

BACKGROUND

Technological features of CSII therapy comprise temporal basal rates, different basal rate profiles, use of bolus calculators, and bolus variants. In addition, real-time CGM data as well as computerized analysis of glucose data can be used to adjust insulin pump therapy. In this study, the associations between the frequency of use of these technological features and glycaemic control were analysed.

METHODS

Stepwise linear regression analysis with HbA1c as dependent variable was performed. Independent variables were the frequency of use of the technological features mentioned above.

Patients indicated the frequency of use per week of those features on a five-point Likert scale (0-not at all, 1-less than once per week, 2-at least once a week, 3-several times per week, 4-daily).

RESULTS

264 patients participated in the study:

- Sample characteristics see table 1.
- The frequency of the use of different technological features of CSII Treatment is depicted in figure 1.
- The most frequent features used was the bolus calculator, followed by the use of bolus options and temporary basal rate. In univariate analysis significant associations between glycaemic control and use of technological features were detected for the frequency of temporal basal rates, bolus options and computerized evaluations of SMBG/CGM Data (see figures 2-4).
- In multivariate analysis (stepwise regression only use of basal rate profiles as well as computerized analysis of glucose as significant predictors of glycaemic control ($\beta=-0.17$, $p=.04$; $\beta=-0.20$, $p=.02$).

DISCUSSION

Patients used the technological features of their insulin pump rather rarely, in spite of a long duration of CSII treatment. More frequent use of different basal rate profiles and systematic analysis of glucose profiles were associated with better glycaemic control.

Patients should be better educated how to interpret their glucose data and make use of the benefits of the technological features of their insulin pump.

Table 1: Sample Characteristics

Characteristic	
Mean age (\pm SD) yrs	43.8 (14.2)
Mean Diabetes Duration (\pm SD) yrs.	23.1 (12.5)
Mean CSII – therapy duration (\pm) yrs	9.8 (7.4)
% female	59.2
Mean HbA1c (\pm SD) %	8.1 (7.5)
BMI kg/m ²	28.1 (5.6)
Number of SMBG per day (\pm SD)	5.4 (2.1)
CGM use in the last 6 months %	11.4
FGM use in the last 6 months %	18.3

