The Diabetes Crisis

- In 3 US adults has prediabetes (the rate for those 65 years and older is 48%) with 88% are unaware of their condition.1
- 70% of people with prediabetes are estimated to develop Type 2 diabetes at a rate of 4-11% annually.2
- Diabetes is the 7th leading cause of death. The death rate for all causes is 1.5 times greater than people without diabetes.3
- 1 in 5 Medicare dollars is spent on diabetes related care.4
- Intensive lifestyle modification programs for those at risk for diabetes have demonstrated 58% risk reduction with sustained results lasting at least 7-10 years.1,2
- Current recommended diabetes screening interval is every 3 years.1,2

Purpose

Evaluate the impact of annual hemoglobin A1c (A1c) screening, discussion of results, and diabetes education on A1c results and BMI obtained at a subsequent HouseCalls visit.

Setting

HouseCalls is a free program offered to members of select Medicare Advantage plans across the nation where advanced practice clinicians, primarily nurse practitioners, conduct in-home preventative visits.

- One health plan, which is available in Texas and Florida, implemented annual point-of-care A1c screening for its recipients as part of the HouseCalls visit.

Sample

- Convenience sample of health plan’s members age 18 and over who received at least one preventive home visit between January 1, 2016 and July 24, 2017.
- Exclusion criteria: diabetes diagnosis at time of first home visit.
- Treatment group participants categorized based on 2016 A1c cut points of < 5.7, 5.7-6.4, and 6.5+ into normal range, prediabetic range, and diabetic range.

Conclusions

- With an estimated 88% of those with prediabetes unaware of their condition,3 there may be a benefit to annual A1c screening.
- While the annual rate for prediabetics to develop diabetes is 4-11%, only 3.8% of those with an elevated 2016 A1c were diagnosed with diabetes at their 2017 HouseCalls visit.
- The HouseCalls visit it the initial step for identifying and addressing diabetes and prediabetes. Follow up of abnormal findings by the member’s PCP is vital to overall management and outcomes.

Limitations

- Potential that participants with diabetes at baseline were not excluded.
- Ethnicity and income data lacking.
- Sampling timeframe January 1, 2016 through July 24, 2017, but A1c screening was not implemented until April 2016 leaving potential that seasonal factors (such as Northerners migrating south in the winter) impacted the results.
- Sample not necessarily representative of the Medicare Advantage population as both HouseCalls A1c screening.

Future Directions

- Shift focus to comparing diabetes progression rates among this health plan’s and general Medicare Advantage recipients.
- Measure A1c once a year to test setting in order to establish the impact of HouseCalls A1c screening.
- Add variables to the HouseCalls assessment addressing diet and exercise habits to enhance data collection and interpretation of results to better identify specific behaviors adopted subsequent to HouseCalls A1c screening.
- Pilot a prediabetes program that tracks primary care physician follow up and referral to a lifestyle change program.

DISCUSSION

RESULTS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment Group Frequency % or Mean ± SD</th>
<th>Comparison Group Frequency % or Mean ± SD</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florida</td>
<td>2,328 (59.3%)</td>
<td>9,779 (51.9%)</td>
<td>.545</td>
</tr>
<tr>
<td>Texas</td>
<td>2,198 (49.7%)</td>
<td>9,063 (48.1%)</td>
<td>.240</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5,653 (38.0%)</td>
<td>11,103 (38.9%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8,515 (42.0%)</td>
<td>7,791 (41.3%)</td>
<td></td>
</tr>
<tr>
<td>Age Mean</td>
<td>72.7 (± 9.05)</td>
<td>73.06 (± 10.24)</td>
<td>.545</td>
</tr>
<tr>
<td>2016 BMI mean</td>
<td>28.4 ± 6.25</td>
<td>28.14 ± 6.25</td>
<td>.334</td>
</tr>
<tr>
<td>2017 BMI mean</td>
<td>27.98 ± 6.02</td>
<td>28.02 ± 6.30</td>
<td></td>
</tr>
<tr>
<td>2016 HbA1c mean</td>
<td>5.61% ± 0.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017 HbA1c mean</td>
<td>5.57% ± 0.62</td>
<td>5.63% ± 0.59</td>
<td></td>
</tr>
</tbody>
</table>

**Significant at the 0.05 level.**

Baseline Characteristics of Sample

| A1c Means in the Treatment Group By Year |
|-----------------|-----------------|---------------|---------------|
| Year | Treatment Group | Comparison Group | **p** value |
| 2016 | Median 5.7 | Median 5.7 | 0.803 |
| 2017 | Median 5.7 | Median 5.7 | 0.376 |

**p** < .05 level.

**Note:**
- Baseline characteristics were similar between the treatment and comparison group.
- The project protocol was approved by the University of Florida Institutional Review Board-01 (IRB01701729).
- Demographic variables were analyzed using Chi-Square (categorical) or independent t-tests (continuous).
- Difference in post-test BMI between the treatment and comparison groups after controlling for baseline BMI was analyzed using ANCOVA.
- A1c change from 2016 to 2017 among baseline A1c groups within the treatment group was analyzed using paired t-test.

**CONCLUSIONS**

- Potential that participants with diabetes at baseline were not excluded.
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**METHODS**

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**DISCUSSION**

After controlling for baseline log BMI, the difference between mean log 2017 BMI in the treatment group and comparison group was not statistically different (**p** .755).

**RESULTS**

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