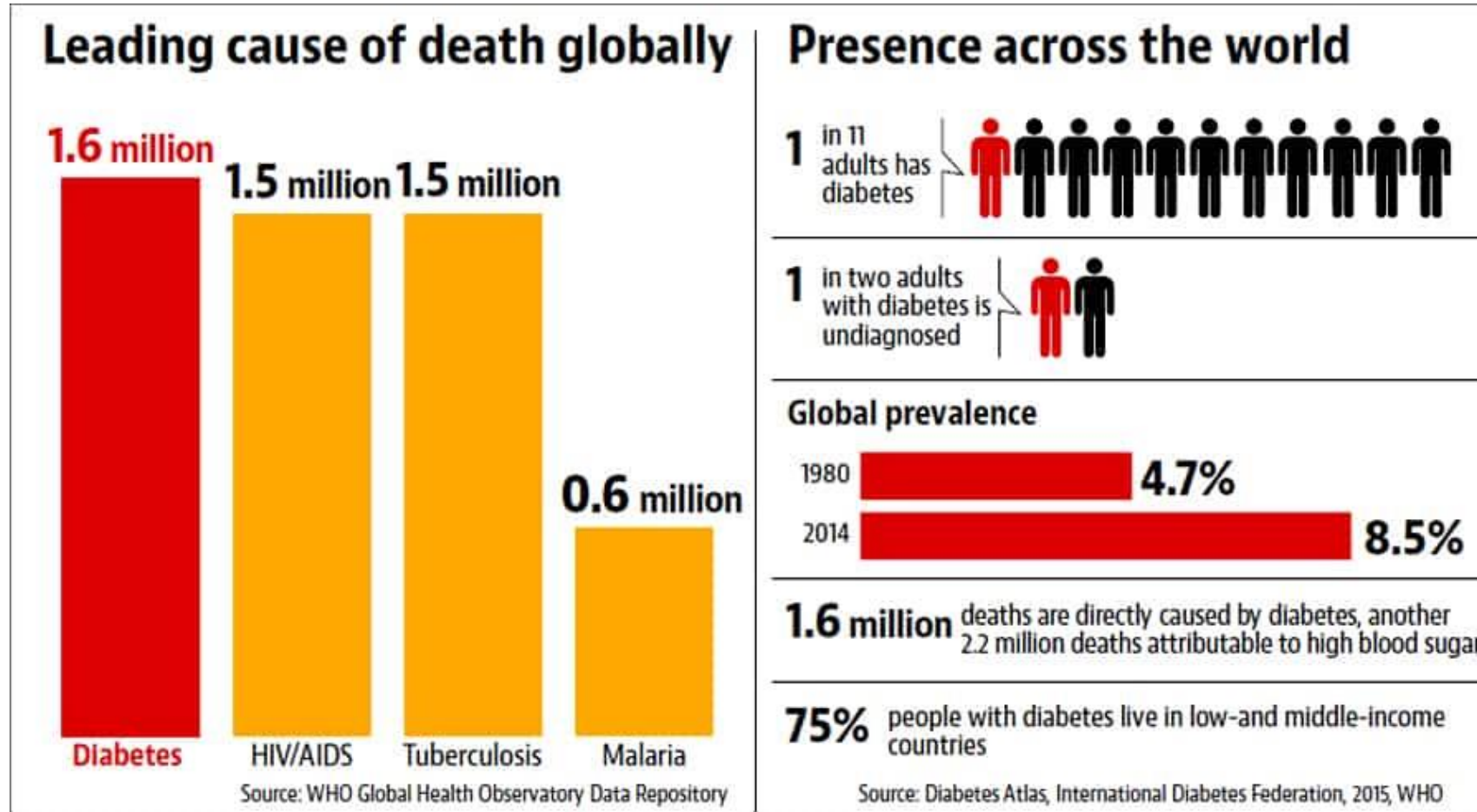
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Overview

- Background: Type II Diabetes Mellitus (T2DM) has increased in India in recent years. The majority of doctors prescribing drugs do not realize the potential of financial saving and reducing financial burden offered by generics.
- Aim: To analyse the cost variations of branded and generic antihyperglycemic medications used for the management of T2DM.
- Methodology: The cost variations and potential savings that can be realized by substituting available anti-diabetic regimens were calculated. In the calculation of cost based on the use of generic drugs, the standard formula was applied and the costs were calculated in Indian rupees (as of 2021).
- Results:
 - Analysis of branded drugs showed a variation of 118.49% to 490.80% observed with acarbose and metformin individually.
 - Pioglitazone proposed the highest cost variation (173.48% - 901.48%)
 - Teneligliptin (31.31% - 242.63%) had the lowest variation in price relative to generics.
 - The highest level of cost-saving per year (INR 4442.95) with alpha-glucosidase inhibitors regimen and the lowest (INR 2549.16) with Sulfonylurea treatment regimen.

