

# GlycoMark Reveals Glycemic Peaks

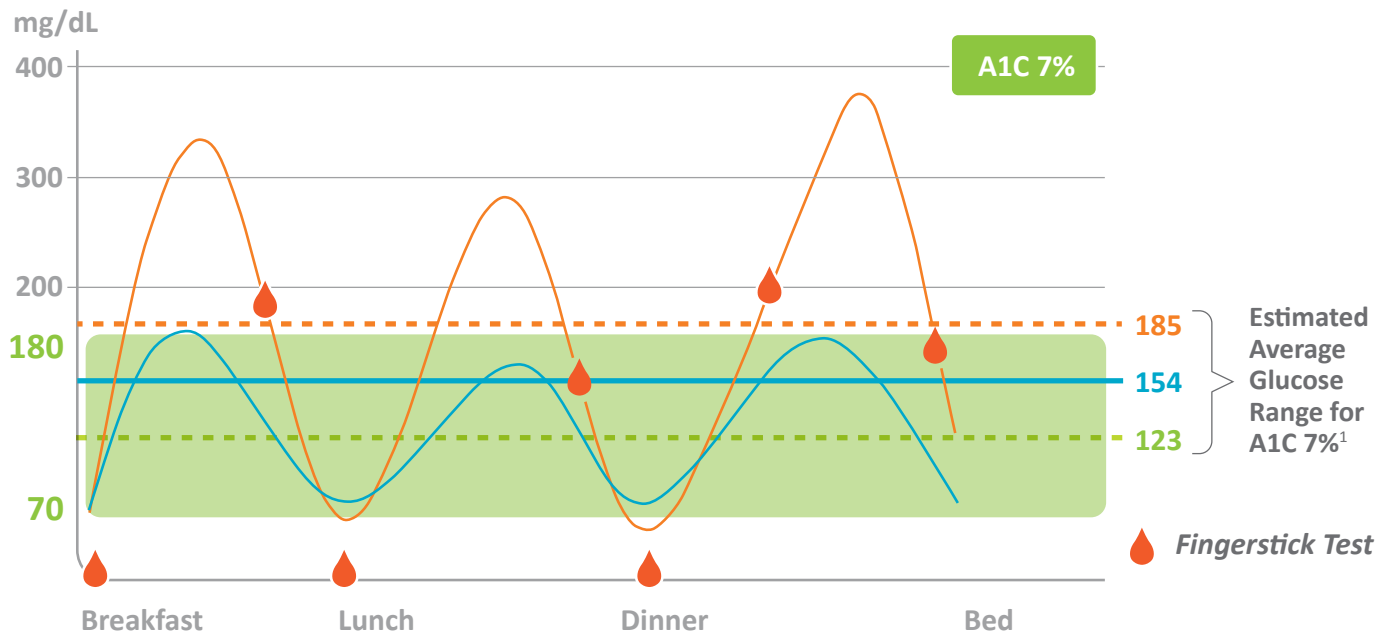
*It's what you don't know.*



GlycoMark®

## Routinely assessing glycemic variability is challenging

A1C average glucose levels can vary widely between patients, and fasting and infrequent fingerstick glucoses often miss glucose peaks and their durations.



A1C	GLYCOMARK Value	Estimated Average Peak Glucose <sup>2</sup>
7.9 %	4.4 µg/mL	219 mg/dL
7.8	3.5	235
7.7	6.5	199
7.5	19.6	171
7.4	3.0	250
7.4	15.1	175
7.2	5.7	205
7.2	19.2	171
7.0	2.0	294
7.0	18.1	172
6.8	5.8	204
6.8	20.8	170
6.4	2.3	276
6.4	6.3	200
6.4	16.8	173
6.3	4.3	221
6.3	9.2	187
6.3	10.2	184

