Integrating the clinical pharmacist in team-based approaches to care

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PHSW Overview
- 450 bed community hospital (Average Daily Census ~ 253)
- Family Practice Residency Program
- Pharmacy Residency Program
- Six Years on Thomson Reuters Top 100 Hospitals List
- Centers of Excellence: Bone & Joint, Brain & Spine, Cancer, Heart & Vascular, Women’s & Children’s
- Nationally Certified Stroke Center
- Over 113,000 ER visits in 2011

PHSW Department of Pharmacy
- 30 FTEs Pharmacists, 30 FTEs Technicians
- McKesson Pharmacy Information System, CPOE, BCMA
- Decentralized medication distribution including ADM’s on units and MedCarousel in central pharmacy
- Pharmacist staffing model:
  - Decentralized with order entry from central pharmacy
  - Ambulatory pharmacists in physician offices
  - Pharmacist led anticoagulation clinic
  - Hospice
  - Infusion
  - Retail
  - PBM
  - Disease State Management

Why is this a Hot Topic?
- "We have the most expensive healthcare system in the world, bar none…But here’s the thing…We’re not any healthier for it."
  - President Barack Obama

Why is this a Hot Topic?
- Need for change in structure of U.S. medical care to combat rising costs
- U.S. healthcare is worlds most expensive
- Outcomes are among worst for developed countries
- Lack of emphasis on primary care
  - Major contributor to poor health outcomes
  - Fostered by a fee-for-service reimbursement system
    - Rewards costly and sometimes unnecessary tests, procedures
    - Shortage of primary care physicians
    - Few medical student pursue primary care
- Renaissance of alternative approaches to providing medical care
  - Improve quality and safety of healthcare system
  - Reduce healthcare costs
The Evolving Culture of Medicine

20th Century Characteristics
- Autonomy
- Solo practice
- Continuous learning
- Infallibility
- Individual knowledge

21st Century Characteristics
- Teamwork & system
- Group practice
- Continuous improvement
- Change
- Multidisciplinary problem solving

Good Teamwork is Essential

Drivers for change in healthcare
- Affordable Care Act (ACA)
  - Provides enhanced role for health-system pharmacists on inter-professional teams
  - Promotes coordination of care among healthcare providers
  - Reduce healthcare costs
  - Improve quality of care
  - New payment rules
    - Accountable Care Organizations
    - Medical Home Model
    - Quality-based Financing Mechanisms

Expanded Role for Pharmacists
- Centers for Medicare and Medicaid (CMS)
  - Change in conditions of participation for hospitals and critical access hospitals
  - Broadened the concept of “medical staff”
    - Grant privileges to pharmacists (in accordance with state law)
    - Can enter into collaborative practice agreements in 43 states
    - More involvement in patient care
    - Eliminates conflict between what state law allows and CMS

Expanded Role for Pharmacists
- Centers for Medicare and Medicaid (CMS)
  - Supports the pharmacist role on the interdisciplinary healthcare team
    - Improving outcomes
    - Meeting quality measures
    - Reducing costs
    - Enhancing patient satisfaction
  - The rule also explicitly requires pharmacy department to be included in the development of standing orders, order sets, and protocols for patient care

Pharmacist Training in Health-Systems
- Residency training in general and specialty areas
- Board Certified (BPS)
Patient-Centered Medical Home (PCHM)

An approach to providing comprehensive primary care for children, youth, and adults

1. Integrated, comprehensive physician-led team care
2. Clinical information systems to support care
3. Ready access to care when needed
4. Routine patient feedback to physicians
5. Patient engagement in decision-making
6. Patient centered emphasis on dignity and respect
7. Publicly available info on quality and efficiency

PCMH: Roles for Pharmacists

- Contact patients after hospital discharge
  - Reduce ADE rates
- Chronic disease states and MTM
  - DM, HTN, CHF, COPD, HIV, asthma, smoking cessation
  - Patients taking multiple medications
- Patient adherence
- Refill and prior authorization services
- Medication assistance programs

Accountable Care Organizations (ACO)

- Providers accountable for patients’ health
  - Focus on prevention, careful management of chronic diseases
- Incentives to cooperate, save money by avoiding unnecessary tests and procedures
  - Bonuses when costs down, quality benchmarks met
- Those saving money while meeting quality standards would keep a portion of savings
- Providers paid more for keeping patient healthy and out of the hospital
- Reduction in Medicare spending
ACO’s: Roles for Pharmacists