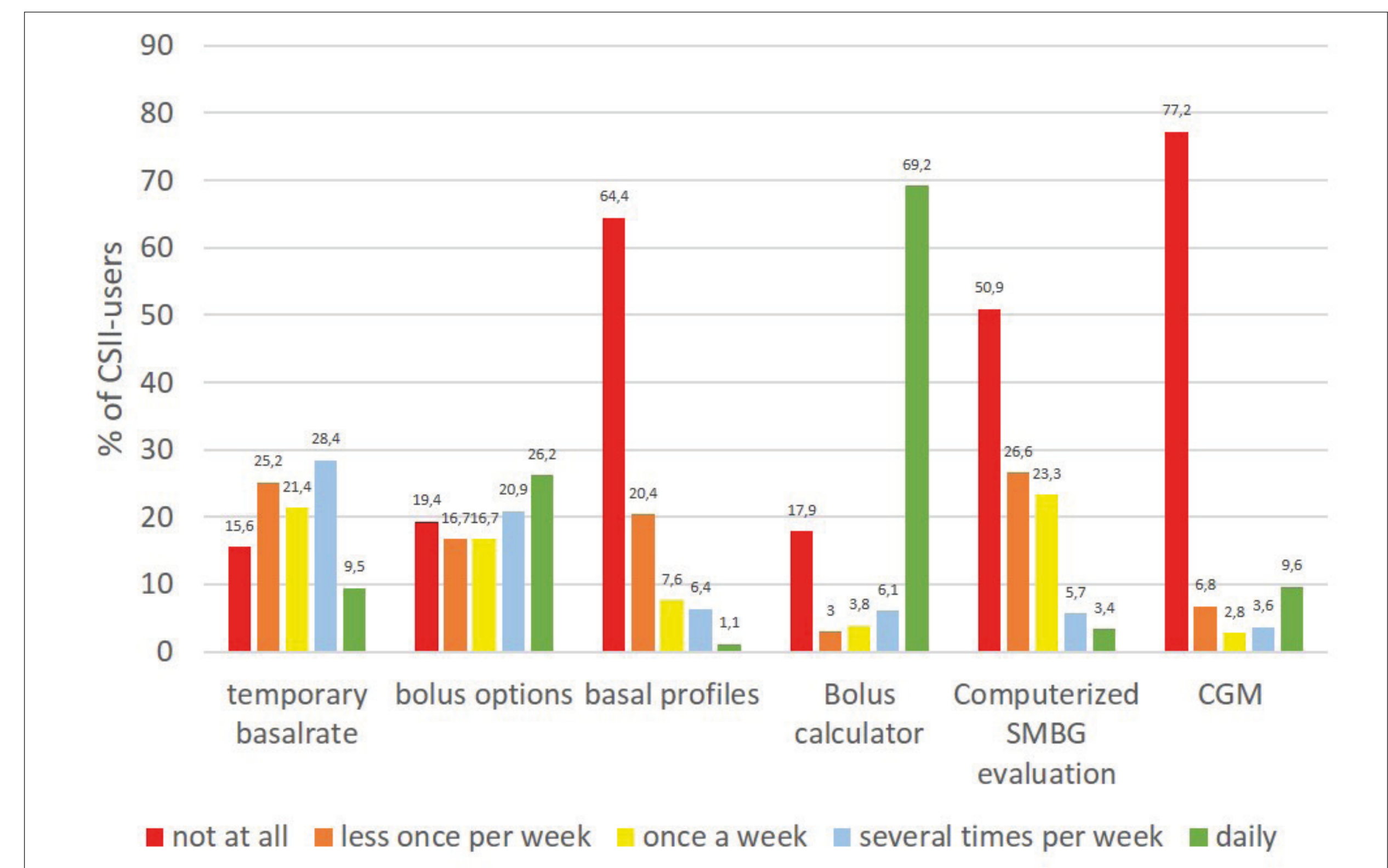


Figure 1: Frequency of use of CSII technological features

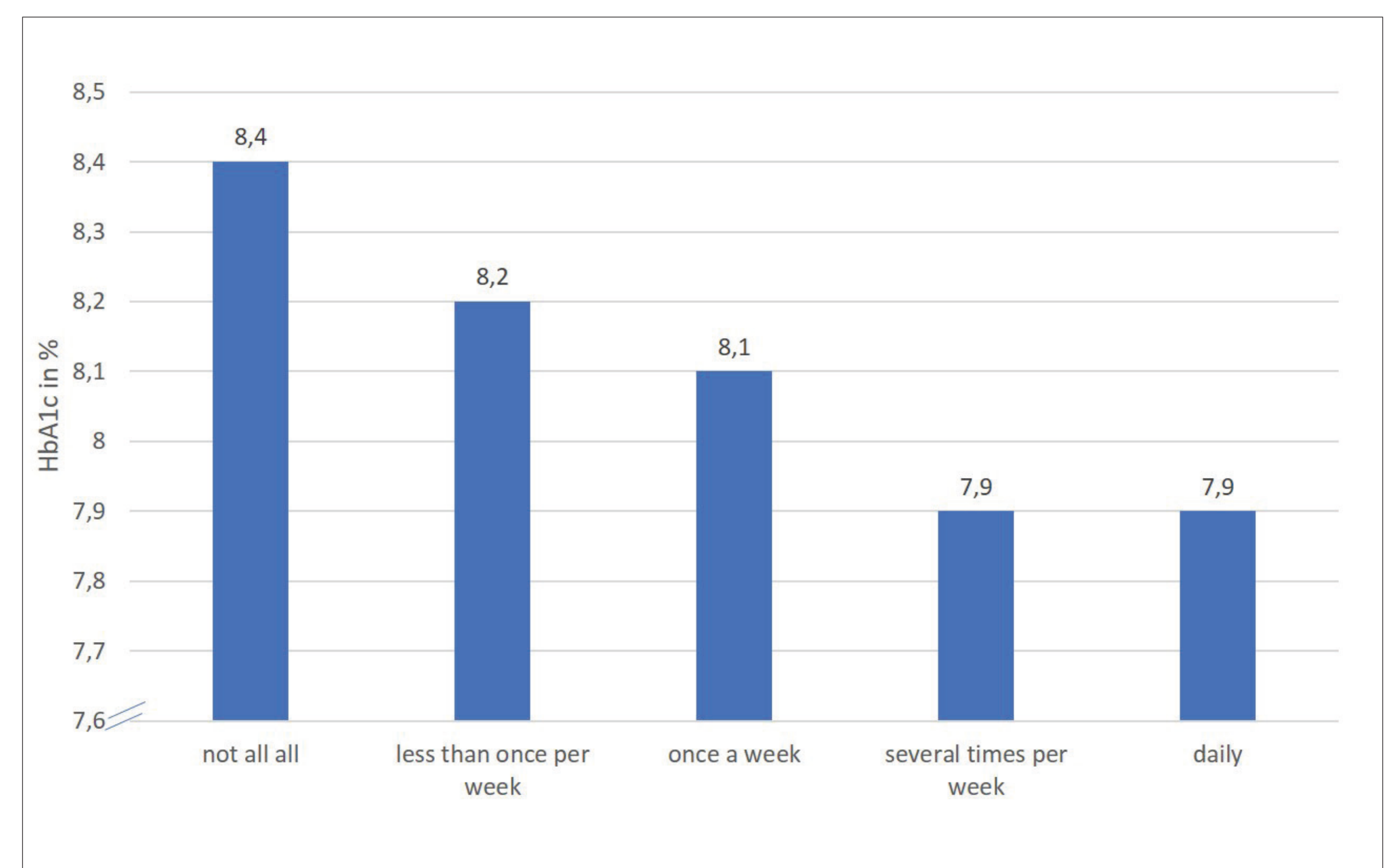


