Predictive identification provides added value over retrospective identification of patients at-risk of medication non-adherence through earlier identification.

Results

Accuracy of Predictions – discrepancy between predicted and observed adherence

<table>
<thead>
<tr>
<th>Month</th>
<th>Mean Value of Error in Predicted PDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2019</td>
<td>-10.99</td>
</tr>
<tr>
<td>February 2019</td>
<td>-10.57</td>
</tr>
<tr>
<td>March 2019</td>
<td>-9.03</td>
</tr>
<tr>
<td>April 2019</td>
<td>-7.96</td>
</tr>
<tr>
<td>May 2019</td>
<td>-6.08</td>
</tr>
<tr>
<td>June 2019</td>
<td>-3.96</td>
</tr>
</tbody>
</table>

Discussion

- Each month the accuracy of the predicted PDC value becomes incrementally more accurate, which provides increasing insight into which patients are within reach of achieving a target of 80% adherence and able to reach or maintain an adherent status by the end of the year.
- On average, the model was able to predict the observed month a patient became non-adherent to their medication with less than one-month error in timing. Knowing when a patient will become non-adherent can aid in resource allocation when it is not possible to outreach to all patients by prioritizing patients who have the greatest risk of medication non-adherence.
- On average, the predictive model was able to identify non-adherent patients 3.4 – 4.4 months earlier than when they became non-adherent. The earlier a patient is identified as being at risk of medication non-adherence, the greater the chance of getting the patient back on track through clinical intervention in a timely manner.
- Results support that predictive analytics identified patients who were non-adherent to their medication 4.4 – 1.8 months earlier relative to retrospective identification. While retrospective identification is valuable to understanding a patient’s history, predictive identification can provide the opportunity for outreach before a patient becomes non-adherent to their medication, and potentially prevent adverse medical outcomes or increased medical costs.

Limitations

- Retrospective identification was based on the timing of clinical outreach, and the number of patients who received clinical outreach may have been constrained by bandwidth for outreach thereby introducing bias.

Conclusion

- Predictive analytics can be applied to patients to assess likelihood of medication non-adherence for chronic conditions. Predictive identification provides added value over retrospective identification of at-risk patients through earlier identification.

References


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