- Ensuring appropriate medication use
- Reducing medication-related adverse events
- Preventing hospital readmissions
- Managing chronic conditions
- MTM services
- Collaborative practice
  - Medication selection, review, adjustment, counseling

ASHP on ACO’s

- Partner with physician groups and administration to raise awareness of pharmacists' abilities in direct patient care
  - Create clinical protocols and business plans
  - Participate in ACO development
  - Identify needs in practice settings where pharmacists can help
  - Become familiar with other professionals' skills in order to coordinate services provided under the ACO
- Communicate with physicians, nurses and other providers about services pharmacists can provide
- Identify a physician champion within the organization to advocate for including pharmacists services in the ACO

Impact of Clinical Pharmacy

- Inpatient services
- Transitions of care
- Outpatient services

Inpatient Pharmacist Roles

- Protocols
  - Standardized and evidence-based
  - Approved by P&T
  - Examples
    - TPN
    - Electrolyte replacement
    - Renal dosing
    - Anticoagulation dosing
- Guidelines
  - Same as above
  - Examples
    - Methadone tapering
    - IPA administration
- Drug shortages
  - P&T approved automatic substitutions
- Appropriate drug selection based on criteria and reimbursement

Inpatient Pharmacists Roles

- Quality Measures and Reimbursement (Value-based purchasing)
  - HCQHPS scores
    - Heart Failure Readmissions
      - Discharge medication instructions
    - ACS or ARB for LVSD
    - AAMI
      - Aspirin at arrival
      - Discharge prescriptions (stents, aspirin, beta blocker, ace)
  - Pneumonia
    - Antibiotic selection and timing
    - Vaccination
  - SCIP/SCOMAP measures
    - Antibiotic selection, initiation within 1 hr of incision, antibiotic discontinuation within 24 hours
    - Cardiac - hemoglobin glucose
    - Stroke

Glycemic Control Task Force

- Physician champion
- Medical staff
- Pharmacy
- Nursing
- Certified diabetic educator
- Quality care resources

- Information system
- Laboratory
- Education
- Food services
- Administration
Areas for Improvement
- Identifying subset of patients that frequently did not meet SCIP requirements
  - Uncontrolled Diabetics with HbA1C >8%
  - Patients using insulin prior to admission
- Developing individualized treatment plans for achieving glycemic control
- Improving continuity of diabetic care from hospital to community providers

Protocol Standardization
- Cardiac surgery-specific insulin infusion algorithm
- Hypoglycemia treatment algorithm
- Guidelines for transition from IV to SC insulin
- Basal – nutritional - correctional insulin dosing guidance
- Checking HbA1C with pre-operative labs
- Specific instruction for uncontrolled DM (HbA1C>=8) or insulin-dependent patients
- Oral anti-DM medications initiation and modification

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Pharmacist Workflow
- Guidelines, training/shadow, competency
- Didactic lecture, annual competency, call pharmacy for questions
- New diagnosis and uncontrolled DM
- Encourage self-administration of insulin as soon as possible in hospital
- Enrolled in diabetic education class after discharge

Team Education
- Pharmacist
  - Guidelines, training/shadow, competency
- Nursing
  - Didactic lecture, annual competency, call pharmacy for questions
- Patient
  - New diagnosis and uncontrolled DM
  - Encourage self-administration of insulin as soon as possible in hospital
  - Enrolled in diabetic education class after discharge

Quality Improvement
- Overall glucometric data
- SCIP & SCOAP compliance
- Glycemic control target range
- Hypoglycemia case review
- Protocol and formulary updates and improvements

Breakdown of IV to SC Insulin Transition Day by Patient Characteristics
<table>
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<th>2007 (Baseline)</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<tr>
<td>Non-DM</td>
<td></td>
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<tr>
<td>POD01</td>
<td>71%</td>
<td>32%</td>
<td>46.3%</td>
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<td>36%</td>
<td>49.4%</td>
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<tr>
<td>POD03</td>
<td>14.5%</td>
<td>25.3%</td>
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<tr>
<td>Pre-Existing DM</td>
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<tr>
<td>POD01</td>
<td>75.4%</td>
<td>52%</td>
<td>66%</td>
<td>69.7%</td>
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<tr>
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<td>14.6%</td>
<td>32%</td>
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<td>19%</td>
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<td>POD03</td>
<td>8%</td>
<td>16%</td>
<td>14.5%</td>
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<td>HbA1C &gt;8%</td>
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<td>26%</td>
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<tr>
<td>POD03</td>
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<td>88%</td>
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Mean Glucose Readings for All Cardiac Surgery Patients

