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How has diabetes hospitalizations/ICU admissions changed with insulin price increasing over the last 20 years?

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Background

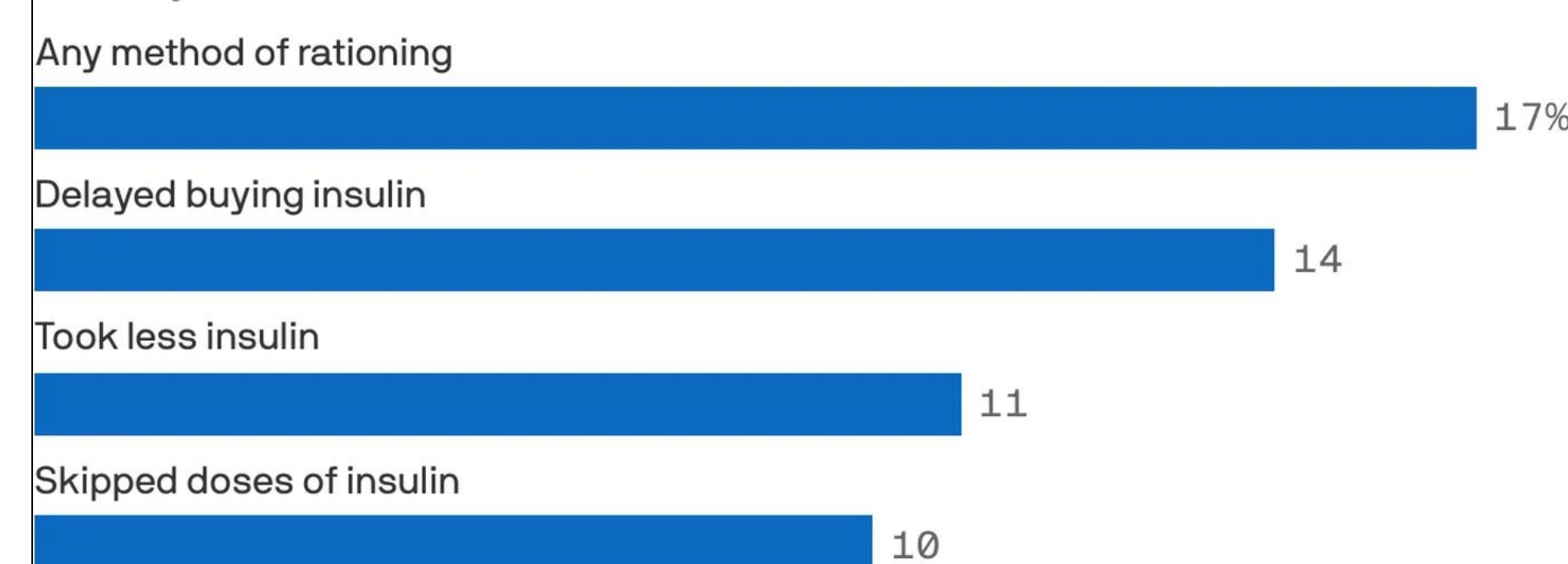
- There are 331.9 million people living in the United States as of 2021
- 130 million people living with pre-diabetes or diabetes in the United States as of 2022 in a study done by the CDC
- Over 1/3 of United States citizens suffer and live with diabetes type 1 and type 2, making diabetes one of the leading chronic diseases in the United States
- Health care costs and cost of care in the United States has been on the rise over the years, including the price of Insulin for those suffering from diabetes
- Due to increasing costs for insulin, diabetes patients are more often found to be rationing their insulin supply in order to combat rising costs of healthcare
- Rationing insulin can lead to diabetic ketoacidosis (too little insulin) which can potentially lead to acute myocardial infarction, also known as a heart attack
- Without the proper dosage of insulin, a patient's blood sugar levels will drop, putting them at risk for blood clots due to lack of blood flow
- Patients with type 1 diabetes are at higher risk for coma and death due to insulin rationing

From an article published in July of 2021, this being the only research on this topic in the last 20 years that either they or us could find:

“Our findings have several implications. First, clinicians should be cognizant that inadequacies in insurance coverage could lead to CRN among their patients with diabetes, particularly among insulin users and those with low incomes. Second, to improve CRN, policy makers should enact reforms to control rapidly escalating prices of diabetes medications, particularly insulin. Potential tools include patent reform, ensuring timely generic drug availability, expanding opportunities for government entities to negotiate prices with pharmaceutical companies, and expanding a recent IRS rule allowing HDHPs with a health savings account to cover medications such as insulin before deductibles are met to other types of HDHPs. Finally, the public should be aware that policies that expand the use of HDHPs could harm patients with diabetes, while policies that reduce financial barriers to care could improve access and adherence to needed medications for patients with this condition.” (Rastas)

Methods insulin users say they used to save money during the last year

2021 survey of 982 U.S. adult insulin users



Study Objectives

How many Americans suffer from hypoglycemia due to insulin rationing in the USA and end up in the ICU because they could not afford a refill.

Results

- % of Medicare beneficiaries are the ages of 65 or older
- Diabetic Medicare beneficiaries over 65 have over 60% higher out-of-pocket prescription costs for those with diabetes when compared to those without diabetes
- Most common demographics connected to cost-related insulin rationing:
 - non hispanic blacks
 - middle income
 - underinsured
 - uninsured
- 33% of patients 65 and older reported to have diabetes
- Patients ages 18-25 are more likely to ration insulin due to rising costs of insulin and treatment
- There are 37.3 million cases of diabetes in the United States according to the CDC
- 130 million patients in the United States living with prediabetes or currently living with diabetes that either will soon need insulin treatment or are currently taking insulin. Which consists of 42.4% of the population in the United States, age 20 and older.
- The average annual cost of diabetes in the United States is \$327 billion; consisting of prescriptions, treatment, and equipment.
- Hypoglycemia, or low blood sugar, is the 7th leading cause of death in the United States according to the CDC

Table 3. Crude In-Hospital Mortality Rates by Hypoglycemia Status

	No./Total (%) of Patients With In-Hospital Mortality		P Value
	Hypoglycemia	No Hypoglycemia	
All patients	61/482 (12.7)	701/7338 (9.6)	.03
No insulin treatment	25/136 (18.4)	425/4639 (9.2)	<.001
Insulin treatment	36/346 (10.4)	276/2699 (10.2)	.92
Sensitivity Analysis			
Excluding those who received oral antihyperglycemic agents	54/381 (14.2)	669/6312 (10.6)	.03
No insulin treatment	24/111 (21.6)	415/4237 (9.8)	<.001
Insulin treatment	30/270 (11.1)	254/2075 (12.2)	.59
Excluding those who died ≤24 h of admission	58/479 (12.1)	617/7139 (8.6)	.01
No insulin treatment	22/133 (16.5)	366/4505 (8.1)	.001
Insulin treatment	36/346 (10.4)	251/2634 (9.5)	.60
Using glucose level <70 mg/dL as definition of hypoglycemia	89/753 (11.8)	673/7067 (9.5)	.04
No insulin treatment	35/225 (15.6)	415/4550 (9.1)	.001
Insulin treatment	54/528 (10.2)	258/2517 (10.3)	.99

SI conversion factor: To convert glucose to mmol/L, multiply by 0.0555.

Conclusion

How much are American lives truly worth to these pharmaceutical companies, since they seem so willing to withhold life saving medication just for a few extra dollars? Only an estimated 1 in 2 people worldwide have access to the insulin they need, and an estimated 7 million of those people are in the USA and some of those people still face insecurity about their access to insulin. That is mostly due to the price of insulin in America but there is much debate on the price due to the lack of price transparency in pharmaceuticals. Some people even want to bring to light the prices in the insulin market so it can become more competitive therefore the prices may lower for the patients. “By bringing prices out into the open, national procurement agencies can get a clearer idea of where the market is and what they should be paying,” (WHO) Yes the insulin cap does benefit some americans with this problem, but the majority of people are still suffering from the neglect of this problem. Patients are still ending up in the hospital with fatal complications from preventable problems because they simply could not afford the thing that keeps them alive and opted to fast their insulin or ration it, thinking those are the only options because for most they are. It is not worth it to these patients to be stuck in this scenario especially the young adults entering the world knowing nothing of health insurance and costs of prescriptions, all they know is they need their insulin to survive.

Future Implications

This problem is only being addressed by our government for a small percentage of americans that suffer from these problems that have been placed on them. Not much change has happened in making insulin more affordable, if anything it continuously is getting more expensive. Until our government starts addressing the marginalized groups that are affected by these rising hidden costs the most, we only see the problem getting worse.

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