Consider these two patients who look the same clinically



**Mary**

Type 2 Diabetes  
A1C: 7.4%

Fasting Glucose: 115 mg/dL  
Medications: Metformin and Sulfonylurea



**William**

Type 2 Diabetes  
A1C: 7.4%

Fasting Glucose: 115 mg/dL  
Medications: Metformin and Sulfonylurea

Nearly 40% of diabetes patients in “good control” have significant glucose variability.<sup>3</sup>

### GLYCOMARK (1,5-AG)

#### Average peak glucose test

(Last 7-14 days)

ADA Postmeal Goal: <180 mg/dL<sup>4</sup>

1,5-AG Goal: >10 µg/mL<sup>5</sup>



A1C

#### Average glucose test

(Last 60-90 days)

ADA Goal: Below 7.0%<sup>4</sup>

#### Baseline glucose test

(On the day tested)

ADA Goal: 70-130 mg/dL<sup>4</sup>

Fasting Glucose

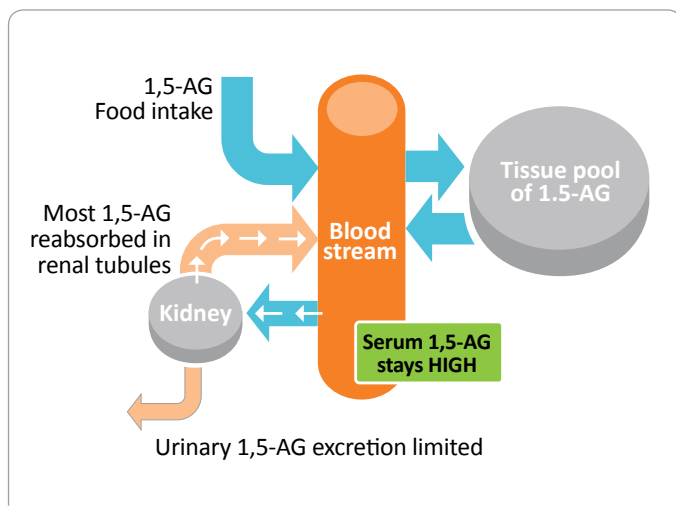


The GLYCOMARK test reflects average maximum blood glucose over the past two weeks<sup>2,6,7</sup>

- Assesses amount of time glucose exceeds the renal threshold (>180 mg/dL)
- Reveals recent deterioration in glucose control<sup>8,9</sup>
- Shows therapy change effectiveness in 2-4 weeks<sup>9,10</sup>

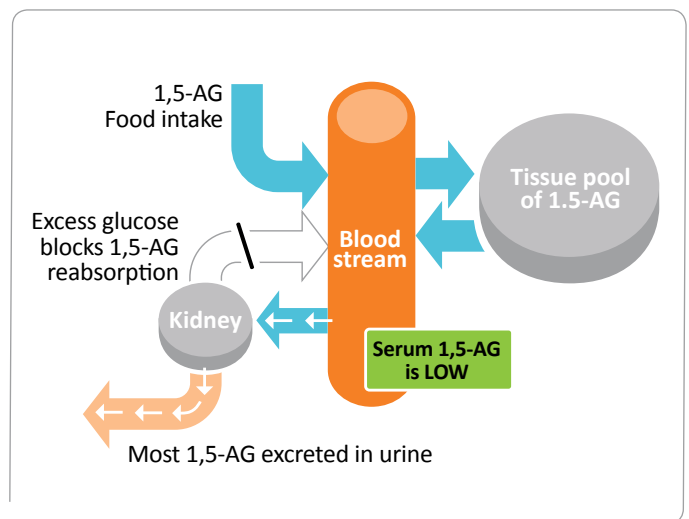
## How does the GLYCOMARK test measure glucose peaks?<sup>11</sup>

The test measures a glucose-like sugar called 1,5-anhydroglucitol (1,5-AG) found in most foods.



### Normoglycemia

- When blood glucose is well-controlled, most 1,5-AG is reabsorbed in the renal proximal tubules, so the serum 1,5-AG level stays high.
- People without diabetes have median 1,5-AG values above 20 µg/mL.