Mean Glucose Readings for Diabetic Cardiac Surgery Patients

Mean Glucose Readings for Cardiac Surgery Patients with A1C >8.0%

Compliance with SCIP Inf-4 Blood Glucose Measure

Comparison of Hypoglycemia Events by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Patients</th>
<th>Total number of POC-BGcs</th>
<th>POC-BG &lt;40 mg/dL</th>
<th>POC-BG &lt;60 mg/dL</th>
<th>POC-BG &lt;70 mg/dL</th>
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<tr>
<td>2007</td>
<td>216</td>
<td>9,859</td>
<td>17 (0.17%)</td>
<td>142 (1.44%)</td>
<td>302 (3.06%)</td>
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<td>2008</td>
<td>205</td>
<td>11,544</td>
<td>15 (0.13%)</td>
<td>142 (1.33%)</td>
<td>350 (3.03%)</td>
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<td>2009</td>
<td>245</td>
<td>10,315</td>
<td>8 (0.08%)</td>
<td>76 (0.74%)</td>
<td>205 (1.99%)</td>
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<tr>
<td>2010</td>
<td>229</td>
<td>10,044</td>
<td>4 (0.04%)</td>
<td>25 (0.25%)</td>
<td>87 (0.87%)</td>
</tr>
</tbody>
</table>

Impact on Continuity of Diabetes Care

1. Total Hypertension Per Year
2. New DM collated and managed by SHC diet
3. DM with A1C ≥11.0% increased
4. PTA Chart Controlled DM collated and managed by SHC diet
5. Uncontrolled DM with secondary care
6. SHC in primary care
Institutional and Regional Influence

- Increased usage of basal insulin
  - Basal-bolus instead of sliding scale
  - Provide basal insulin prior to insulin infusion discontinued
- Service expansion
  - All surgery patients
  - Most cardiology patients
  - Patients on tube feeding
- Increasing hyperglycemia awareness among staff
- Training for pharmacy staff & residents from other institutes

Conclusion

- Pharmacist-led interdisciplinary glycemic control service improved and sustained overall institutional compliance with SCIP INF-4 for 6 AM blood glucose on POD 1 & 2
- Patient-centered treatment plan allowed for improved post-operative hyperglycemia management, targeted education, and increased continuity of care
- Pharmacists are a driving force in improving diabetes care throughout the organization

Other Pharmacist Roles

- Education and Access to Medications
  - Disease state management
  - Smoking cessation
  - Patient assistance program
  - Ensures access to medications
- National Patient Safety Goals
  - Anticoagulation
  - Medication reconciliation

Medication Reconciliation Interdisciplinary Team Responsibilities for Readmission Pilot

- Social Worker
  - Administer LACE tool to identify Heart Failure patients at risk for readmission
- Nursing
  - Identify patient’s key learner
  - Facilitate patient discharge with pharmacy education
- Hospitalist Group
  - Provide discharge prescription 24 hours prior to patient discharge
  - Set up follow-up outpatient appointment 1 week post-discharge
- Pharmacy
  - Provide admission and discharge medication reconciliation
  - Provide patient and key learner education
  - Offer to fill patient’s new discharge prescriptions

Ambulatory Pharmacists

- Pharmacist in physician clinics
  - Collaborative Practice Agreements
    - Anticoagulation
    - Hypertension
    - Diabetes
    - Hyperlipidemia
    - Polypharmacy
- Formal referral process from physician to pharmacy service
- Duration of visits are 15 to 30 minutes
- Billing as a facility fee
- Authority to oversee medication management
- Communicate with physicians via the electronic record
Limitations to Pharmacist Services

- Not recognized as a provider
- Limited billing for services
- Under-recognition of pharmacist services
- Application to the Board of Pharmacy for each service
- Scope of practice is based on state laws
- Expanding roles of pharmacy technicians
- Responsible scheduling practices to enhance patient satisfaction

Recognition

- Jan Chow, Pharm.D., BCPS
- Stefanie Draper, Pharm.D.

References