Retesting of Hemoglobin A1c After Out-of-Range Result: Clinical Practice Versus Guidelines

Dan Huse, Rich Bizier, Emily Durden
Thomson Healthcare
Cambridge MA.

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Background

• Glycemic control (lowering hemoglobin A1c) is the key surrogate marker for reducing the health risks and costs associated with diabetes.

• To achieve and maintain control, ADA guidelines recommend that A1c tests be repeated within 3 months following:
  – Out-of-range test result
  – Change in therapy

• Previous studies have documented “clinical inertia”* in the face of poorly controlled glycemia, which may be reflected in rates of A1c retesting*.

Objectives

• Compare frequency of retesting between groups of patients at varying A1c levels based on an initial test

• Explore other factors associated with more frequent retesting, including:
  – Changes in therapy
  – Insurance coverage
Data Source

• MarketScan® Lab database pooled from multiple US health plans
  – Clinical laboratory results from major reference laboratories
  – Benefit claims paid by health plans
  – Person-level linkage using plan subscriber IDs
  – HIPAA compliant

• Includes both commercial and Medicaid health plans

• Data from 2003-2005
Methods

1. Identify patients with diagnosis of diabetes (ICD-9-CM 250.xx) who received oral antidiabetic medication
2. Select first available A1c test result
3. Exclusions
   1. Less than 6 months of pre- and post-test observation
   2. No diabetes medication prior to initial test
4. Group patients by initial A1c level: <7%, 7-9%, >9%
5. Assess whether retested within 6 months
6. Also examine whether drug therapy was changed (add or switch) after initial test
7. Examine retest rates by initial A1c level and action taken (therapy change/no change)
# Study Patients

<table>
<thead>
<tr>
<th></th>
<th>Index Hemoglobin A1c Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;7%</td>
</tr>
<tr>
<td>Sample size</td>
<td>2,450</td>
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<tr>
<td>Mean age (years)</td>
<td>54.1</td>
</tr>
<tr>
<td>Female sex (%)</td>
<td>60.3</td>
</tr>
<tr>
<td>Medicaid insurance (%)</td>
<td>72.9</td>
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<tr>
<td>Consulted endocrinologist (%)</td>
<td>6.5</td>
</tr>
<tr>
<td>Charlson comorbidity index</td>
<td>1.84</td>
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<tr>
<td>Therapy change following test (%)</td>
<td>18.4</td>
</tr>
</tbody>
</table>
Retesting is No More Frequent After Out-of-Range Tests

Chi square: $p=0.17$
Even with Therapy Change Retesting is Infrequent

Trends by A1c level not statistically significant
Retest Rates Are Much Lower For Medicaid Patients

Trends by A1c level not statistically significant
Discussion

• Summary
  – Frequency of retesting of A1c within 6 months was not significantly higher after out-of-range values
  – Retesting was only slightly more frequent with changes in therapy
  – Medicaid eligibility was associated with very low retest rates

• Limitations
  – The respective roles of physician advice and patient adherence are not known
    • Patient behavior might jointly determine poor glycemic control and lack of adherence to testing
  – Similarly, it is not clear whether the Medicaid effect reflects clinical decision making or access to care
Conclusions

• These results support previous findings of “clinical inertia” in response to poor glycemic control

• Future research should investigate the impact of retest frequency on diabetes outcomes