Transition of Care

Thomas Villanueva, D.O., M.B.A., FACPE, SFHM
Chief, Hospital Medicine and Primary Care
Baptist Health Medical Group
Clinical Professor of Medicine, Nova Southeastern University, College of Osteopathic Medicine
Clinical Professor of Medicine, Florida International University, College of Medicine

Conflicts

I serve as a consultant to and am a member of the speaker’s bureaus for AstraZeneca Pharmaceuticals, NovoNordisk, American Regent, Bristol-Myers Squibb, GlaxoSmithKline Pharmaceuticals, Janssen, Sanofi, Pfizer Pharmaceuticals and Sunovion.

I am an employee of Baptist Health Medical Group.

I will not discuss off-label or unapproved usage.

Post discharge Problems Identified by Telephone Calls to an Advice Line

- Patients who called an AL between September 1, 2011 and September 1, 2012 and reported being hospitalized within 30 days.
- A 500-bed, university-affiliated hospital
- Prospective cohort of 358 unique patients who were hospitalized or had outpatient surgery within 30 days preceding the call

Findings:
- 57% and 47% of calls occurred within 24 or 48 hours of discharge, respectively
- 63% came from surgery patients despite surgery patients accounting for only 38% of the discharges
- Most common issues were:
  - uncontrolled pain
  - questions about medications
  - aftercare instructions (eg, the care of surgical wounds)
- 30-day readmissions and urgent or emergent care visits were higher for patients who called the AL than for those who did not (15% vs 4% and 30% vs 7%, respectively, both P < 0.0001).

30-day readmissions and urgent or emergent care visits were higher for patients who called the AL than for those who did not (15% vs 4% and 30% vs 7%, respectively, both P < 0.0001).

Changes in Medical Errors after Implementation of a Handoff Program


Miscommunications Are A Leading Cause Of Serious Medical Error

- Prospective intervention study of a resident handoff-improvement program in nine hospitals
- Measuring rates of:
  - medical errors
  - preventable adverse events
  - communications
  - resident workflow.
- Intervention included a mnemonic to standardize oral and written handoffs
- Error rates were measured through active surveillance
- The primary outcome had two components:
  - medical errors
  - preventable adverse events
Results

- Medical-error rate decreased by 23% from the pre-intervention period to the post-intervention period (24.5 vs. 18.8 per 100 admissions, P<0.001)
- Rate of preventable adverse events decreased by 30% (4.7 vs. 3.3 events per 100 admissions, P<0.001)
- Rate of non-preventable adverse events did not change significantly (3.0 and 2.8 events per 100 admissions, P=0.79)

Causes of Readmission

- Medicare’s Quality Improvement Organizations (QIOs) identified factors resulting in readmission in 14 states:
  - Medication discrepancies that occur during admission or after discharge
  - Inadequate follow-up in the post-discharge setting
  - Fragmented documentation of medical conditions
  - Failure to communicate need for medical treatment
  - Poor patient self-management
  - Community infrastructure and awareness problems
  - Insufficient patient support, including support from family caregivers

Rehospitalization: Impact of Care Transition Program

- 14 sites receiving care transition intervention vs 50 sites without intervention (all Medicare Fee-for-Service)
- Data reflect periods pre-intervention (2006-2008) and during intervention (2009-2010)
  - Significantly greater reductions in pre-/post-intervention rehospitalization at intervention vs non-intervention sites (P = .01)

Penalties for missing “value” targets

<table>
<thead>
<tr>
<th>Program</th>
<th>% Risk</th>
<th>$ at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readmissions</td>
<td>1.0%</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Value Based Purchasing</td>
<td>1.0%</td>
<td>$1,000,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>% Risk</th>
<th>$ at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readmissions</td>
<td>3.0%</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>Value Based Purchasing</td>
<td>1.5%</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>Hospital Acquired Condition</td>
<td>1.0%</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Electronic Medical Records (1/15)</td>
<td>1.0%</td>
<td>$1,000,000</td>
</tr>
</tbody>
</table>

* Based on $100M of annual Medicare revenue

“The Opportunity”

- Patients think we do well
- Physicians think we do so-so
- The data shows we do not do well
- Evidence that highest risk when:
  - Incidental findings
  - Missed follow up
  - Changed test results
  - Medication changes
- There is case law indicating it is our duty
  = Area ripe for improvement
Definition: Transitional Care

- A set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location.
- Transitional care requires:
  - Comprehensive plan of care
  - *HCPs who are well informed about patients’ goals, status, preferences
  - Logical arrangements
  - Coordination between *HCPs
  - Patient/family education

* HCP= Health Care Professionals

The Case for Transitional Care

- High rates of medical errors
- Serious unmet needs
- Frequently poor patient support systems
- Suboptimal understanding by patient & caregiver:
  - diagnosis/es
  - treatment plan
  - value of adherence to plan
- High rates of preventable rehospitalizations
- Tremendous human and cost burden

Evidence Regarding Transitional Care

- 9/21 RCTs, + impact on rehospitalization rates plus other health outcomes of hospitalized, chronically ill older adults
- Common components of effective interventions
  - Multidimensional and span settings
  - Use inter-professional teams with primarily nurses, as care coordinators
  - Employ transitional care planning, self-management support, medication management, IT, and coordination with post-hospital clinicians/services

Transition of Care

- Transfer of a patient between (or within) different healthcare settings and/or HCPs
- Transitions of care occur at different care axes:
  - Within Settings
  - Between Settings
  - Between Phases

Elements of Successful Transition Outpatient Care With Antithrombotic Therapy

- Complete and accurate exchange of information between transferring and receiving HCPs
- Medication Reconciliation
- Case management – including arrangement for uninterrupted medications and lab monitoring
- Follow-up to ensure continuity of care and adherence
- Education of patient and caregivers regarding:
  - Purpose of medication
  - Importance of adherence
  - Medication administration
  - Signs and symptoms of bleeding
  - When to seek medical attention
  - Adverse effects
Pre-hospitalization and Hospitalization

Medication reconciliation during pre-hospitalization may be complicated by the lack of a reliable source of medication history and should be re-evaluated 24 hours after the patient is admitted.