Introduction



Pharmacological agents for T2DM

- **Biguanides**
 - Metformin
- **Sulfonylureas**
 - Glimepiride
 - Glipizide
 - Glipizide
 - Tolbutamide
- **Meglitinides**
 - Repaglinide
 - Nateglinide
- **Thiazolidinediones**
 - Pioglitazone
 - Rosiglitazone
- **Alpha-glucosidase Inhibitors**
 - Acarbose
 - Glyset
 - Miglitol
 - Precose
- **Incretin Mimetic Drugs**
 - Exenatide
 - Liraglutide
- **DPP-4 Inhibitors**
 - Teneligliptin
 - Sitagliptin
 - Saxagliptin
 - Linagliptin
 - Alogliptin
- **Bromocriptine**

Literature Review

- Diabetes care can cost 25% or more of a person's family income for a family with a low income in India
- Pharmaceuticals which are often sold under the name of "branded medicine," are manufactured and promoted by multinational companies or reputed Indian firms. The manufacturer of branded generics doesn't advertise or promote them. The formulations in this class are commonly called 'generics' worldwide.
- Until June 20, 2021, 7700 shops belonging to Jan Aushadhi were operated in 33 states and union territories
- There are over 8 lakh retail pharmacies, but approximately 7,000 stores.

Methodology

For the scope of this study and report, one drug from each class was analysed. Meglitinides, Incretin mimetic drugs and Bromocriptine have not been included in the cost comparison because of **lack of consistency** in dose and pack size and the **absence of a generic counterpart** under the Jan Aushadhi Yojana.

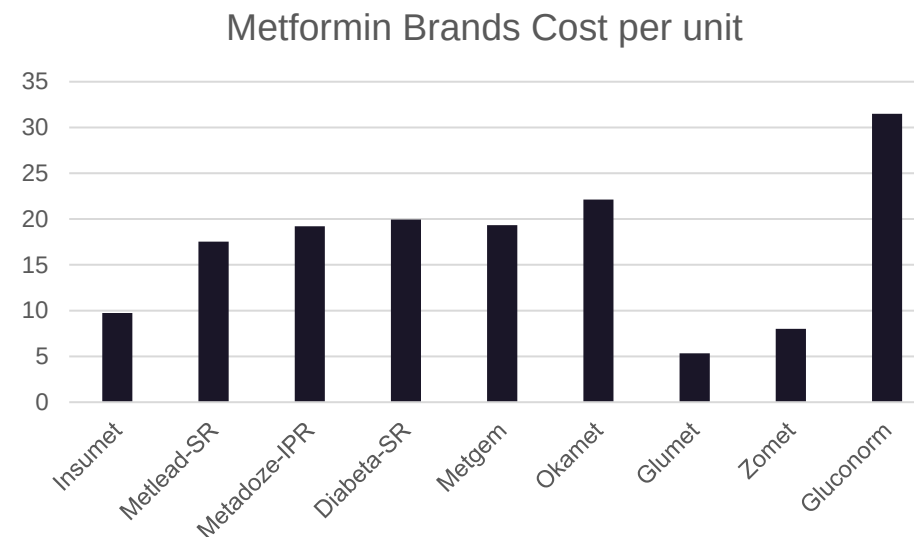
For branded drugs, the CIMS (current index of medical stores) was used, and for generic drugs, the Jan Aushadhi scheme was used. The percentage cost variation and potential savings on substituting a generic drug for available ones for diabetes regimens were calculated using standard formulas and the costs are expressed in Indian Rupees (INR).

The list of branded drugs per molecule covered in this study is **not exhaustive** and is chosen taking brand popularity and market size into account.

$$\text{Percentage cost variation} = \frac{[(\text{Cost of the most expensive drug} - \text{Cost of the least expensive drug}) / \text{Cost of the least expensive drug}] \times 100}{1}$$

Metformin

Brand Name	Company	Dose	Pack Size	Cost per unit	Price per tablet
Insumet	Cadila	500 mg	10	9.74	0.97
Metlead-SR	GSK	500 mg	10	17.53	1.75
Metadoze-IPR	Biocon	500 mg	10	19.2	1.92
Diabeta-SR	Torrent	500 mg	10	19.95	2.00
Metgem	Sun	500 mg	10	19.33	1.93
Okamet	Cipla	500 mg	20	22.12	1.11
Glumet	Cipla	500 mg	10	5.33	0.53
Zomet	Intas	500 mg	10	8.01	0.80
Gluconorm	Lupin	500 mg	15	31.49	2.10



Percentage cost variation between most expensive and least expensive branded = $(31.49 - 5.33) / 5.33 = 490.80\%$

