

University of Vermont

**UVM ScholarWorks**

---

Family Medicine Clerkship Student Projects

Family Medicine Community

---

2020

## Type 2 Diabetes Medication Breakdown

Kristen Keene

*University of Vermont*

Follow this and additional works at: <https://scholarworks.uvm.edu/fmclerk>



Part of the [Medical Education Commons](#), and the [Primary Care Commons](#)

---

### Recommended Citation

Keene, Kristen, "Type 2 Diabetes Medication Breakdown" (2020). *Family Medicine Clerkship Student Projects*. 579.

<https://scholarworks.uvm.edu/fmclerk/579>

This Book is brought to you for free and open access by the Family Medicine Community at UVM ScholarWorks. It has been accepted for inclusion in Family Medicine Clerkship Student Projects by an authorized administrator of UVM ScholarWorks. For more information, please contact [scholarworks@uvm.edu](mailto:scholarworks@uvm.edu).

# Type 2 Diabetes Medication Breakdown

Kristen Keene

Milton, Vermont

February 2020

Mentor: Melisa Gibson

# Type 2 Diabetes Treatments

There are many new medications for treatment of type 2 diabetes and these medications have many positive effects that go beyond lowering blood glucose. However, many of these medications are expensive and some insurance plans don't cover them. Many patients struggle to pay for their diabetes medications and providers often are unsure of which medications will be covered by insurance. This project was designed to enhance patient education regarding diabetes medications and potential costs associated.

# Public Health Effects

- 9.4% of the U.S. population have diabetes
- All social, economic, and ethnic backgrounds can be effected
- Associated with serious complications
  - Heart disease
  - Stroke
  - Blindness
  - Kidney failure
- Diabetes is the 7<sup>th</sup> leading cause of death in the U.S.
- Heart disease is the leading cause of death
- Average medical expenditures for people with diabetes were 2.3 times higher than expenditures for people without

# Community Perspective

**“One of the things that I like about managing diabetes choosing a medication for diabetes is not a one-size fits all scenario. Just as everyone who has diabetes is an individual it is about matching the medication to the person” Lauren Bode, PharmD BCPS, Milton Practice**

**“I never want a patient to feel dependent, I want them to know there are steps they can take to improve health. Every lifestyle change is a steppingstone in the road to good health” Mariel Schienberg, DO, Resident Physician**

# Intervention and Methodology

Breakdown of which diabetes medications to prescribe

Information for patient regarding side effect and benefits of each medication

General costs associated with each medication

Next steps for patients if a medication is not covered by insurance

# Results

This brochure was created to enhance patient education on diabetes medications and prices. To evaluate the effectiveness of this information I would poll patients that did not receive the brochure regarding confidence in knowledge of their medication vs. those who received the brochure.

## Type 2 Diabetes Medications

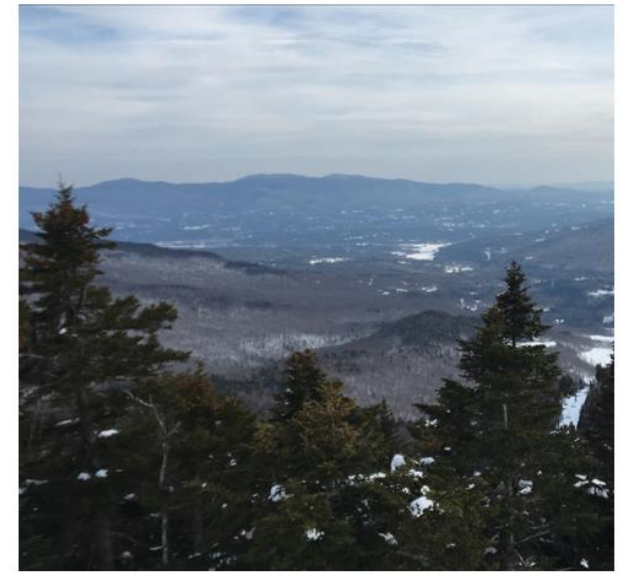
Your A1C is \_\_\_\_\_

Your goal A1C is \_\_\_\_\_



Medication cost can vary significantly depending on insurance company, specific insurance plan, and cost can change each year. This brochure is designed to estimate the cost of diabetes medications. Some insurance plans may cover these medications and they may not be the prices reflected below! If you do get to the pharmacy and the medication that you are prescribed is expensive or not covered, please contact your provider so they can adjust.

