

How Meters are Used at Home and How Consumers Choose Meters

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Advocate for persons with diabetes

PERSONAL OPINION

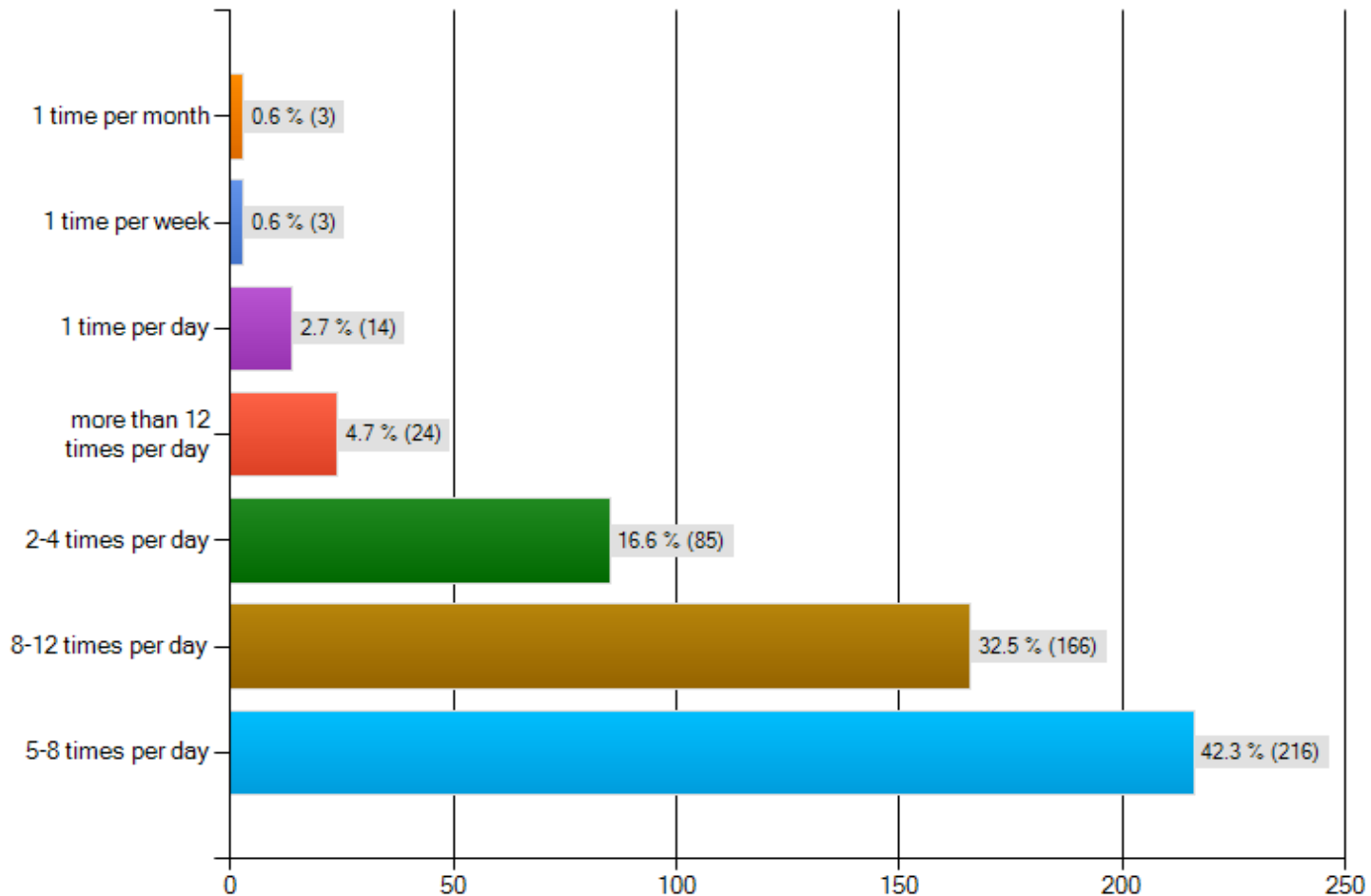
- I work at Close Concerns as a research associate. Almost everyone at the company has a personal connection to diabetes, and advocates for people with diabetes - in fact, the mission of the company is to improve outcomes for people with diabetes through getting valuable information to everyone who needs it. That said, **what I'm presenting today is my personal opinion**, and I'm not officially representing Close Concerns or diaTribe.