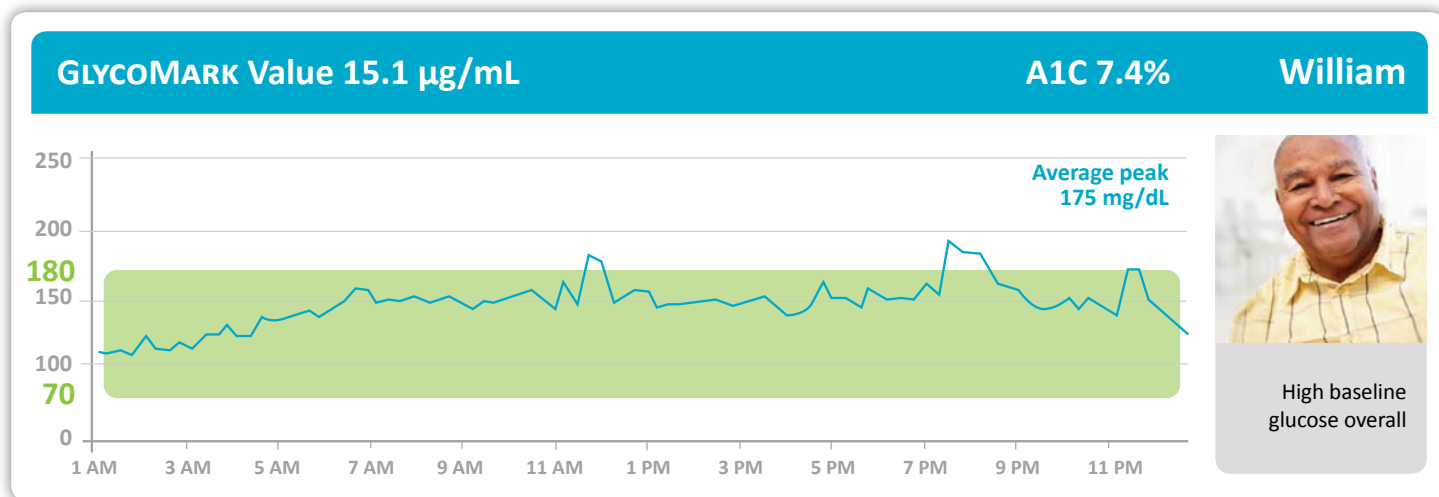
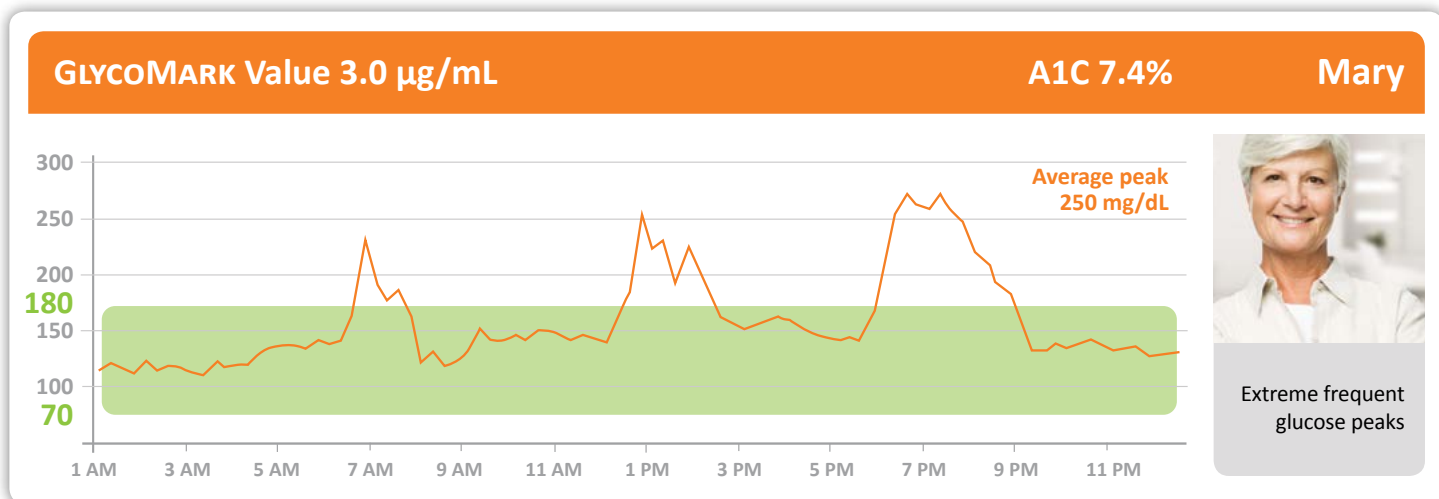
### Hyperglycemia

