Ideas From The Field:
Maximizing the Use of the Clinical Pharmacy Specialist

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Move to Medical Home and Role of the Pharmacist

- VA Move to Medical Home Model called Patient Aligned Care Teams (PACT).
- Multidisciplinary collaborative practice model
- Integration of Specialty care, tele-health and Shared Medical
- All professionals are expected to practice at the highest levels of their licenses and pharmacists utilize their knowledge and skills assess patients and optimize therapy.
- In VA, Clinical Pharmacy Specialists have been serving as mid-level non-physician providers since the mid-1990’s. They demonstrated strong outcomes in to provide medication therapy management in both Primary and Specialty Care.
Clinical Pharmacist Bridging the Gap Between Primary Care and Specialty Care

Patient Complexity, Health Status, Needs

Patient Aligned Care Team

Teamlet & Expanded Team

Coordination of Care

Disease/Cohort Management

Management of Care

Specialty Care

Clinical Pharmacy Specialist

Specialist

Clinical Nurse Specialist
Pharmacists with a Scope of Practice
(2500 of 7400)
Pharmacists with a Scope of Practice

- Jul-11: 1,945
- Aug-11: 2,000
- Sep-11: 2,284
- Oct-11: 2,284
- Nov-11: 2,473
- Dec-11: 2,587

The graph shows an increasing trend in the number of pharmacists with a scope of practice from July 2011 to September 2012.
System-Wide Clinical Pharmacist Specialists work in many Care Areas as Medication

- Infectious Diseases/HIV
- Cardiology
- Mental Health
- Substance Abuse
- Smoking Cessation
- Hem-Onc
- Pain Clinic
- Anticoagulation
- Neurology Clinic
- Lipid Clinic
- ESA Clinic
- Community Based Clinics-Telemedicine
- Home Based Primary Care
- Endocrine Clinic
- Dermatology Clinic
- Pulmonary Clinic
- Renal Clinic
- Heart Failure Clinic
- Hepatitis C Clinic
- Women’s Health
- Pulmonary-Critical Care
- Acute Medicine
- Long-Term Care
- Hospice
- Inpatient Psychiatry
- ICU
- OR / PACU
- Spinal Cord Injury
- Telephone Based Care
- Medication
- Management-Primary
- Care
Demographics of VA Pharmacist

- VHA has approximately 7400 Pharmacist
- Total pharmacists with SOP is just over 2,600 (35%)
- Of These 2600
  - Residency trained = (61%)
  - BPS Certification = (30%)
  - Other Certification = (13%)
  - Residency and/or BPS certification = (67%)
  - Residency and/or BPS and/or Other Certification = (71%)
Pharmacist vs. PCP Managed CV Factors

<table>
<thead>
<tr>
<th>N= 150</th>
<th>CPS Referral</th>
<th>PCP Alone</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Treatment of Hypercholesterolemia</td>
<td>96%</td>
<td>68%</td>
<td>p &lt; 0.0001</td>
</tr>
<tr>
<td>Goal LDL values achieved below 105mg/dL</td>
<td>85%</td>
<td>50%</td>
<td>p &lt; 0.0001</td>
</tr>
<tr>
<td>Appropriate antiplatelet/anticoagulation therapy prescribed</td>
<td>97%</td>
<td>92%</td>
<td>p = 0.146</td>
</tr>
<tr>
<td>Appropriate Therapy with ACE-I or Alternative in those with EF &lt;40%</td>
<td>89%</td>
<td>69%</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>Cardiac Events</td>
<td>27</td>
<td>22</td>
<td>p = 0.475</td>
</tr>
</tbody>
</table>

