

Supplemental Materials

Kinetic constant estimation and cHbA1c calculation

Both kinetic parameter estimation and prospective cHbA1c calculations were performed with equation 8 reported previously [13].

$$A1c_z = EA_z(1 - D_z) + \sum_{i=1}^{z-1} [EA_i(1 - D_i) \prod_{j=i+1}^z D_j] + A1c_0 \prod_{j=1}^z D_j$$

Where $D_i = e^{-(k_{gly} * g_i + k_{age})t_i}$ and $EA_i = g_i / (k_{age} / k_{gly} + g_i)$. The value $A1c_z$ is equivalent to cHbA1c at the end of time interval t_z , while intra-RBC glucose level $g_i = (K_M * G_i) / (K_M + G_i)$ depends on blood glucose level G_i and glucose binding affinity to GLUT1 $K_M = 26.2$ mM.

Estimated HbA1c (eHbA1c) and Glucose Management Indicator (GMI) were calculated from average glucose with the following regression equations:

$$GMI\% = AG_{mg/dL} * 0.02392 + 3.31$$

$$eHbA1c\% = (AG_{mg/dL} + 46.7) / 28.7$$