- When hyperglycemia occurs, excess glucose blocks reabsorption of 1,5-AG and it is excreted in the urine.
- Every time blood glucose spikes above 180 mg/dL, the body loses 1,5-AG.
- The more frequent the glucose spikes, the lower the GLYCOMARK result will typically be.

## The GLYCOMARK test can reveal differences in glycemic variability so you can more safely personalize diabetes therapy

Different patterns of glucose control may indicate need for different therapy approaches.<sup>11</sup>

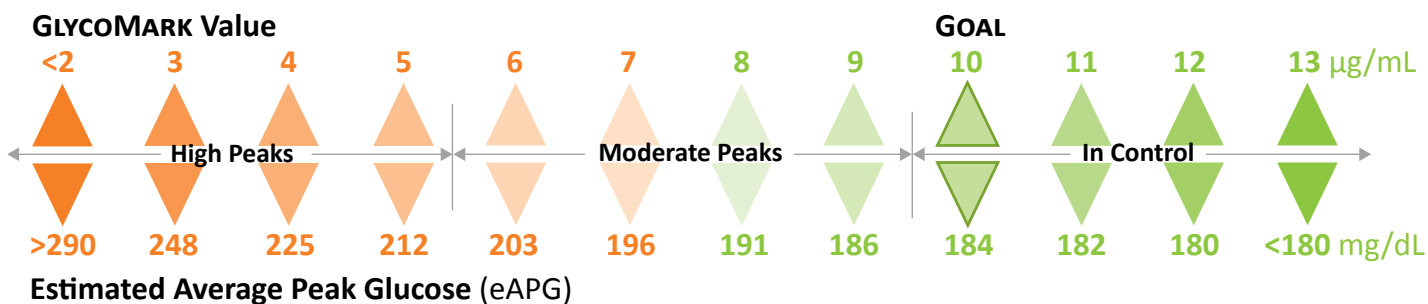
Mary and William have identical A1Cs, but Mary has higher glucose peaks while William has high glucose levels overall. Note the time each spent above the ADA's recommended postprandial goal of 180 mg/dL.



## GLYCOMARK values have an inverse relationship to blood glucose

The chart below compares GLYCOMARK values with the corresponding estimated average peak glucose (eAPG).<sup>2</sup>

As blood glucose decreases, the GLYCOMARK value increases.



## GLYCOMARK values can help you personalize care to reach target A1Cs

The information below is not medical advice and physicians should use their best clinical judgment in the use of the GLYCOMARK test in the treatment of the patient.



### Considerations for Mary's Treatment Plan<sup>11</sup>

- Assess for unusual recent issues causing hyperglycemia (i.e., illness, vacation, stopped diabetes medication, steroid injection, etc.)
- Test postmeal blood glucose by fingerstick or continuous glucose monitoring system to assess meal patterns
- After identifying meal-related hyperglycemia, consider diet counseling and/or prandial medications
- Repeat monthly testing until GLYCOMARK value exceeds 10 µg/mL