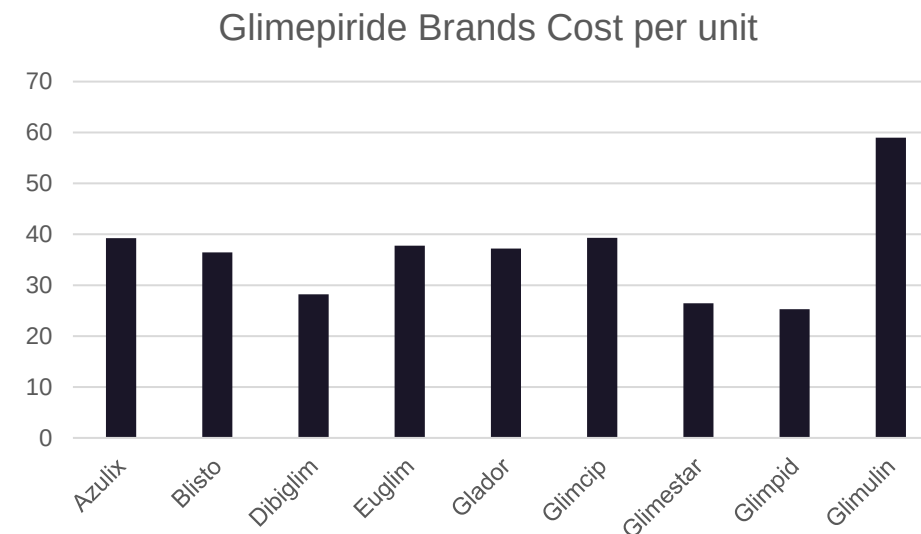
Generic drug cost per unit = 5.15 INR

Percentage cost variation between most expensive branded and generic = $(2.10 - 0.515) / 0.515 = 307.76\%$

Percentage cost variation between least expensive branded and generic = $(0.53 - 0.515) / 0.515 = 2.91\%$

Glimepiride

Brand Name	Company	Dose	Pack Size	Cost per unit	Price per tablet
Azulix	Torrent	1 mg	10	39.25	3.93
Blisto	Biocon	1 mg	10	36.46	3.65
Dibiglim	Novartis	1 mg	10	28.21	2.82
Euglim	Zydus	1 mg	15	37.78	2.52
Glador	Lupin	1 mg	10	37.2	3.72
Glimcip	Cipla	1 mg	10	39.31	3.93
Glimestar	Manking	1 mg	10	26.46	2.65
Glimpid	Ranbaxy	1 mg	10	25.29	2.53
Glimulin	Glenmark	1 mg	15	58.97	3.93



Percentage cost variation between the most expensive and least expensive branded drug = 56.09%

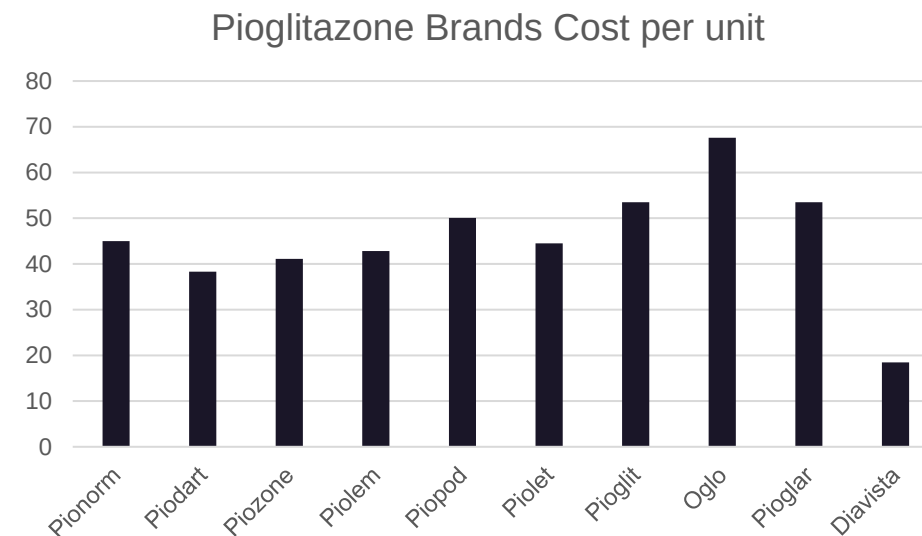
Generic drug cost per unit = 4.38 INR

Percentage cost variation between the most expensive branded drug and the generic drug = 1246.35%

Percentage cost variation between the least expensive branded drug and the generic drug = 762.56%

Pioglitazone

Brand Name	Company	Dose	Pack Size	Cost per unit	Price per tablet
Pionorm	Micro Labs	15 mg	10	45	4.50
Piodart	Biocon	15 mg	10	38.31	3.83
Piozone	Abbott	15 mg	10	41.1	4.11
Piolem	Alembic	15 mg	10	42.81	4.28
Piopod	Torrent	15 mg	10	50.05	5.01
Piolet	Intas	15 mg	10	44.5	4.45
Pioglit	Sun	15 mg	10	53.5	5.35
Oglo	Panacea	15 mg	10	67.6	6.76
Pioglar	Ranbaxy	15 mg	10	53.5	5.35
Diavista	Dr. Reddy's	15 mg	10	18.46	1.85