Survey (raw data)

- **512 completed the survey**
- **77.4% female/22.6% male**
- **36.1% have type 1 diabetes**
- **48.8% have a child with type 1 diabetes**
- **13% have type 2 diabetes**
- **3.2% have LADA**
- **Others had gestational diabetes or were spouses, caregivers, parents of children with monogenic, parents of children w/type 2 diabetes**
- **90% have insurance coverage for strips**

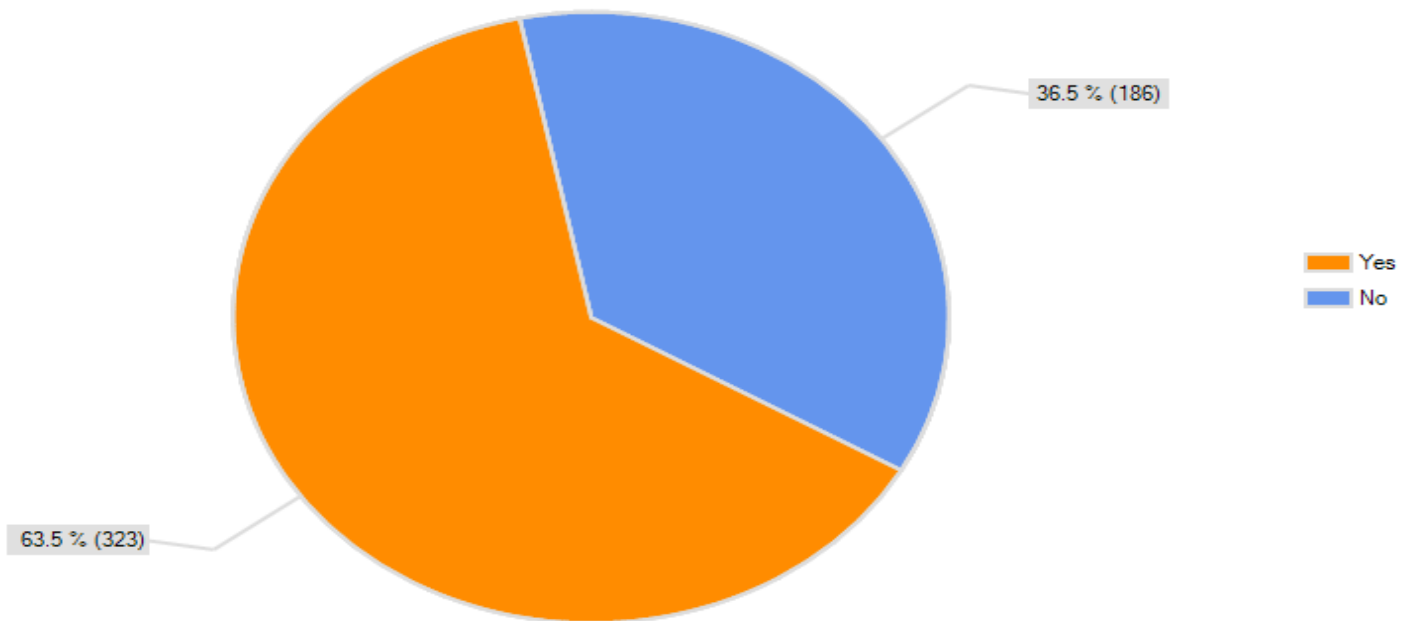
Frequency of checking blood glucose

On average, how often does each individual person using a blood glucose meter check blood glucose?



