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- Coupons change decisions and shift costs

The chronic, progressive nature of Type 2 Diabetes often requires multi-drug treatment regimens. While these multi-drug treatments can help control the disease, they often lead to higher out-ofpocket costs for the patient. The patient and physician must balance efficacy, side effects, and complexity against these higher costs when choosing a treatment regimen.

The use of manufacturer coupons can reduce the patient's out-of-pocket costs for some medications. For this study we analyzed 413 million treatment options for 200 patients to show how the use of coupons changes:

- The class of medication chosen for treatment of Type 2 Diabetes
- The cost of insuring patients with Type 2 Diabetes

Cost of Diabetes Care^[1]

- The total estimated cost of diabetes in 2012 was \$245 billion
 - \$176 billion in direct medical costs
 - \$69 billion in reduced productivity
- People with diabetes incur yearly medical cost of \$13,700 \$7,900 is attributed to diabetes
- Costs of insulins and new non-insulin medications are rising disportionate to inflation
- More patients are moving to high-deductible plans
- Health care systems are entering into shared savings models with Medicare and insurance providers

Cost, Transparancy and Complexity

Providers and patients are increasingly asked to manage the cost of therapy. Tiering of medications and coinsurance models ask patients to balance risk, benefit and cost. Medication samples and aggressive manufacturers coupons disrupt this balance. Cost to system is lost to complex contracting and rebates. Physicians are caught in between beneficence and distributive justice.



AACE vs ADA T2D Algorithms

AACE algorithm prioritizes therapies by balancing a broad spectrum of risks, benefits, and impact on pathophysiology.^[3]

ADA algorithm provides open choices with a focus on total cost of drug.^[4]

GlucosePATH leverage core values of AACE algorithm under the limitation of the drug cost to the patient.

GlucosePATH is currently in prospective clinical trials.

Data provided by Vericred, a healthcare data services company. Visit <u>www.vericred.com</u> for more information.



- Coupons Affect the Classes of Medications Chosen

The chart below shows how frequently different medication classes are recommended in the four insurance coverage scenarios.





Lifestyle as a treatment strategy is represented in all four scenarios.



Exercise is the most frequently recommended treatment in all 4 groups; it has no cost and is done once daily.

- The second and third most frequently-recommended drug varies with cost and coverage:
- SGLT2 Inhibitors and GLP1 Agonsts appear in the unlimited-cost scenario, showing a preference toward drugs of high efficacy, weight loss, and low risk of hypoglycemia.
- DPP4 Inhibitors increase with the use of Insurance and coupons, along with SGLT2s. Fewer GLP1s are used. Out of pocket cost of DPP4 and SGLT2 range from \$0-\$5 after coupon.
- Basal Insulin and TZDs are favored after Metformin in the Insured no-coupon scenario. The ratio of cost to a1c improvement is good because of the generic status of TZD and insulin's titratability.
- Medicare recommendations are similar to the no-coupon insurance model except for basal insulin, which decreases. Wide Sulfonylurea use appears here. SGLT2 inhibitors, having weight, hypertension, and cardiovascular disease benefits, are the only non-branded class of significance.
 - The beneficial factors sacrificed for price are weight loss, followed by risk of hypoglycemia.
 - Medicare's coverage model discourages high dose insulin due to price.

Coupons Affect Who Pays for Coverage

The use of coupons shifts more of a medication's cost from the patient to individuals in the insurer's coverage pool. Patients paid \$40 less and insurers paid \$175 more per month in our with-coupon scenarios versus the no-coupon scenarios.

	Patient Pays	
Coupon	\$16 \$40	
No Coupon	\$56	



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Diet is recommended more frequently as treatment strategy in scenarios with high cost sensitivity.



Metformin is the most recommended pharmaceutical product in all models, for its balance of cost, efficacy, and pleiotropic benefits.

GlucosePATH emulates the process of choosing a T2D treatment regimen in a clinical setting by analyzing all possible treatment regimens of 1 to 5 medications available to that patient. The software scores each regimen based on patient cost, a1c control, side effects, and adherence.

The software chose the regimen that best balances those factors for each patient. More than 413 million treatment regimens were analyzed.

To demonstrate the impact of coupons on treatment decisions and costs, these four insurance scenarios were modeled for each patient:

The patient's cost limit determines the weight GlucosePATH puts on each factor in the regimen:



Data from abstracted charts of 200 primary care patients with poorly controlled Type 2 DM (A1c > 7) were entered into the GlucosePATH decision engine. The control group represents these patients as if they had no insurance coverage and no cost limits. Three other scenarios model the same patients with monthly OOP maximums of \$200 and prescription coverage provided by:

- ExpressScripts Medicare

A a1c Control, Cost, and Score Comparisons

Decision software allows all patients to reach control, with depth of control sacrificed in cost limited scenarios. Composite Score as represented by the summation of risk/benefit/cost shows that benefit is lost as OOP/drug increases. Using manufacturer's coupons for insured patients provides cost and health benefits for individuals, but at increased expense for insurers.

	I		-of-Pocket Cost Nonthly
\$1,400			
\$1,200	\$1,194		
\$1,000	_		
\$800			
\$600			
\$400			
\$200			
\$-		\$16	\$56
Ψ-	Cash	Insured Coupons	Insured No Coupon

Predicting Impacts

• No insurance and unlimited out-of-pocket per-month (OOPM) cost Insured and not using coupons, \$200 OOPM maximum Insured and using coupons, \$200 OOPM maximum • Medicare Part D, \$200 OOPM maximum

 Anthem without manufacturer coupons Anthem with manufacturer coupons