Percentage cost variation between the most expensive and least expensive branded drug = 266.19%

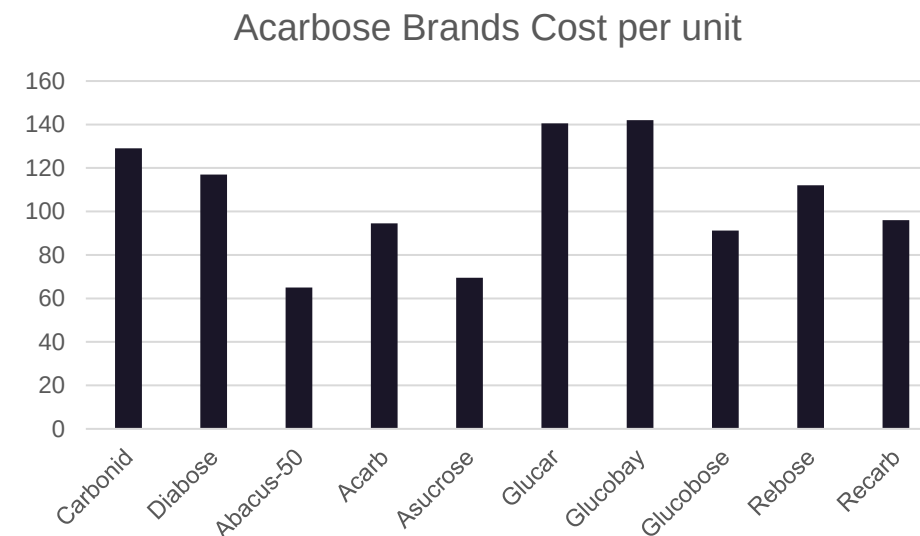
Generic drug cost per unit = 6.75 INR

Percentage cost variation between the most expensive branded drug and the generic drug = 901.48%

Percentage cost variation between the least expensive branded drug and the generic drug = 173.48%

Acarbose

Brand Name	Company	Dose	Pack Size	Cost per unit	Price per tablet
Carbonid	Olcare	50 mg	10	129	12.90
Diabose	Micro Labs	50 mg	10	117	11.70
Abacus-50	Emcure	50 mg	10	65	6.50
Acarb	Orchid	50 mg	10	94.5	9.45
Asucrose	Wockhardt	50 mg	10	69.5	6.95
Glucar	Glenmark	50 mg	10	140.5	14.05
Glucobay	Bayer	50 mg	10	142	14.20
Glucobose	Medley	50 mg	10	91.22	9.12
Rebose	Sun	50 mg	10	112	11.20
Recarb	Bal Pharma	50 mg	10	96	9.60



Percentage cost variation between the most expensive and least expensive branded drug = 118.46%

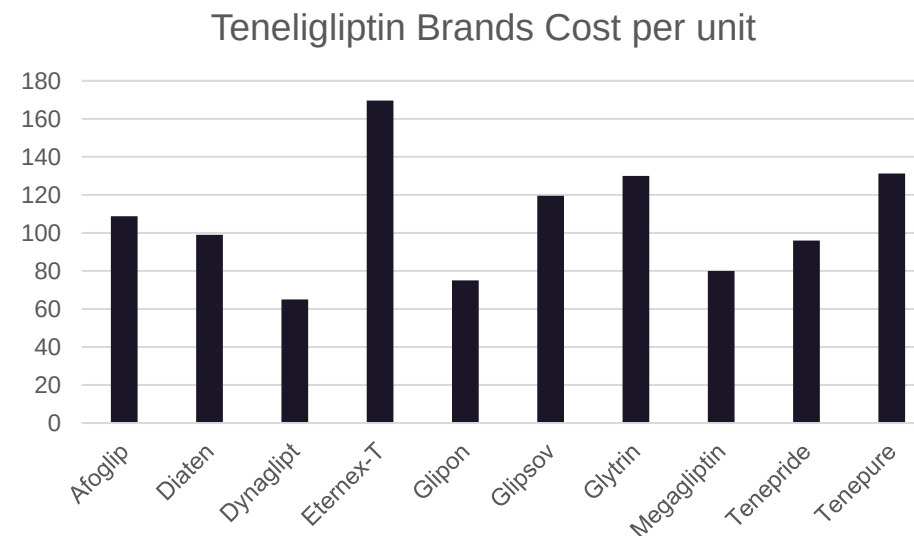
Generic drug cost per unit = 55.9 INR

Percentage cost variation between the most expensive branded drug and the generic drug = 154.03%

Percentage cost variation between the least expensive branded drug and the generic drug = 16.28%

