PharmaSmart Smart Card User BP Outcome Analysis

Project Completed: October 2013

Research Advisor:
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Professor of Medicine, Division of Cardiology
University of Alberta
Objective: To determine the change in blood pressure values, and total blood pressure control rate for a group of individuals who consistently measure and track their blood pressure on PharmaSmart kiosks placed in retail pharmacies.

Data Source: PS DataSmart™ Biometric Repository

Resources
Dr. Ross Tsuyuki: Research Advisor
Lisa Goodwin: PharmaSmart Executive VP of IT
Brett Thompson: PharmaSmart Data Solutions Architect
### Qualifying Criteria & Per Month “Enrollment”

#### Analysis Criteria

The following criteria was used for patient qualification into analysis. The goal was to find patients with an acceptable baseline blood pressure baseline (3 readings in first 24 hours), and regular kiosk usage for the first 90 days (at least 3 readings per calendar month). This would ensure sufficient data for a meaningful moving average analysis. Note that in this analysis, subjects are excluded from the evaluation as soon as they fail to take 3 BP readings in a given calendar month.

**A:** Minimum number of readings that must be present on Smart Card: 10

**B:** Minimum days of data from start of card use to last reading recorded: 90

**C:** Number of readings used to establish baseline: 3

**D:** Maximum hours between baseline measurement's first reading and last reading: 24

**E:** Minimum BP readings required per month for month's data to be included in analysis: 3

**F:** Minimum consecutive, initial months that must have minimum BP readings per month for participant to be included in analysis: 3

#### Summary of Results

<table>
<thead>
<tr>
<th></th>
<th>End of Month:</th>
<th>0123456789101112131415161718192021222324</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) End of Month:</td>
<td>-1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24</td>
<td></td>
</tr>
<tr>
<td>2) # of Participants:</td>
<td>580 580 580 488 478 404 342 304 265 240 210 205 192 145 126 127 123 113 98 99 89 78 70 83 76</td>
<td></td>
</tr>
<tr>
<td>3) Systolic Reduction in mmHg:</td>
<td>0.0 3.6 6.7 8.6 9.0 9.8 9.4 10.7 10.8 10.9 11.1 10.2 10.9 10.4 11.9 12.5 12.9 11.0 12.7 12.3 12.7 11.4 11.6 12.2</td>
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</tr>
<tr>
<td>4) Diastolic Reduction in mmHg:</td>
<td>0.0 1.9 3.3 4.3 4.5 5.1 5.2 5.9 6.1 6.2 5.9 5.3 6.2 5.9 6.4 6.3 6.8 5.7 6.6 6.0 6.5 6.1 5.4 6.0 5.8 6.5</td>
<td></td>
</tr>
<tr>
<td>5) % Controlled:</td>
<td>57% 55% 62% 68% 71% 74% 77% 76% 79% 77% 80% 80% 77% 79% 82% 82% 78% 85% 85% 84% 84% 81% 83% 86% 80% 78%</td>
<td></td>
</tr>
<tr>
<td>6) % Control Delta:</td>
<td>0% -2% 5% 12% 15% 17% 20% 20% 22% 20% 23% 23% 22% 20% 22% 25% 25% 21% 28% 28% 27% 27% 24% 27% 29% 23% 21%</td>
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</tr>
</tbody>
</table>
Results
Results

![Graph showing mmHg Improvement with Avg Systolic Reduction (green) and Avg Diastolic Reduction (pink)]
Results

Initially

- Controlled: 57%
- Uncontrolled: 43%

13+ Months Later (Avg)

- Controlled: 82%
- Uncontrolled: 18%
# HEDIS BP Control Comparison Chart

<table>
<thead>
<tr>
<th>Report Type</th>
<th># of Plans</th>
<th>Average</th>
<th>10th Percentile</th>
<th>25th Percentile</th>
<th>50th Percentile</th>
<th>75th Percentile</th>
<th>90th Percentile</th>
<th>90+ Percentile</th>
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<tbody>
<tr>
<td>Commercial HMO</td>
<td>204</td>
<td>63%</td>
<td>50%</td>
<td>57%</td>
<td>63%</td>
<td>69%</td>
<td>75%</td>
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<tr>
<td>Commercial PPO</td>
<td>153</td>
<td>57</td>
<td>49</td>
<td>53</td>
<td>58</td>
<td>62</td>
<td>65</td>
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<tr>
<td>CBP-Medicare HMO</td>
<td>345</td>
<td>64</td>
<td>51</td>
<td>57</td>
<td>64</td>
<td>70</td>
<td>77</td>
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<tr>
<td>CBP-Medicare PPO</td>
<td>143</td>
<td>59</td>
<td>44</td>
<td>56</td>
<td>60</td>
<td>66</td>
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<tr>
<td>CBP-Medicaid HMO</td>
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<td>57</td>
<td>42</td>
<td>50</td>
<td>58</td>
<td>64</td>
<td>69</td>
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<td>PharmaSmart Baseline</td>
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<td>57%</td>
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<td>PharmaSmart 3 Months</td>
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<td>68%</td>
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<td>PharmaSmart 9 Months</td>
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<td></td>
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<td>80%</td>
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</tbody>
</table>

HEDIS, 2013: Controlling High Blood Pressure Performance Data
Source: NCQA Website, Accessed 7/7/2014
http://www.ncqa.org/Portals/0/HomePage/CBP.pdf
Analysis

• Blood Pressure for all 580 subjects was reduced an average of 8.6 mmHg Systolic and 4.3 mmHg Diastolic in the first 90 days.

• Blood pressure control over all 580 subjects improved from 57% to 68% in the first 90 days. This is equivalent to a HEDIS ranking increase from the 25\textsuperscript{th} to 75\textsuperscript{th} percentile.

• 80% Blood Pressure control achieved in first 9 months, with 50% of patients still included. (Included patients each measured 3 times/month consecutively for 9 months).
Contact

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