

### HbA1c calculation from manual assay

The glycosylated hemoglobin assay has been validated as a reliable indicator of mean blood glucose (MBG) levels for a period of 8-12 week period prior to determination. This assay provides valuable information for the physician's clinical assessment of long-term diabetic control. Physicians have conventionally used information such as symptoms, urine tests and random blood glucose determination to evaluate the metabolic state of their diabetic patient and to estimate roughly the average blood glucose of the patient. Recently, the glycohemoglobin test has been shown to have a linear correlation with MBG results from patients performing frequent self-monitoring of blood glucose levels.

| A     | HbA1c | MBG | A     | HbA1c | MBG |
|-------|-------|-----|-------|-------|-----|
| 38.8  | 3.4   | 27  | 192.1 | 8.8   | 207 |
| 41.3  | 3.6   | 34  | 202   | 9.0   | 214 |
| 44.5  | 3.8   | 41  | 214.8 | 9.2   | 220 |
| 47.6  | 4.0   | 47  | 220.3 | 9.4   | 227 |
| 51.8  | 4.2   | 54  | 232   | 9.6   | 234 |
| 57.0  | 4.4   | 61  | 250   | 9.8   | 240 |
| 61.1  | 4.6   | 67  | 255   | 10    | 247 |
| 65.0  | 4.8   | 74  | 265.1 | 10.2  | 254 |
| 70.2  | 5.0   | 81  | 274.5 | 10.4  | 260 |
| 75.1  | 5.2   | 87  | 285.9 | 10.6  | 267 |
| 80.8  | 5.4   | 94  | 293.7 | 10.8  | 274 |
| 85.0  | 5.6   | 100 | 300   | 11.0  | 280 |
| 90.1  | 5.8   | 107 | 308.5 | 11.2  | 287 |
| 93.2  | 6.0   | 114 | 315   | 11.4  | 294 |
| 96.4  | 6.2   | 120 | 330.2 | 11.6  | 300 |
| 99.0  | 6.4   | 127 | 338.4 | 11.8  | -   |
| 108.9 | 6.6   | 135 | 345.5 | 12.0  | -   |
| 114.1 | 6.8   | 141 | 352.1 | 12.2  | -   |
| 120.6 | 7.0   | 147 | 365   | 12.4  | -   |
| 128.5 | 7.2   | 154 | 370.8 | 12.6  | -   |
| 136.8 | 7.4   | 160 | 376.3 | 12.8  | -   |
| 144.2 | 7.6   | 167 | 382.5 | 13    | -   |
| 152.5 | 7.8   | 174 | 385.7 | 13.2  | -   |
| 160   | 8.0   | 180 | 397.9 | 13.4  | -   |
| 170.1 | 8.2   | 187 | 406.4 | 13.6  | -   |
| 175   | 8.4   | 194 | 415.6 | 13.8  | -   |
| 185   | 8.6   | 200 | 422   | 14    | -   |

In the test study done by Nathan D.M et.al they calculated the Mean Blood Glucose concentration from the Value HbA1c% measured with the equation: MBG in mg/dl=33.3 xHbA1c value-86.  
These values are linear in the range of 6.5-13%of HbA1c Values.