Figure 2: Impact of frequency of temporal basal rate per week on HbA1c

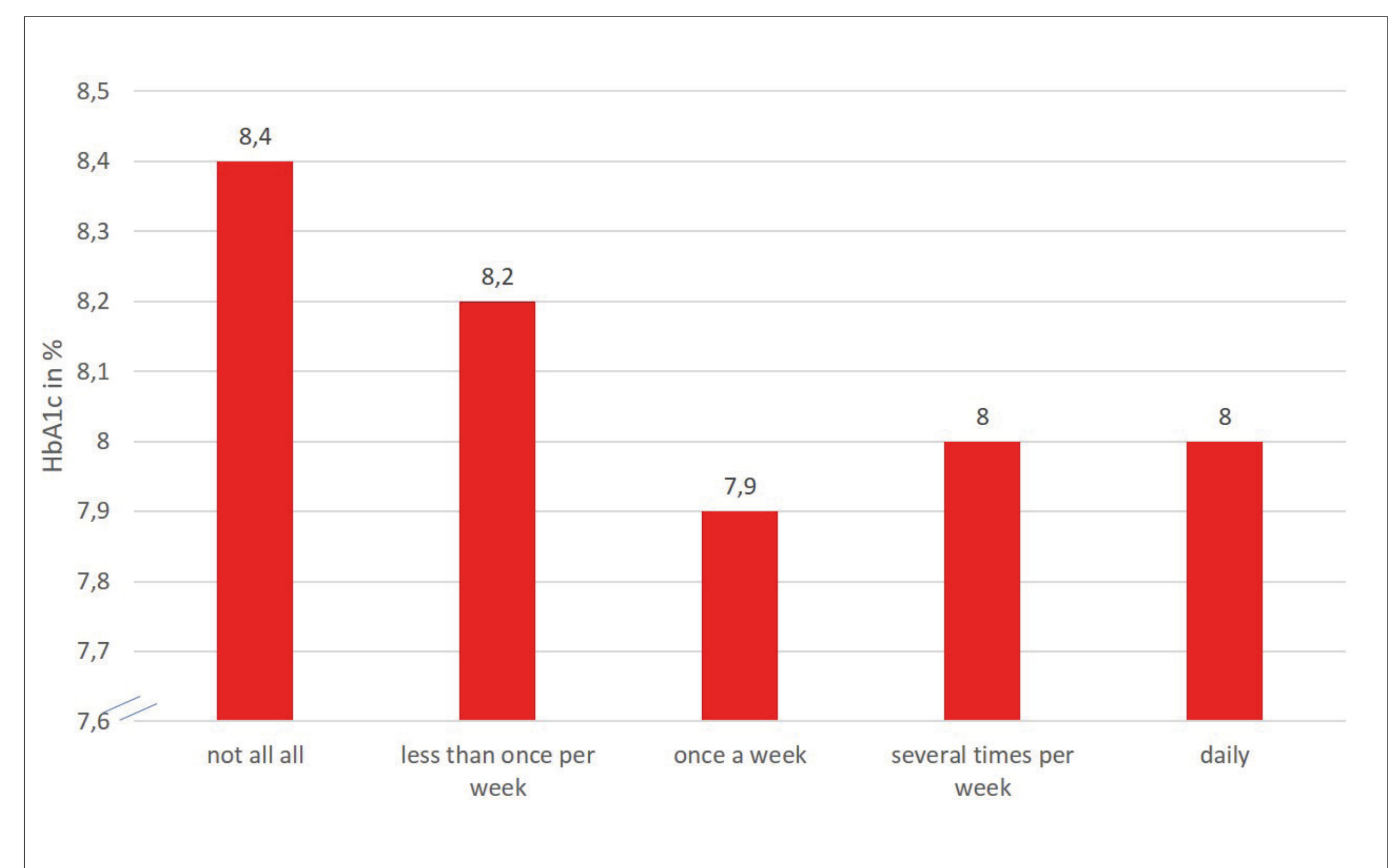


Figure 3: Impact of frequency of bolus