Mark:

ok, quick algorithm: for each glucose value, if we have at least two(2) valid (>=30) glucose values before and at least two(2) after, we can compute the mean (5 <= N <= 13) and stdDev and thus the residual; cache this new value, then at end, addNewColumn; [once this is working, we also add slope, 2nd derivative] …. (but, note: i've forgotten that we also want DAY info … ok, more thought needed)

Ethan:

What do you think of this idea:

Simple Algorithm: This algorithm relies on the idea that there is some correlation between the time of day that a high/low takes place and the factors that led up to it. This seems reasonable because some of the factors that cause highs/lows are patient controlled, and people tend to repeat the same mistakes.

1. Keep track of all subsets of the glucose graph that show an hour leading up to a high or low.

2. Categorize them by the time period in which the high/low occurs.

- e.g. a high occurring between 10 AM and 11 AM would be contained in one category

- How should we handle categories that contain more than one "cluster" of highs/lows

3. Take the subset of the graph leading up to the present moment, and compare it to the category with a high/low nearest in the future

- If the "behavior" of the subset leading up to the present is "similar enough" to the behavior of the subsets in the nearest future category, alert the patient

- I need your help to determine the best way to quantify the "similarity" between subsets, and what should constitute "similar enough"

Mark's post about future goals regarding Jinxian and Yihong's algorithm:

Action Items (as of Thur., Nov 3)

(i) Jingxian and Yihong working on a model (using a TRAINING SET of prior data) to predict:

(a) positive slope after intake of food based on OGTT (Oral Glucose Tolerance Test), how a person's blood sugar goes up

(b) average negative slope from past history: assuming consistent readings (that is, no nearby OutOfRange intervals), determine the AVG-NegSlope;

(c) using (a) and (b) and TEST SET (not Training set values), predict efficacy of the model, e.g., predict positive and negative slope changes;

(d) if the DELTA= | predicted - actual | > (somePredefinedConstat) then generate an ALERT

(e) collect stats on efficacy of the model

(f) coordination needed with Reports and iOS group: ALERT notifications? Entering EVENT data, e.g., food, exercise

2do for THUR, Nov. 10

(i) what is Kate's OGTT score?

(ii) Jingxian and Yihong share status of work on the model

(iii) Ethan: (possibly add INSULIN and CARB columns to dB using Kate's (.pdf) reports)

(iv) Alvaro: are you still working on finding stats for each hour of the day for each day of the week?

(iv) Liam: ?