Instruction by Health Care Provider

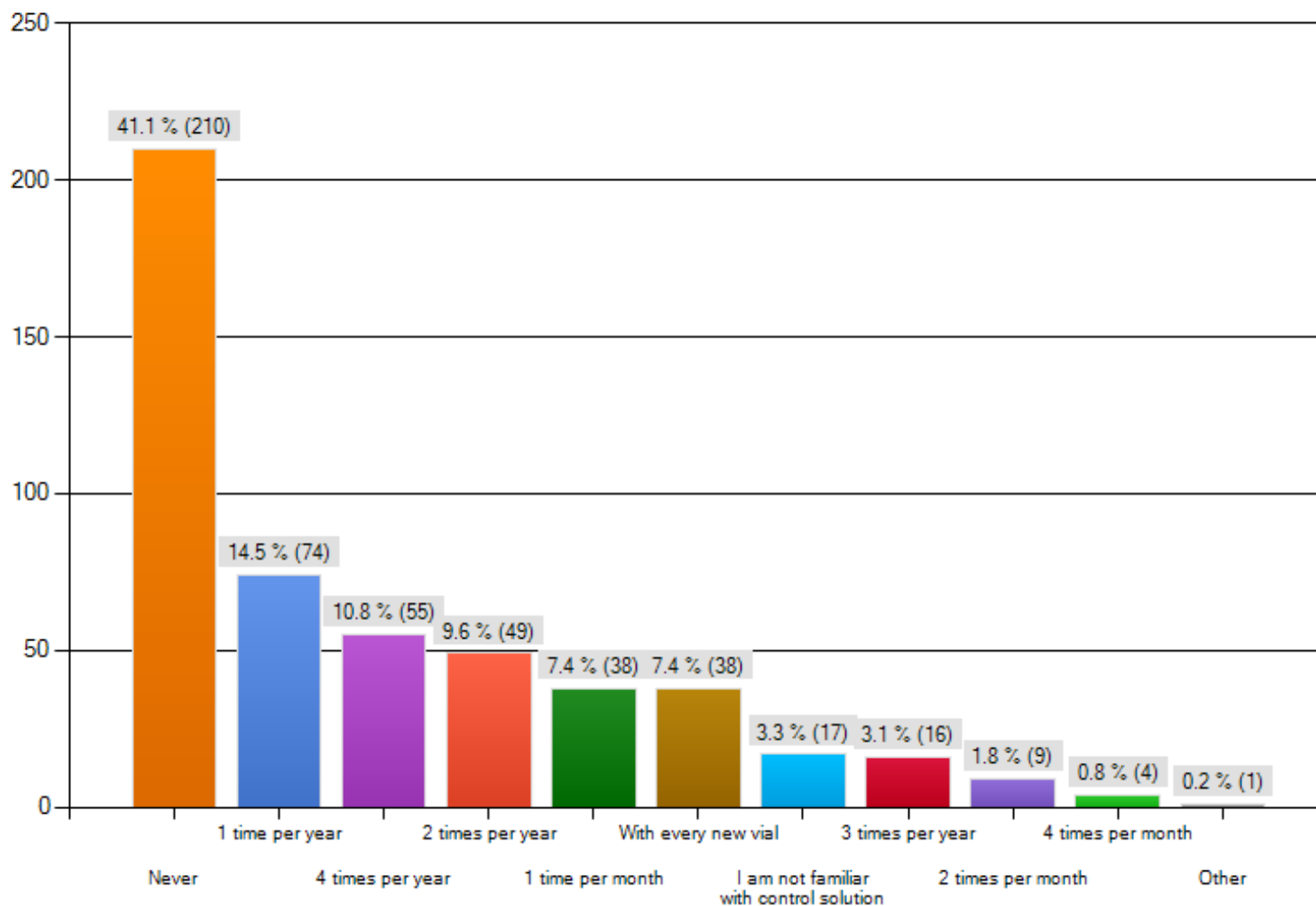
Have you been instructed by a health care provider how to use your meter?



Control Solution

It should be in the box so consumers can choose to use it.

On average how often do you use control solution to make sure the test strips are in range?