options per week action on HbA1c

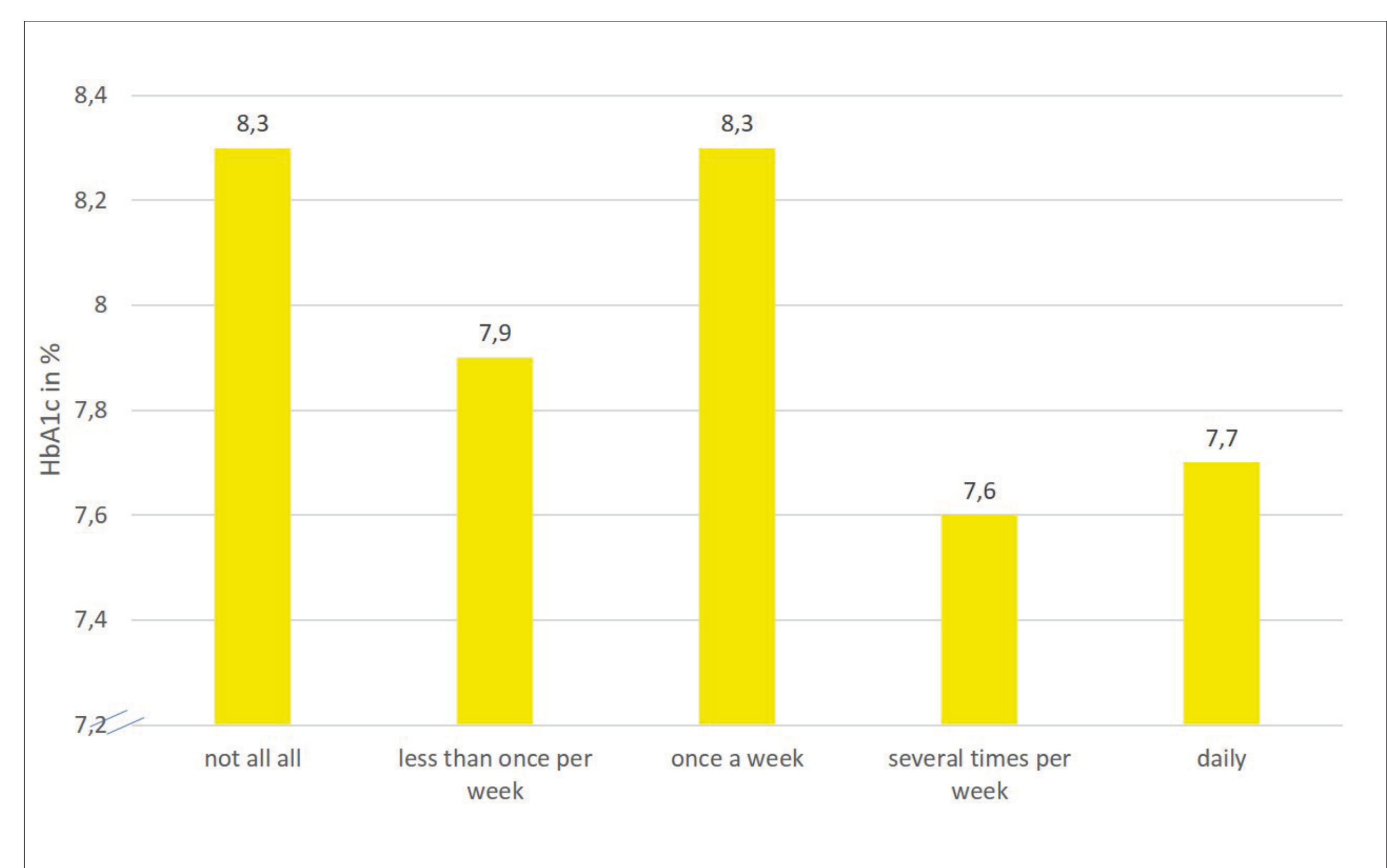


Figure 4: Impact of frequency of computerized SMBG or CGM evaluation on HbA1c