This brochure should help to explain different diabetes medications, what is prescribed first, and benefits/side effects. Every person will respond differently to medications and diabetes medications are no different. A side effect that is listed may be rare and may not happen to you!



### Step 1: Lifestyle Changes and Metformin

\_\_\_ Metformin

**Efficacy: High**

+ No changes in weight, no risk of hypoglycemia, potentially beneficial for heart disease

-Can cause nausea or diarrhea, which often resolve

Cost: Low

**Is your A1C Still Elevated?**

# Results



## Here are some options:

\*Medication costs shown are without insurance coverage

### \_\_\_ GLP-1 Agonists

**Efficacy: High**

+Shown to decrease heart attack and stroke and benefit in kidney disease. Can cause weight loss and no risk of hypoglycemia.

- Some are injectable medications and can be associated with gastrointestinal side effects.

Cost: High

### \_\_\_ SGLT2 Inhibitors

**Efficacy: Intermediate**

+Can decrease the risk of heart disease, heart failure, and shows benefit in chronic kidney disease. Can cause weight loss and has no risk of hypoglycemia.

-May cause yeast infections or urinary tract infections. Increased risk of lower limb amputations, bone fracture, and kidney injury.

Cost: High

### \_\_\_ DPP4 Inhibitors

**Efficacy: Intermediate**

+No changes in weight and generally well tolerated. No risk of hypoglycemia.

Cost: \$High

### \_\_\_ Thiazolidinediones

**Efficacy: High**

+ Shown improvements in cholesterol levels and potential heart benefits.

-Increased risk of heart failure, fractures, and can cause weight gain.

Cost: Low

### \_\_\_ Sulfonylureas

**Efficacy: High**

+Works rapidly for fast glucose control.

-Can have associated hypoglycemia or weight gain.

Cost: Low

### \_\_\_ Insulin

**Efficacy: Highest**

+Very effective at lowering blood glucose and can have improved lipid levels.

-Involves daily injections and can cause hypoglycemia and weight gain.

Cost: Low-High





# Evaluation of effectiveness and limitations

- The major limitation the project faces is that different medication coverage varies by insurance company, plan, and year making it difficult to pin-point prices
- It is difficult to predict which medications will be covered
- Medication costs are constantly changing
- New medications/research is being developed
- Every patient responds differently to each medication

# Future interventions/projects

- The future project that I would suggest is the creation of an app that allows a provider to insert the patient's specific insurance plan and it will determine the cost of the medication at the pharmacy
- Ideally, this could be expanded to all medications and providers could have access to the coverage
- This could prevent surprise dropping of medications from insurance plans and allow patients more autonomy in choosing their medications based on benefits and price

# References

American Diabetes Association. “Standards of Medical Care in Diabetes—2020 Abridged for Primary Care Providers.” *Clinical Diabetes* 38, no. 1 (January 2020): 10–38.

<https://doi.org/10.2337/cd20-as01>.

“Diabetes Statistics.” Accessed February 21, 2020. [https://www.diabetesresearch.org/diabetes-statistics?gclid=Cj0KCQiAnL7yBRD3ARIsAJp\\_oLYb7\\_L88Rk0pMeBHfyZOnMUy8Q5ZPnriCb5pl\\_0IUQwy8XJkRR\\_eoAaAuhHEALw\\_wcB](https://www.diabetesresearch.org/diabetes-statistics?gclid=Cj0KCQiAnL7yBRD3ARIsAJp_oLYb7_L88Rk0pMeBHfyZOnMUy8Q5ZPnriCb5pl_0IUQwy8XJkRR_eoAaAuhHEALw_wcB).

“FastStats,” February 7, 2020. <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>.

“Initial Management of Blood Glucose in Adults with Type 2 Diabetes Mellitus - UpToDate.” Accessed February 21, 2020. [https://www-uptodate-com.ezproxy.uvm.edu/contents/initial-management-of-blood-glucose-in-adults-with-type-2-diabetes-mellitus?search=diabetes%20treatment&source=search\\_result&selectedTitle=1~150&usage\\_type=default&display\\_rank=1](https://www-uptodate-com.ezproxy.uvm.edu/contents/initial-management-of-blood-glucose-in-adults-with-type-2-diabetes-mellitus?search=diabetes%20treatment&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1).