Teneligliptin

Brand Name	Company	Dose	Pack Size	Cost per unit	Price per tablet
Afoglip	Torrent	20 mg	10	108.8	10.88
Diaten	Bal Pharma	20 mg	10	99	9.90
Dynaglipt	Mankind	20 mg	10	65	6.50
Eternex-T	Alembic	20 mg	10	169.6	16.96
Glipon	Aristo	20 mg	10	75	7.50
Glipsov	Emcure	20 mg	10	119.55	11.96
Glytrin	Medley	20 mg	10	130	13.00
Megagliptin	Aristo	20 mg	10	80	8.00
Tenepride	Micro Labs	20 mg	10	96	9.60
Tenepure	Torrent	20 mg	10	131.25	13.13



Percentage cost variation between the most expensive and least expensive branded drug = 160.92%

Generic drug cost per unit = 49.5 INR

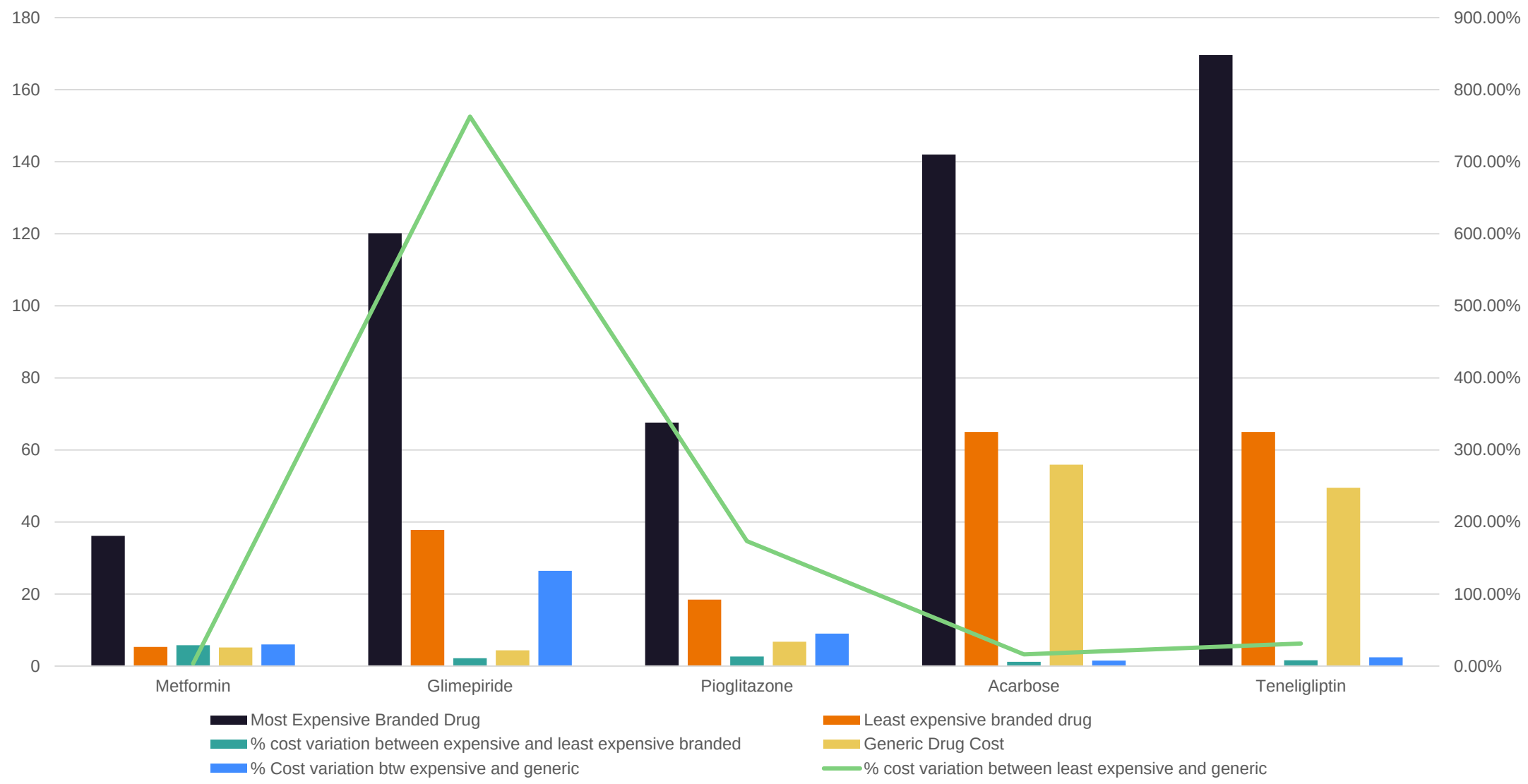
Percentage cost variation between the most expensive branded drug and the generic drug = 242.62%

Percentage cost variation between the least expensive branded drug and the generic drug = 31.31%