### Considerations for William's Treatment Plan<sup>11</sup>

- Peak blood sugars appear well-controlled, but baseline blood sugars overall are high
- Increase or add medication to control baseline glucose control to achieve a goal of A1C < 7%
- Institute a diet and exercise plan
- Order an "A1C with reflex to GLYCOMARK" in 60-90 days to check that A1C < 7% and that GLYCOMARK value exceeds 10 µg/mL

## The GLYCOMARK test has been clinically proven in more than 40 studies worldwide

The GLYCOMARK test has been shown to correlate with other measures of glucose control, including continuous glucose monitors, oral glucose tolerance tests, A1C and fructosamine. In addition, the GLYCOMARK test has been studied in various groups including people with type 1, type 2 and gestational diabetes, pediatrics and people with kidney disease.

### Test Limitations

- Low GLYCOMARK values can occur in Stage 4 or 5 kidney disease, advanced liver disease and during pregnancy
- The diabetes drugs acarbose and SGLT2 inhibitors (such as INVOKANA®) cause low GLYCOMARK values
- The Chinese medicines Polygala, Tenuifolia and Senega Syrup may cause high GLYCOMARK values

See [www.glycomark.com](http://www.glycomark.com) for more details

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*“As a diabetologist, I routinely use GLYCOMARK to provide both the patient and me information we can't get from HbA1C alone. Patients appreciate the ability to better understand the 'quality' of their HbA1C.”*

— Irl B. Hirsch, M.D.  
Professor of Medicine,  
University of Washington Medical Center

## Order the GLYCOMARK test to monitor glucose control and therapy effectiveness

- Use the “A1C with reflex to GLYCOMARK” test  
Always get an A1C; Also get a GLYCOMARK test when A1C is 6-8%
- Order the GLYCOMARK test alone between A1Cs to monitor therapy changes
- Available through major reference labs
- Reimbursed under CPT Code 84378 by Medicare, Medicaid and most private payers

Reimbursement information provided is not intended to be advice about how to code, complete, or submit claims for payment. All coding and billing should be truthful, not misleading and make full disclosure when seeking reimbursement



Get the insight you need to personalize diabetes care and help your patients be healthier and feel better.



Watch the GLYCOMARK 3-Minute Movie at [www.glycomark.com](http://www.glycomark.com)

[www.glycomark.com](http://www.glycomark.com) | 888-744-0221 | [info@glycomark.com](mailto:info@glycomark.com)

The GLYCOMARK test is FDA-cleared for intermediate monitoring of glucose control in people with diabetes. Components of glycemic monitoring include hyperglycemia and hypoglycemia. The GLYCOMARK test does not reflect hypoglycemia and is not intended to diagnose any specific diabetes state or disease. Physicians should use their best clinical judgment when using the GLYCOMARK test. For full prescribing information, visit [www.glycomark.com](http://www.glycomark.com).

<sup>1</sup> Nathan, et al, Diabetes Care 1(8):1473-8, Aug 2008; <sup>2</sup> Dungan, et al, Diabetes Care 29:1214-1219, 2006; Patent No. US 8,178,312 B2 May 15, 2012; <sup>3</sup> Bonora, et al, Diabetologia, 2006; <sup>4</sup> ADA Standards of Medical Care in Diabetes, Diabetes Care 36(1), Jan 2013; <sup>5</sup> 1,5-AG goal based on outcomes studies showing increased complications at <10 µg/mL; (Kim, et al, Diabetic Medicine, Feb 2012; Yamanouchi, et al, Diabetes Care 21(4), 1998); <sup>6</sup> Wang, et al, Diabetes Metab Res Rev 28: 357–362, 2012; <sup>7</sup> Stettler, et al, Diabetes Care 31:1534-1535, 2008; <sup>8</sup> Yamanouchi, et al, Lancet 347 (9014), June 1996; <sup>9</sup> Moses, et al, Diabet Med 25, 2008; <sup>10</sup> McGill, et al, Diabetes Care 27:1859-1865, Aug 2004; <sup>11</sup> Dungan, et al, Expert Rev Mol Diag 28(1), 2008