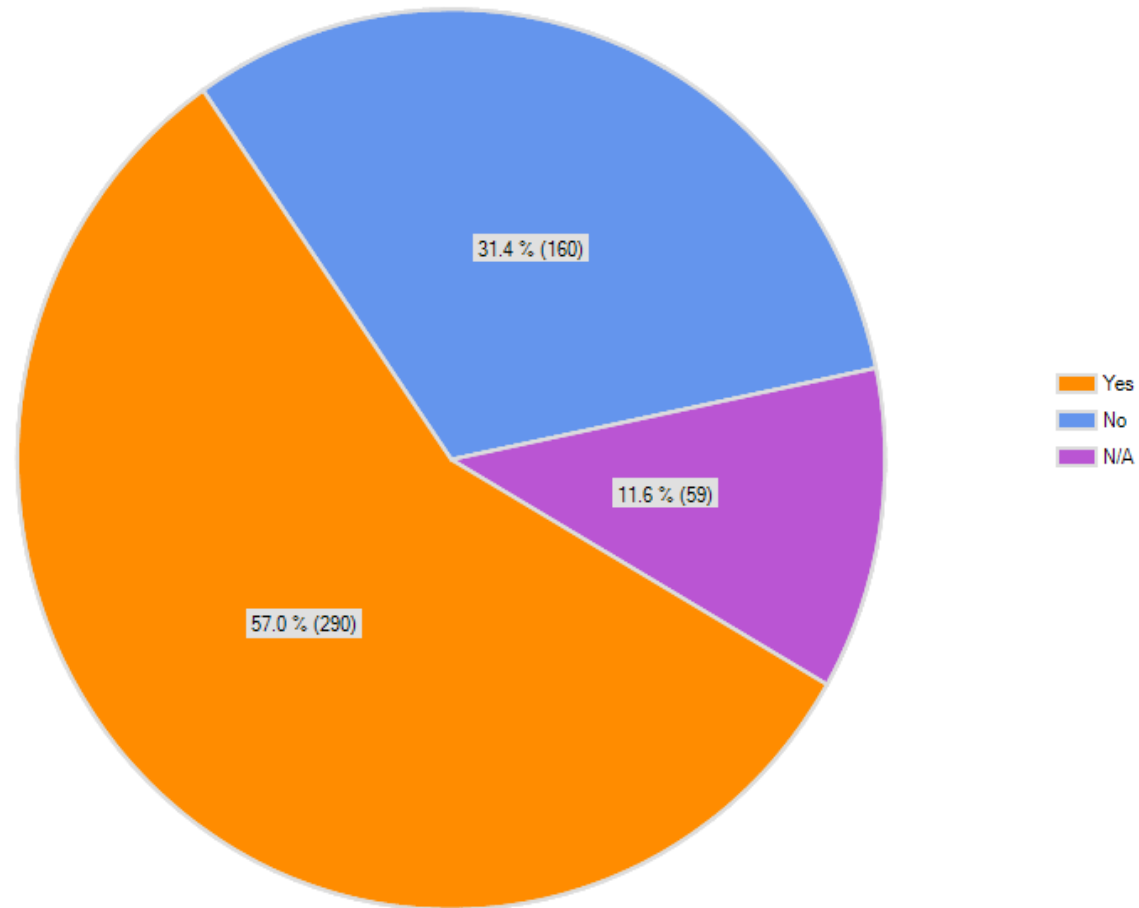


Tweet re Control Solution

“5am low (meter said 79 mg/dl, NO WAY) helped me discover expired test strips. Lovely. Control solution had them in range, upper range tho.”

Coding the Meter

Have you ever forgotten to change the code on your meter?