Diabetes Management: Change in Mean Hemoglobin A1C

* p<0.01; n = 42

Source: Beckey CB, Groppi JA, Lutfi N, et al. Care Coordination/Home Telehealth Program for Veterans with Diabetes Mellitus Type 2 Abstract No: 0509-P. American Diabetes Association 70th Scientific Session, Orlando, FL. June 2010
<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean ± SD</th>
<th>3 Months Mean ± SD</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, yrs</strong></td>
<td>62.1 ± 1.3</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>HbA1C, %</strong></td>
<td>10.8 ± 1.3</td>
<td>8.4 ± 2.0</td>
<td>- 2.4</td>
</tr>
<tr>
<td><strong>FPG, mg/dL</strong></td>
<td>215 ± 82</td>
<td>150 ± 76</td>
<td>-65</td>
</tr>
<tr>
<td><strong>Weight, lbs</strong></td>
<td>230.2 ± 53.3</td>
<td>228.8 ± 58.1</td>
<td>- 1.4</td>
</tr>
<tr>
<td><strong>BMI, kg/m²</strong></td>
<td>32.5 ± 6.7</td>
<td>32.7 ± 8.1</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>LDL, mg/dL</strong></td>
<td>92 ± 39</td>
<td>80 ± 28</td>
<td>-12</td>
</tr>
<tr>
<td><strong>TG, mg/dL</strong></td>
<td>361 ± 381</td>
<td>257 ± 178</td>
<td>-104</td>
</tr>
<tr>
<td><strong>HDL, mg/dL</strong></td>
<td>38 ± 10</td>
<td>36 ± 7</td>
<td>-2</td>
</tr>
<tr>
<td><strong>SBP, mmHg</strong></td>
<td>130 ± 16</td>
<td>128 ± 14</td>
<td>-2</td>
</tr>
<tr>
<td><strong>DBP, mmHg</strong></td>
<td>71 ± 11</td>
<td>69 ± 12</td>
<td>-2</td>
</tr>
</tbody>
</table>

*C. Morello June 2010 n=60*
VA West Palm Beach: Collaborative Performance Improvement Initiative within Primary Care and Improved Outcomes

External Peer Review Sampling Data on Achievement of BP Goal of < 140/90 in Patients with Hypertension

### Evidence: Value of Pharmacists in HCV Care

Cost of SVR in models with a Pharmacist vs. Without\(^1\): $33,318 vs. $38,082

<table>
<thead>
<tr>
<th></th>
<th>VA Experience(^2)</th>
<th>Literature(^3)</th>
<th>Pharmacist Managed HCV Clinics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GT1 SVR</strong></td>
<td>25.9%</td>
<td>35%-46%</td>
<td>60%</td>
</tr>
<tr>
<td><strong>GT2/3 SVR</strong></td>
<td>62.3%(^1)/54.3%</td>
<td>76%</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Adherence</strong></td>
<td>-</td>
<td>Goal: 80% of rec dose for 80% of trx duration</td>
<td>No self-reported missing doses</td>
</tr>
<tr>
<td><strong>DC due to ADEs</strong></td>
<td>-</td>
<td>4-9%</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Pts unable to complete treatment</strong></td>
<td>40%</td>
<td>-</td>
<td>11%</td>
</tr>
</tbody>
</table>

## Pharmacist Managed ESA Study

<table>
<thead>
<tr>
<th>Hemoglobin Range</th>
<th>Pharmacist-Managed Clinic (N=1807) n (%)</th>
<th>Usual Care (N=606) n (%)</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10 g/dl</td>
<td>349 (19)</td>
<td>127 (21)</td>
<td>0.81</td>
</tr>
<tr>
<td>10-12 g/dl</td>
<td>1284 (71)</td>
<td>345 (57)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>&gt; 12 g/dl</td>
<td>174 (10)</td>
<td>134 (22)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

- CPS use of ESA is safer based on number of patients staying within FDA recommended Hb range of 10-12 (71% vs. 57%) and the number of Hb that exceeded 12 (10% vs. 22%)
- CPS followed their patients more closely based on number of Hb and iron studies, which might explain better achievement of Hb goals on lower doses of medications

• ED Pharmacy Program was launched on September 4, 2007
• An overview of the results:
  – Total number of interventions documented = 9,568
  – Total number of interventions associated with correcting medication orders = 1,984 (20.7%)
  – Total number of interventions associated with preventing or documenting drug allergies and ADRs = 185 (1.9%)
  – Total number of medication reconciliation encounters documented = 7,598
  – Average time spent per encounter = 5.08 (± 3.47) minutes
  – Average number of new prescriptions for which patients received counseling = 1.92 (± 1.29)
  – An estimated 7% (668) of the interventions resulted in prevention of serious patient harm which translated into a cost avoidance of $845,592

