INTRODUCTION

Nutrition and physical activity are important parts of a healthy lifestyle when you have diabetes. Along with other benefits, following a healthy meal plan and being active can help you keep your blood glucose level, also called blood sugar, in your target range. To manage your blood glucose, you need to balance what you eat and drink with physical activity and diabetes medicine, if you take any. What you choose to eat, how much you eat, and when you eat are all important in keeping your blood glucose level in the range that your health care team recommends.

Please follow the link to get the best recommendations for type 2 Diabetes

https://diabetes.org/diabetes

Whichever diet or eating pattern you choose to follow, it's best to eat a full variety of nutrient-rich foods and practice portion management. Make an effort to limit your consumption of saturated fats, Trans fats, high cholesterol foods, and added sugars.

Foods and drinks to limit include

- fried foods and other foods high in saturated fat and trans fat
- foods high in salt, also called sodium
- sweets, such as baked goods, candy, and ice cream
- beverages with added sugars, such as juice, regular soda, and regular sports or energy drinks

Drink water instead of sweetened beverages. Consider using a sugar substitute in your coffee or tea.

How we derived the predictive model

The below sample has been used to run the predictive model.				
			Type 2 Diabetes Cohorts	Control group (No Type2 Diabetes)
	Distinct count of N for all years (2016-2021)		1,932,522	59,034,069
		Ages		
AGEGRP	1	0 - 17	14486	11355940
	2	18 - 34	88527	13442648
	3	35 - 44	153647	7103429
	4	45 - 54	306997	7247078
	5	55 - 64	475718	7346314
	6	65 - 84	823998	10917318
	7	85 +	68960	151433
	Unknown		192	1471650
GENDER	Male	1	951494	26479366
	Female	2	967383	32086003
	Unknown	0	13645	468700
RACE	ASIAN		30590	1031561
	BLACK		276018	5704573
	HISPANIC		11833	657215
	OTHER		102625	2814546
	UNK		630952	37307826
	WHITE		882886	30588588
	phypeglycemia		24230	127251
	HPT		1072885	3037243
	Low HDL		3211	26099
	Hyperglycemia		101136	385086

RESEARCH STATEMENT (INCLUDE BACKGROUND AND SIGNIFICANCE).

BACKGROUND: Type 2 diabetes (T2D) is considered a metabolic disorder that occurs when the body's metabolism is disrupted or not functioning properly, often due to a chemical dysfunction. In TD2 the body continues to produce insulin but is unable to metabolize it effectively. According to the CDC, type 2 diabetes (T2D) is prevalent among adults in the United States. However, in recent years more children and teenagers are also developing this disease. There has been an increase in the number of overweight children, which is closely associated with the development of T2D due to insulin resistance. T2D risk factors include, but are not limited to, a poor diet, a sedentary lifestyle, family members who have the disease, high cholesterol, and high blood pressure. Based on recent literature, these covariates have been used previously to predict the risk of undiagnosed diabetes (Collins et al., 2011).

SIGNIFICANCE: The goal of this research topic is to analyze health records within Explorys EMR data of people who develop TD2 to identify risk factors, and to then develop a predictive model incorporating the identified risk factors. The predictive model can quantify the likelihood of an individual who might have type 2 diabetes (T2D) based on their historical medical test results and current health status. Although there are genetic factors that may increase a child's risk of having T2D, such as race and family medical history of having T2D or gestational diabetes, there are some ways for him/her to control or prevent T2D. Such methods would include exercising and having a balanced diet. Early detection of an individual's risk of having T2D would help the individual avoid severe complications associated with T2D (i.e., vision loss, kidney disease) (CDC, 2021a; CDC, 2021b). This project will also identify generalized steps to reduce the risk of T2D. Future application of this model will create awareness in the community and be an early detection tool for the study population.

DATA USED: This study will use Explorys EMR data to create a predictive model that can calculate an individual's risk of having type 2 diabetes. The Explorys EMR data is fully de-identified and is comprised of EMR data submitted by participating providers across the nation. The data set includes nearly 70 million unique individuals and includes inpatient, outpatient, and professional records that are linked by an encrypted unique person ID. The study poses no risk to privacy as it is fully de-identified.