Using Strips Beyond the Expiration Date

**“If he's using strips, they are out-dated ones.” via email.
We may see more of this with less people insured.**

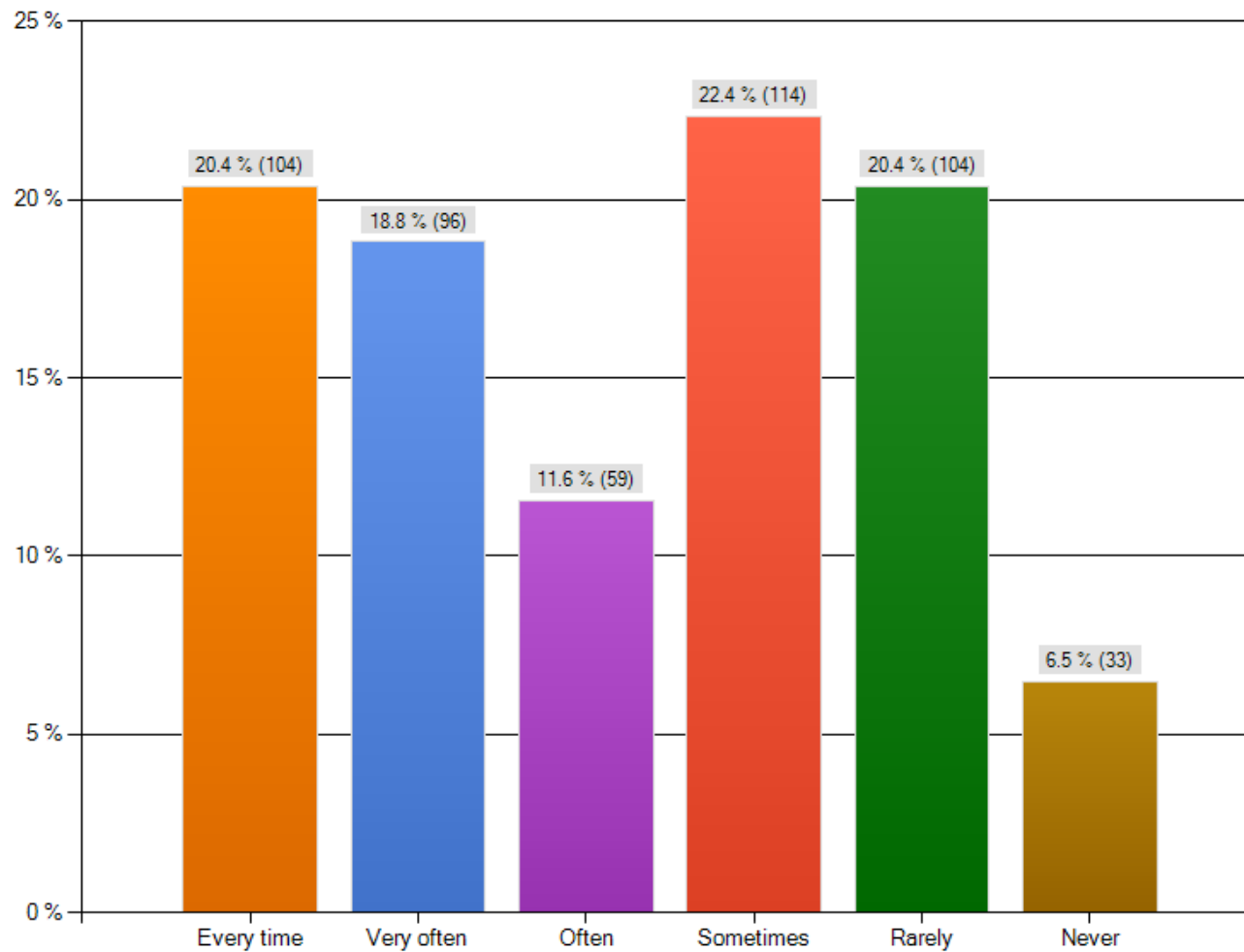
Have you ever knowingly used blood glucose test strips beyond the expiration date stated on the vial?

80.2 % (409)



19.8 % (101)

Frequency of Cleaning Skin Before Lancing



Temperature/Humidity/Hi-Lo

- **34.5% keep a meter and strips in the car**
- **62.3% do NOT know temp. range of meter**
- **33% do NOT know the High/Low range of their meter**

More Than One Strip

- **45% of patients said they sometimes use more than one test strip because they do not trust the accuracy of the result**
- **From Twitter: “Test strips for my glucose meter. You are expensive. This is why you are constantly wrong, making me use more of you than I need.” @**** Fri Feb 12 13:05**
- **“Seriously, the evening's bloodletting is not going well. 5 test strips and still not enough blood. I say Enough of #Diabetes!!” @***** Thur 18 Feb**