Aldridge et al AJHP 2009
Issues with Outcomes Studies

- Single Site - utility for scalability is limited
- Small numbers of patients which may not allow for strong statistical analysis
- Descriptive in nature and lack control groups
- Multiple centers analysis suffer from methodological issues
- A better way is needed!
## Health Factors Created

### Health factors for major disease states managed

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PHARM HTN TX INTERVENTION MADE</td>
</tr>
<tr>
<td>2</td>
<td>PHARM HTN NONPHARM INTERVENTION MADE</td>
</tr>
<tr>
<td>3</td>
<td>PHARM HTN TX AT GOAL</td>
</tr>
<tr>
<td>4</td>
<td>PHARM DIABETES TX INTERVENTION MADE</td>
</tr>
<tr>
<td>5</td>
<td>PHARM DIABETES NONPHARM INTERVENTION MADE</td>
</tr>
<tr>
<td>6</td>
<td>PHARM DIABETES TX AT GOAL</td>
</tr>
<tr>
<td>7</td>
<td>PHARM LIPID INTERVENTION MADE</td>
</tr>
<tr>
<td>8</td>
<td>PHARM HTN NONPHARM INTERVENTION MADE</td>
</tr>
<tr>
<td>9</td>
<td>PHARM LIPIDS TX AT GOAL</td>
</tr>
<tr>
<td>10</td>
<td>PHARM HF TX INTERVENTION MADE</td>
</tr>
<tr>
<td>11</td>
<td>PHARM HF NONPHARM INTERVENTION MADE</td>
</tr>
<tr>
<td>12</td>
<td>PHARM HEART FAILURE TX AT GOAL</td>
</tr>
</tbody>
</table>

### Health factors for additional pharmacotherapy interventions

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PHARM–ADJUST DOSAGE OR FREQUENCY</td>
</tr>
<tr>
<td>2</td>
<td>PHARM–COMPLIANCE/ADHERENCE ADDRESSED</td>
</tr>
<tr>
<td>3</td>
<td>PHARM–CONTRAINDICATION TO MED MGMT</td>
</tr>
<tr>
<td>4</td>
<td>PHARM–DRUG INTERACTION</td>
</tr>
<tr>
<td>5</td>
<td>PHARM–DRUG NOT INDICATED</td>
</tr>
<tr>
<td>6</td>
<td>PHARM–DUPLICATION OF THERAPY</td>
</tr>
<tr>
<td>7</td>
<td>PHARM–MEDICATION EDUCATION</td>
</tr>
<tr>
<td>8</td>
<td>PHARM–NON–FORMULARY REVIEW/CONVERSION</td>
</tr>
<tr>
<td>9</td>
<td>PHARM–PREVENT OR MANAGE DRUG ALLERGY</td>
</tr>
<tr>
<td>10</td>
<td>PHARM–PREVENT/MANAGE ADV DRUG EVENT</td>
</tr>
<tr>
<td>11</td>
<td>PHARM–UNTREATED DIAGNOSIS</td>
</tr>
</tbody>
</table>
PBM PhARMD Project
Metrics Created

Reports Available:
• Total Number of Disease state Interventions per Clinical Pharmacy Specialist (CPS)
• Total Number of Additional Pharmacotherapy Interventions per Clinical Pharmacy Specialist (CPS)
• Average number of interventions per CPS visit
• Cost avoidance associated with specific pharmacotherapy interventions

Reports in Progress:
• Number of CPS visits to achieve goal (by disease state)-
• Number of days to achieve goal (by disease state)
• Number (%) of patients at goal per CPS
• Cost of disease state specific medications per CPS
PBM PhARMD Project Expansion Pilot
Avg CPS Interventions Per Visit

April 2012 May 2012 June 2012 July 2012

PBM PhARMD Project Expansion Pilot
Avg CPS Interventions Per Visit

April 2012 May 2012 June 2012 July 2012

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Avg CPS Interventions Per Visit

April 2012 May 2012 June 2012 July 2012

PBM PhARMD Project Expansion Pilot
Avg CPS Interventions Per Visit

April 2012 May 2012 June 2012 July 2012
Total CPS Disease State Interventions
Medication and Nonpharmacologic