Cost Variation of T2DM Therapies

Drug	Class	Most Expensive Branded Drug	Least expensive branded drug	% cost variation between expensive and least expensive branded	Generic Drug Cost	% Cost variation btw expensive and generic	% cost variation between least expensive and generic
Metformin	Biguanides	31.49	5.33	490.80%	5.15	307.76%	2.91%
Glimepiride	Sulfonylureas	58.97	37.78	218.05%	4.38	1246.35%	762.56%
Pioglitazone	Thiazolidinediones	67.6	18.46	266.20%	6.75	901.48%	173.48%
Acarbose	Alpha-glucosidase inhibitors	142	65	118.46%	55.9	154.03%	16.28%
Teneligliptin	DPP-4 Inhibitor	169.6	65	160.92%	49.5	242.63%	31.31%

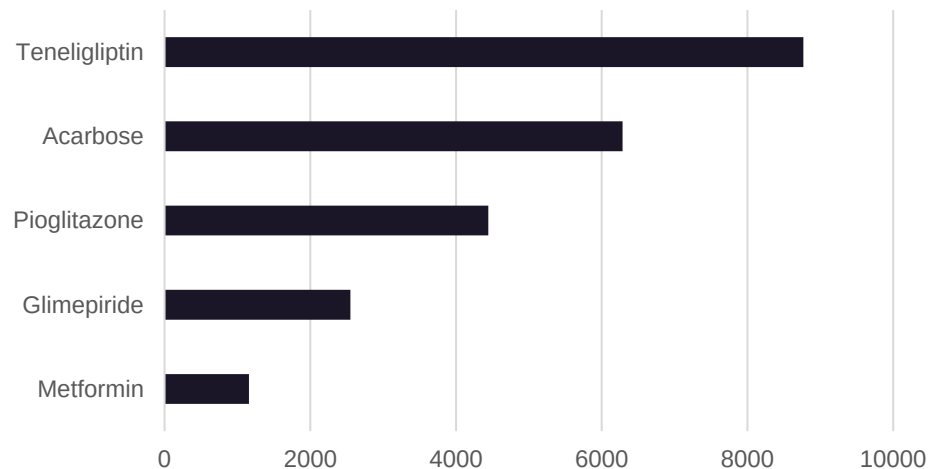
Cost Variation of T2DM Therapies



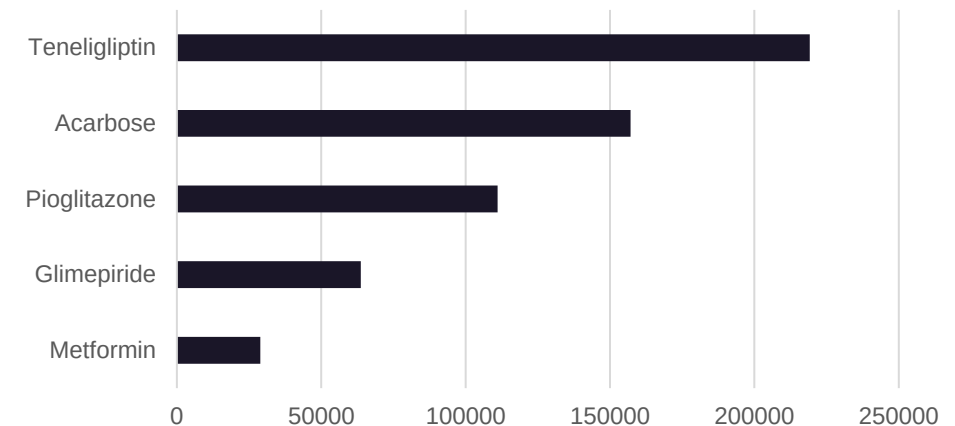
Cost Saving Potential: Expensive Branded vs. Generic

Regimen	Class	Dose (mg)	Dosage	Expensive brand cost per tablet	Generic drug cost per tablet	Cost saving per dose	Cost saving per day	Cost saving per year	Cost saving in 25 years
Metformin	Biguanides	500	2	2.1	0.515	1.585	3.17	1157.05	28926.25
Glimepiride	Sufonylureas	1	2	3.93	0.438	3.492	6.984	2549.16	63729
Pioglitazone	Thiazolidinediones	15	2	6.76	0.675	6.085	12.17	4442.05	111051.25
Acarbose	Alpha-glucosidase inhibitors	50	2	14.2	5.59	8.61	17.22	6285.3	157132.5
Teneligliptin	DPP-4 Inhibitor	20	2	16.96	4.95	12.01	24.02	8767.3	219182.5

