A Need for Pharmacy Medication Management
Approximately 25% of patients given a new prescription experienced an adverse drug event in a study of four primary-care practices. A pharmacist on the care team can help prevent and ameliorate adverse drug events by optimizing medication therapy.

The Asheville Project (City of Asheville, NC)
The Asheville quasi-experimental, longitudinal cohort studies provided initial evidence of pharmacist on care team benefits.

### Asheville Cardiovascular (CV) Events and Costs:

<table>
<thead>
<tr>
<th>Category</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of CV events</td>
<td>77 per 1,000</td>
<td>38 per 1,000</td>
</tr>
<tr>
<td>CV-related medical costs</td>
<td>$1,362 PPPY</td>
<td>$734 PPPY</td>
</tr>
</tbody>
</table>

### Outcomes for Cardiovascular Pharmacy Management

<table>
<thead>
<tr>
<th>Stage</th>
<th>% of Patients at Baseline</th>
<th>% of Patients at Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 HTN</td>
<td>36.5%</td>
<td>67.4%</td>
</tr>
<tr>
<td>2 HTN</td>
<td>20%</td>
<td>49.9%</td>
</tr>
<tr>
<td>1 HTN</td>
<td>16%</td>
<td>74.6%</td>
</tr>
</tbody>
</table>

### Outcomes for Diabetes Pharmacy Management

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Pre-Intervention</th>
<th>Latest Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1C Measurement</td>
<td>75%</td>
<td>93%</td>
</tr>
<tr>
<td>Foot Exam in Past 6 Months</td>
<td>36%</td>
<td>99%</td>
</tr>
<tr>
<td>Take ACE-I</td>
<td>79%</td>
<td>65%</td>
</tr>
<tr>
<td>Self Test Blood Sugar</td>
<td>27%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Recent Studies Bolster Evidence for Pharmacy Care
Randomized controlled trials since the Asheville project are adding to the evidence of clinical and economic benefits.

**Ralph’s Pharmacy Intervention Clinical Outcomes**

<table>
<thead>
<tr>
<th>Category</th>
<th>Baseline Mean</th>
<th>Final Mean</th>
<th>% Change in Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP Systolic</td>
<td>136.1</td>
<td>129.5</td>
<td>-4.85%</td>
</tr>
<tr>
<td>BP Diastolic</td>
<td>83.5</td>
<td>79.3</td>
<td>-5.03%</td>
</tr>
<tr>
<td>LDL</td>
<td>104.1</td>
<td>97.2</td>
<td>-6.63%</td>
</tr>
<tr>
<td>Diabetes Patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HbA1C</td>
<td>7.9</td>
<td>7.1</td>
<td>-10.1%</td>
</tr>
<tr>
<td>BP Systolic</td>
<td>136.1</td>
<td>130.4</td>
<td>-4.2%</td>
</tr>
<tr>
<td>BP Diastolic</td>
<td>81.0</td>
<td>76.3</td>
<td>-5.8%</td>
</tr>
<tr>
<td>LDL</td>
<td>91.6</td>
<td>84.0</td>
<td>-8.3%</td>
</tr>
</tbody>
</table>

**Ralph’s Pharmacy Intervention Claims-Related Outcomes**

<table>
<thead>
<tr>
<th>Category</th>
<th>Intervention Group</th>
<th>% Change</th>
<th>Control Group</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Costs (Mean ±SD)</td>
<td>$1792 ±3847</td>
<td>-15.2%</td>
<td>$1968 ±5112</td>
<td>-2.63%</td>
</tr>
<tr>
<td>Office Visits</td>
<td>$111 ±129</td>
<td>+21.6%</td>
<td>$97 ±106</td>
<td>+14.8%</td>
</tr>
<tr>
<td>ER Visits</td>
<td>$54 ±229</td>
<td>-39.2%</td>
<td>$83 ±475</td>
<td>-16.0%</td>
</tr>
<tr>
<td>Inpatient Visits</td>
<td>$584 ±3122</td>
<td>-38.5%</td>
<td>$1108 ±5025</td>
<td>-3.1%</td>
</tr>
<tr>
<td>Pharmacy Claims</td>
<td>$505 ±550</td>
<td>+14.3%</td>
<td>$402 ±495</td>
<td>+6.0%</td>
</tr>
<tr>
<td>Coaching Program</td>
<td>$495 ±256</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Right Care Initiative Pharmacy Collaborations—Research and Implementation Activities

UC San Diego Demonstration Project
Overview
- A randomized control trial to evaluate a medication therapy management service (MTMS) model in a physician office
- 10 PharmD-MD partnerships implemented
- 90 patients per group (usual care & MTMS)

Selected Findings (Study in process through June 2012)
- 44.6% patients were on 10+ medications
- Drug therapy problem was identified among 46.3% of patients
- Only about 25% of patients are highly adherent to their medications though nearly 75% report rarely had difficulty remembering to take medication
- Preliminary outcomes demonstrate promise

UnitedHealthcare/Ralphs/San Diego School District (VEBA) Collaboration
Overview
- A partnership in San Diego between California Schools Voluntary Employee Benefits Association (VEBA), United Healthcare health plan, and Ralphs pharmacy
- Implements an MTM model for 300 diabetes patients using a community pharmacist model

Progress
- Enrollment is underway
- Intervention will last six months

Center for Comparative Effectiveness and Outcomes Improvement (CEOI) Analyses

Objective Examination of Cost Effectiveness and Modeling
- Return on Investment estimates range from $3 to $12 for every $1 invested. (Though improved study designs needed for more accurate assessment)
- Cost effectiveness varies based on several factors, including:
  - Pharmacist reimbursement rate
  - Intervention intensity
  - Characteristics of population receiving intervention

Questions a Pharmacist Can Review
- Is the medication dose appropriate to the patient's age or other conditions and medications?
- How can medication therapy be changed to improve patient compliance or address side effects?
- Are all prescribed medications necessary?
- What time of day should patients take medications?
- With what should (or should not) a medication be taken?
- Are less expensive, equivalent medications available?

Works Cited

This program description was written by the Right Care Initiative team at the University of California, Berkeley—Last updated October 2012.
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