- April 2012: Tot DM Interventions = 1153, Tot HTN Interventions = 862, Tot Lipids Interventions = 11, Tot CHF Interventions = 827, Sum of NumPts = 2291
- May 2012: Tot DM Interventions = 1201, Tot HTN Interventions = 861, Tot Lipids Interventions = 15, Tot CHF Interventions = 796, Sum of NumPts = 2641
- June 2012: Tot DM Interventions = 1057, Tot HTN Interventions = 744, Tot Lipids Interventions = 13, Tot CHF Interventions = 689, Sum of NumPts = 2424
- July 2012: Tot DM Interventions = 1109, Tot HTN Interventions = 750, Tot Lipids Interventions = 22, Tot CHF Interventions = 663, Sum of NumPts = 2291
CPS Total Disease State Interventions* and Patients At Goal

<table>
<thead>
<tr>
<th>Condition</th>
<th>Interventions</th>
<th>Pts At Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>5663</td>
<td>870</td>
</tr>
<tr>
<td>HTN</td>
<td>3963</td>
<td>2346</td>
</tr>
<tr>
<td>Lipids</td>
<td>3915</td>
<td>1944</td>
</tr>
<tr>
<td>CHF</td>
<td>78</td>
<td>8</td>
</tr>
</tbody>
</table>

*Interventions and Patients At Goal
Total CPS Diabetes Interventions
Includes Total DM Interventions, Medication and Nonpharmacologic Interventions Made

April 2012 | May 2012 | June 2012 | July 2012
---|---|---|---
1153 | 1201 | 1057 | 1109
732 | 790 | 690 | 650
421 | 411 | 367 | 459

- **Tot DM Interventions**
- **Sum of TotDMTxInterv**
- **Sum of TotDMNonpharmInterv**
- **Linear (Tot DM Interventions)**
Linking Cost Avoidance to CPS Interventions

<table>
<thead>
<tr>
<th>Intervention – OP Setting</th>
<th>Avg Cost Avoided per Intervention</th>
<th>Adj Avg Cost Avoided per Intervention</th>
<th>Corresponding Health Factor (PharmD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Interaction</td>
<td>$317.00</td>
<td>$398.97</td>
<td>PBM PHARMD DRUG INTERACTION</td>
</tr>
<tr>
<td>Prevent or manage drug allergy</td>
<td>$230.00</td>
<td>$289.48</td>
<td>PBM PHARMD PREVENT/MANAGE DRUG ALLERGY</td>
</tr>
<tr>
<td>Adjust dosage or frequency</td>
<td>$289.00</td>
<td>$363.73</td>
<td>PBM PHARMD ADJUST DOSE OR FREQUENCY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PBM PHARMD HTN TX INTERVENTION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PBM PHARMD DM TYPE I TX INTERVENTION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PBM PHARMD DM TYPE II TX INTERVENTION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PBM PHARMD CHF TX INTERVENTION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PBM PHARMD LIPIDS TX INTERVENTION</td>
</tr>
<tr>
<td>Untreated diagnosis</td>
<td>$1,479.00</td>
<td>$1,861.46</td>
<td>PBM PHARMD NEW TX FOR EXISTING DIAGNOSIS</td>
</tr>
<tr>
<td>Prevent or manage adverse drug event</td>
<td>$536.00</td>
<td>$674.61</td>
<td>PBM PHARMD PREVENT/MANAGE ADE</td>
</tr>
<tr>
<td>Drug not indicated</td>
<td>$73.00</td>
<td>$91.88</td>
<td>PBM PHARMD DRUG NOT INDICATED</td>
</tr>
<tr>
<td>Duplication of therapy</td>
<td>$135.00</td>
<td>$169.91</td>
<td>PBM PHARMD DUPLICATION OF TX</td>
</tr>
</tbody>
</table>
Use of tool nationally has multiple implications for the profession of pharmacy and practice within VHA

Opportunities include:

- National Benchmarking of pharmacy interventions and outcomes
- National, VISN and Local Cost justification of new and existing pharmacists
- Comparison of pharmacy interventions in VHA to other healthcare organizations
- Use in OPPE process for Scope of Practice
- Creation of Clinical Pharmacy Staffing tools and models
- Identification of best practices for more rapid sharing of information
- Identification in potential gaps in care that may exist at facilities
Further Inquiry

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