Cost saving per year



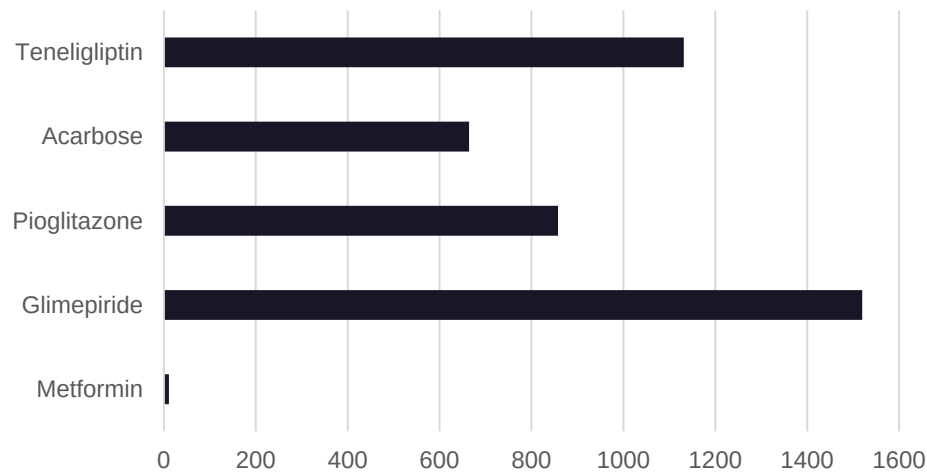
Saving over 25 years with expensive branded drug



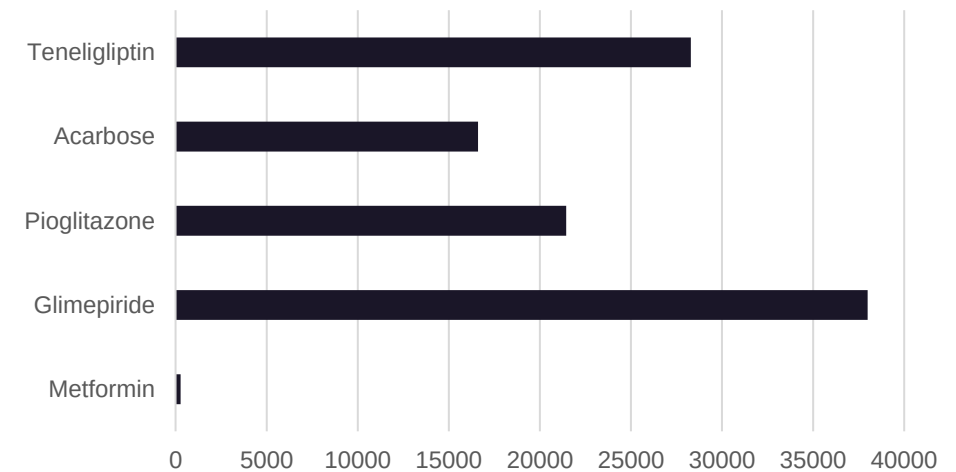
Cost Saving Potential: Least Expensive Branded vs. Generic

Regimen	Class	Dose (mg)	Dosage (tablets/day)	Least expensive brand cost per tablet	Generic drug cost per tablet	Cost saving per dose	Cost saving per day	Cost saving per year	Cost saving in 25 years
Metformin	Biguanides	500	2	0.53	0.515	0.015	0.03	10.95	273.75
Glimepiride	Sulfonylureas	1	2	2.52	0.438	2.082	4.164	1519.86	37996.5
Pioglitazone	Thiazolidinediones	15	2	1.85	0.675	1.175	2.35	857.75	21443.75
Acarbose	Alpha-glucosidase inhibitors	50	2	6.5	5.59	0.91	1.82	664.3	16607.5
Teneligliptin	DPP-4 Inhibitor	20	2	6.5	4.95	1.55	3.1	1131.5	28287.5