Other Factors Interfering with Accuracy

- **Altitude**
- **Medications**
- **Third Party Strips**
- **Not cleaning the meter**
- **Not enough blood**
- **Products used for cleaning skin**
- **Using alternate site testing when not approved**



**How Consumers Choose Meters
or
(should we ask how meters
are chosen for consumers?)**

Diabetes Forecast 2010 Consumer Guide

- Article “Checking for Accuracy
- Criteria listed in the 2010 Consumer Guide:
 - Meter Name
 - Blood Sample Size
 - Battery
 - User Coding Needed?
 - Contact Information
 - Audio capability
 - Backlight on display
 - Dual meter that measures both bg and bp
 - Computer download capability
 - Communicates with the insulin pump
 - **NOTHING COMPARING ACCURACY**
 - **Patients need to know the accuracy of meters and there must be standards for comparison**

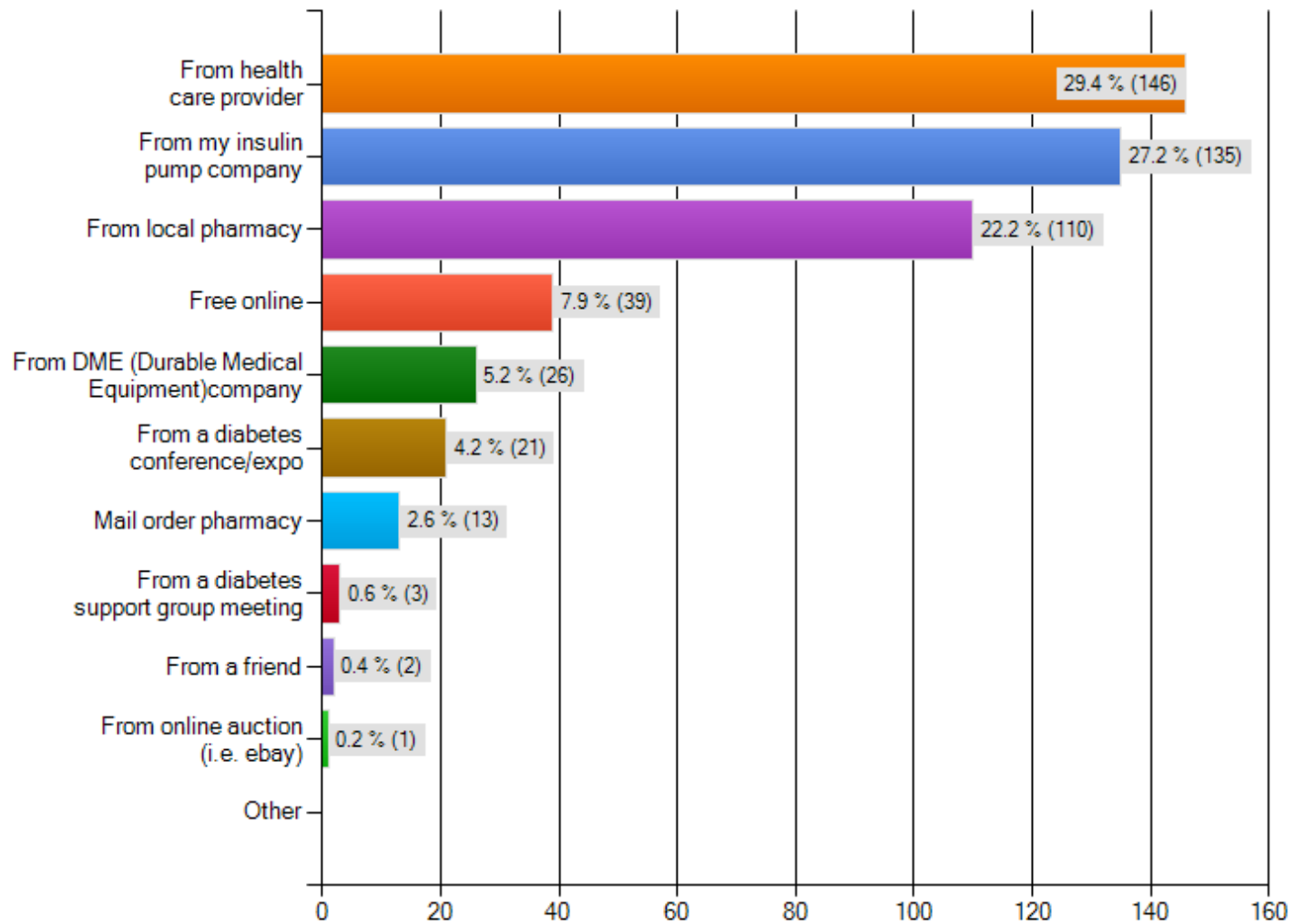
Considerations

- Perceived accuracy
- Co-pay (tier)
- Free (online advertisements, tv, print, diabetes expos, support meetings)
