### 1. Background

The Department of Veterans Affairs (VA) Consolidated Mail Outpatient Pharmacy (CMOP) provides high quality, timely, and cost-effective health care through automated prescription order processing and mail delivery of medications and supplies to patients. Since its inception in 1994, the VA has expanded the CMOP program to include seven locations strategically located across the United States. On an average workday the CMOP system processes over 470,000 prescriptions for nearly 317,000 patients. Approximately 60% of prescriptions filled by CMOP are allocated to unit-of-use automation (UUA) for processing.

**CMOP Unit-of-Use Automation (UUA)**

Unreliability in the prescription fill process utilizing UUA dispensing technology was observed to result in defective output associated with increased cycle time, reduced throughput, increased utilization of resources, higher production costs, and increased patient safety risk. The objective of this study was to reduce defects (output not meeting requirements) by 50% within 9 months for prescriptions filled by UUA.

### 2. Objective

Unreliability in the prescription fill process utilizing UUA dispensing technology was observed to result in defective output associated with increased cycle time, reduced throughput, increased utilization of resources, higher production costs, and increased patient safety risk. The objective of this study was to reduce defects (output not meeting requirements) by 50% within 9 months for prescriptions filled by UUA.

### 3. Methods

A Six Sigma DMAIC (Define, Measure, Analyze, Improve, Control) approach incorporating Lean and Change Management principles was used as the process improvement methodology. CMOP uses the Veterans Health Administration’s (VHA) Vision-Analysis-Team-Aim Map-Measure-Change-Sustain (VA-TAMMCS) model as its quality improvement framework. VA-TAMMCS supports the VHA Office of Quality, Safety, and Value’s (OQSV) mission to *enhance the quality, safety, reliability, and value of VHA’s clinical and business systems by enabling innovation, enterprise-wide approaches to compliance, risk awareness, and continuous improvement.* In addition, the VA-TAMMCS model supports The Joint Commission’s requirements for “robust process improvement” which serves as one of three components necessary to achieve High Reliability as a health care organization.

### 4. Participants

- CMOP (760), Leavenworth, KS: $112,316
- CMOP (762), Hines, IL: $76,855
- CMOP (765), Murfreesboro, TN: $9,277
- CMOP (764), Tucson, AZ: $17,624
- CMOP (765), Hines, IL: $10:$1 35 days
- CMOP (763), Leavenworth, KS: $7:$1 38 days
- CMOP (764), Murfreesboro, TN: $7:$1 31 days
- CMOP (762), Tucson, AZ: $3:$1 90 days
- CMOP (765), Hines, IL: $10:$1 41 days

### 5. Measures

**Quality (pre- and post-improvements)**
- Number of UUA “repicks” per one million processed fills

**Cost (pre- and post-improvements)**
- Annualized cost of UUA “repicks”
- Value (post-improvements)
  - Return on Investment (ROI)
  - Payback period

### 6. Results

**Outcomes from Improvements Implemented**

<table>
<thead>
<tr>
<th>Location</th>
<th>Reduction in Repicks</th>
<th>Annual Cost Savings</th>
<th>Return on Investment</th>
<th>Payback Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMOP (760)</td>
<td>90%</td>
<td>$139,332</td>
<td>$14:1</td>
<td>18 days</td>
</tr>
<tr>
<td>CMOP (761)</td>
<td>82%</td>
<td>$9,277</td>
<td>$7:1</td>
<td>38 days</td>
</tr>
<tr>
<td>CMOP (762)</td>
<td>31%</td>
<td>$17,624</td>
<td>$5:1</td>
<td>90 days</td>
</tr>
<tr>
<td>CMOP (764)</td>
<td>50%</td>
<td>$76,855</td>
<td>$7:1</td>
<td>35 days</td>
</tr>
<tr>
<td>CMOP (765)</td>
<td>64%</td>
<td>$112,316</td>
<td>$10:1</td>
<td>24 days</td>
</tr>
</tbody>
</table>

### 7. Conclusion

A Lean Six Sigma improvement approach reduced defects in high volume unit-of-use dispensing processes across multiple facilities within a mail order pharmacy system. Benefits included cost savings to the organization and mitigation of possible harm to patients through reduction in the number of processed prescriptions not meeting requirements. CMOP can use results from the study to identify future improvement opportunities and to modify or eliminate processes not adding value for the customer.

### 8. References


**Financial Disclosure**

Rita L. Brueckner and Kenneth Siehr declare no conflicts of interest, real or apparent, and no financial interests in any company, product, or service mentioned in this poster, including grants, employment, gifts, stock holdings, and honoraria.