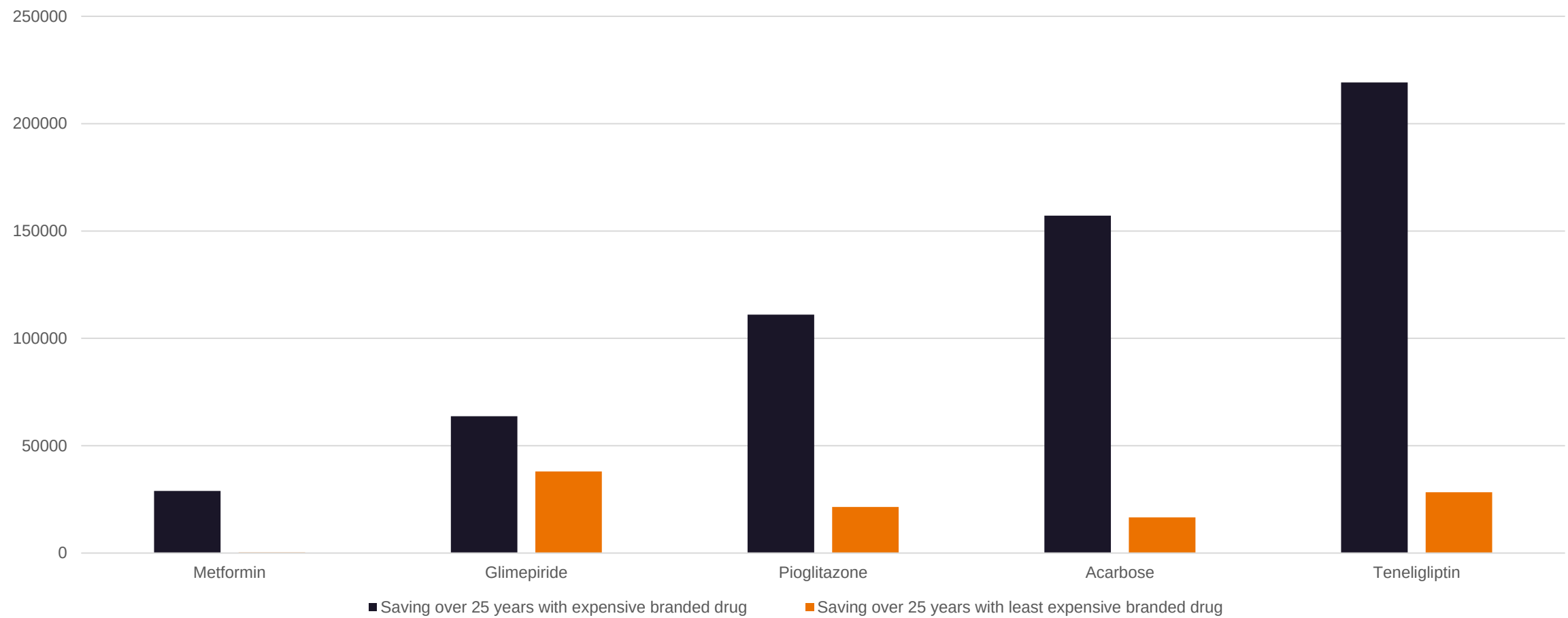
Cost saving per year



Cost saving in 25 years



Comparative Cost Saving Expensive branded vs. Least expensive branded



Conclusion

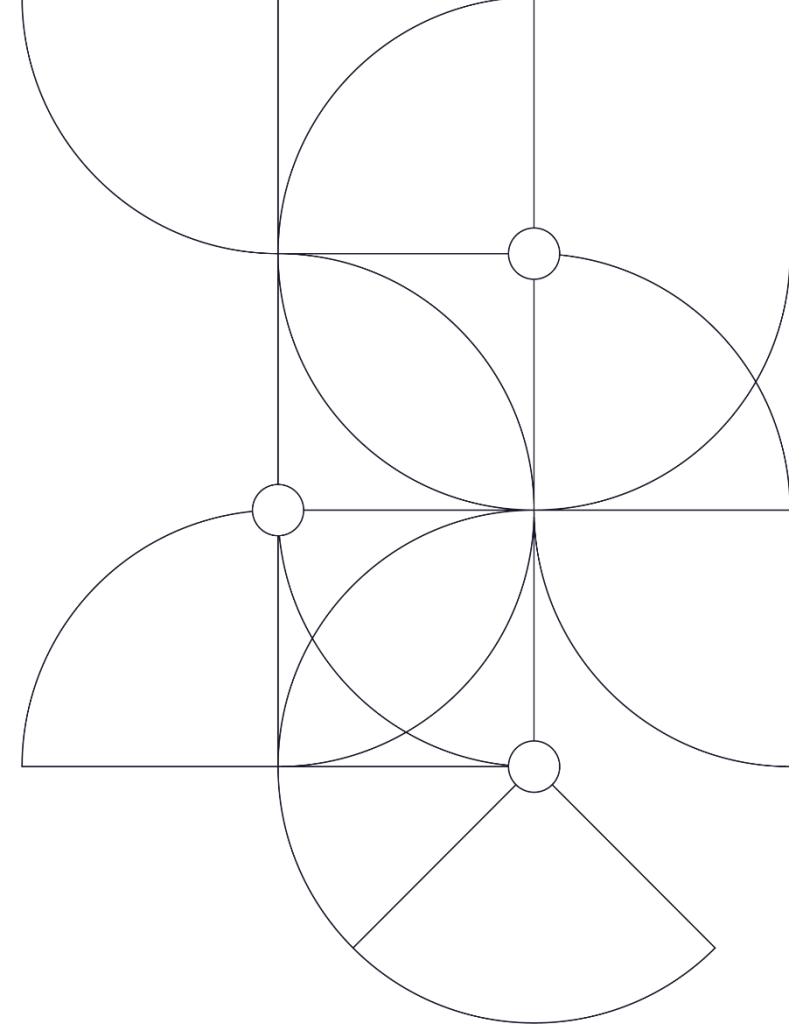
Pradhan Mantri Bharatiya Jan Aushadhi scheme played an important role in making healthcare more accessible to the general Indian populace

Cardiac stents and knee implants were reduced by about 50–70%, and cardiovascular drugs and chemotherapeutic drugs by 60–90%

Most of the cost of diabetes treatment in India is related to out-of-pocket expenditure for inpatient care, which amounts to approximately 80–90% of all medical care costs.

These results may help researchers explain how substituting generic drugs can result in cost savings for healthcare professionals when making diabetes treatment decisions, including taking the patient's economic status into account.

I derive from my study that generic drugs will be more cost-effective than branded drugs for administering anti-hyperglycaemic therapy.



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