- Medicaid and some insurance – no choice
- No insurance – often the cheapest strips available (and they have little confidence
“I'm a little worried this ***** meter isn't working properly but I don't have control solution. I need to go get a free meter somewhere” @*** Fri 19 Feb 10:33 a.m.)

Elderly/Physically Challenged

- **Ease of use (strips from container – strips into meter, blood on strip)**
- **Large display**
- **Back light**
- **Voice activated**

Where did you obtain the blood glucose meter used most frequently in your home?



Insulin Pump/CGM Users

- **Often get their meter from the pump company**
- **Need to use the strips that work in the personal data manager (PDM) in order to have it send the data directly to the pump or calibrate the CGM**
- **Though not approved, dose decisions are made based on CGM calibrated with meters that are not sufficiently accurate today.**

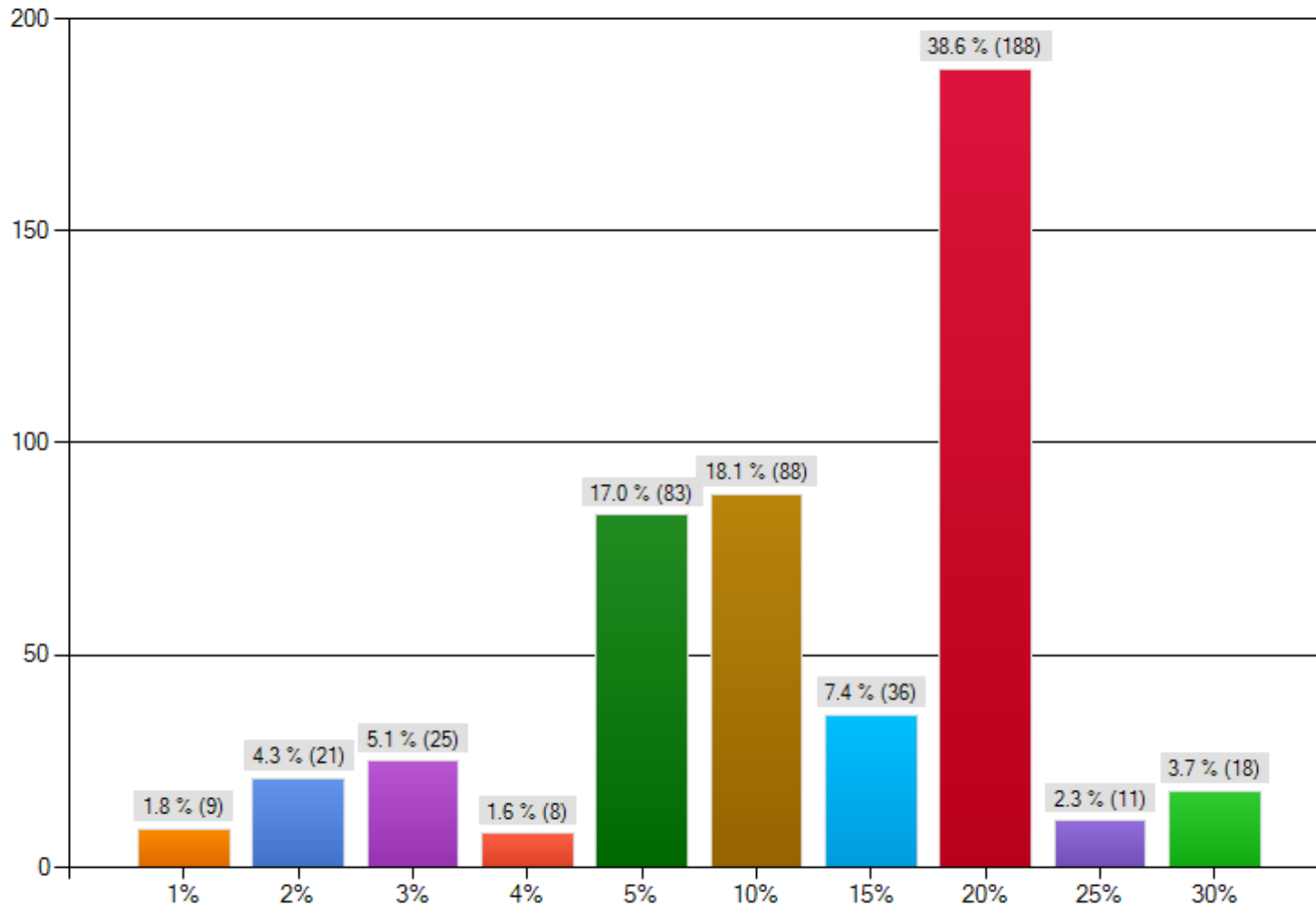
Ranking “Most Important”

- **When asked to rank “most important” factors in choosing a meter:**
 - **(1) accuracy (77.5%)**
 - **(2) blood sample size (37.3%)**
 - **(3) cost of test strips(27.9%)**

Perceived Accuracy

46.1% believe current accuracy required is 1-10%

According to FDA requirements, home blood glucose meter results must be within what % of the actual blood glucose value from a laboratory? If you are unsure, please choose your best guess.



Majority of Consumers Express They Want Improved Accuracy

- “I would love to find a meter that had closer error tolerances accuracy i.e. < 1%-2%.”
- “Ques. 28 is not a fair question. As everyone knows meters are "allowed" to be 20% off. That is UNACCEPTABLE. If I have 4 meters lined up to do a test using the same blood drop and each meter shows a different #, lets say 80, 90, 100 and 110. That could still be a range of BS's at 60 - 120. So which # is it? If anything needs to change its the accuracy of the meter. ”
- **“What does a person with type 1 #diabetes do when the have NO faith in their glucose meter???”**

Cont.

- “No way is 20% variance good enough. That the FDA does not make the band tighter is being irresponsible for my child’s health- we dose based on that number and she is so insulin sensitive that it would make a huge difference to control. They can require meter makers to do better.”
- “WE NEED MORE ACCURATE METERS. OUR METER ACCURACY IS APPALING. There is no reason why our meters can't be within 1% of full scale, (maximum error of +/- 4mg/dl). Cheers!”

Comments re Yesterday's Discussion

- **Consumers are the end users – regardless of setting – hospital, office, school, soccer field, home, nursing homes, daycare**
- **Labeling “accuracy”, shipping and storage, control solution**
- **Tight glycemic control (best practices) –children, pregnancy, dosing middle of the night**
- **“Outliers” – even when proper protocol is followed – every outlier is a potential serious problem (how is this permitted?)**
- **Usability and convenience cannot trump accuracy**

Cont.

- If there are various meters for T2 orals, T2 insulin, T1, poor/uninsured/managed care patients will get the cheapest and least accurate regardless of indication. Every person with diabetes deserves highest accuracy
- Industry: There is plenty of profit to be made ethically on accurate blood glucose meters and test strips.
- Must phase out inaccurate, lower standards (sunset). People can and will learn to use new meters
- **Graph 10% - compelling - minimum**
- **If there are meters capable of achieving accuracy within 10% today – THAT should become the new standard**
- **ON BEHALF OF ALL PATIENTS WHO DEPEND ON BLOOD GLUCOSE METERS, THANK YOU.**

Daisy

- When you think of the “consumer”, think of Daisy’s need for accuracy.
- Daisy was diagnosed with Type 1 Diabetes at 13 months old. Cases of Diabetes in under 5's are rising sharply.
- <http://www.youtube.com/watch?v=JeGwWVBGtBU>