Contact with the PCP is appropriate during the hospital stay, and may offer valuable insight about issues related to discharge planning.

A particular challenge of ACS care is the extensive amount of complex information which must be shared quickly and accurately with all stakeholders.

The risk of miscommunication is real.

What Are You Talking About?

- Effective communication between clinicians and patients & caregivers is vital to establish trust and ensure that important information is conveyed and understood.

- A UCSF study measured health literacy of 183 ethnically and linguistically diverse patients given warfarin for stroke prevention (mostly in AF).

Communication Breakdown

- The Community Tracking Study interviewed hospitalists plus CEOs and Medical Directors of health plans and hospitals in 12 communities and found:
  - Increased number of practicing hospitalists
  - Diminished communication between hospitals and community-based physicians: both PCPs and specialists
  - Community-based physicians, particularly PCPs, delivering less inpatient care than previously
  - Community-based specialists preferring to avoid hospitals when performing procedures.

- Poorer coordination between hospitals and community-based HCPs means poorer transition between inpatient and outpatient care.

Overcoming Barriers to Communication

- Poor literacy
- Poor English proficiency
- Poor understanding of medical jargon
- Inadequate time with the clinician for questions and answers
- Poor cognition
- Lack of communication between healthcare professionals, specifically among physicians
- Financial barriers to medication use

Health Literacy Evaluation

- 12% of adults have proficient health literacy
- Low health literacy has been linked to poor health outcomes
- REALM or TOFHLA: are these valid instruments to test for health literacy?
- What can we do to increase health knowledge in our patients?
  - Ensure we are speaking clearly and listening carefully
  - Ensure information is appropriate for the end-user
  - Ensure information is easy to use

Health Literacy Evaluation

Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

- Health literacy affects people’s ability to:
  - Navigate the healthcare system
  - Share personal information (like health history) with providers
  - Engage in self-care and chronic disease management
  - Understand mathematical concepts such as probability and risk
Health Literacy Evaluation

Improving the “Usability” of Health Information
- Identify the intended user
- Use pre- and post-tests
- Limit the number of messages
- Use plain language
- Practice respect
- Focus on behavior
- Check for understanding
- Supplement with pictures
- Use a medically trained interpreter or translator

A literature review of studies of communication between hospital-based physicians (HPs) and PCPs found that:
- Direct communication between HPs and PCPs was infrequent
- 3% of PCPs were involved in discussions about discharge
- 17%-20% of PCPs reported being notified about discharges
- Discharge summaries were received by PCPs within 1 week of discharge only 15% of the time, and within 4 weeks 52% of the time
- Key information from these summaries was frequently missing, such as:
  - Main diagnosis
  - Presenting symptoms
  - Diagnostic test results
  - Follow-up plans
  - Patient age
  - Name of responsible hospital physician
  - Patient or family counseling

The Law: Using Lessons Learned
- The hospitalist has a “duty” to the patient upon discharge to assure care until the handoff is complete
- Pending or “changed tests”
- Incidental findings
- Medical treatments started in-hospital
- PCP has a duty to the patient to:
  - Obtain hospital records if not received
  - Ensure proper follow up once the handoff is complete
- The PCP and hospitalist share the risk

Medication Discrepancies
- Approximately 1.5 million preventable ADEs occur annually due to MEs, at a cost >$3 billion per year
- Approximately 50% of hospital-related MEs and 20% of all ADEs are due to poor communication at transitions and interfaces of care
- The average hospitalized patient is subject to at least 1 medication error per day
- A study of nurse-identified medication discrepancies between hospital and home found 94% of 101 subjects had at least 1 discrepancy:
  - Average was 3.3
- Jencks et al analyzed Medicare Fee-for-Service claims data from 2003 to 2004
- Included 11,855,702 Medicare beneficiaries discharged from hospital
- 50.2% of those rehospitalized within 30 days after medical discharge had no note for physician office visit between discharge and readmission
- Focus on behavior
- "Jencks FS, Williams MV, Coleman EA. Patient or family counseling until the handoff is complete. 2010;31(3):188-196.

Rehospitalization
- 19.6%
- 34.0%
- 50.2%
- 58 days
- 30 days

Patient-Reported Reasons for Not Taking Evidence-Based Post-MI Therapy

<table>
<thead>
<tr>
<th>Reason</th>
<th>Aspirin (N=1,559)</th>
<th>Clopidogrel (N=1,554)</th>
<th>Beta-blocker (N=1,556)</th>
<th>ACE inhibitor (N=1,556)</th>
<th>Statin (N=1,571)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy/intolerance/side effect</td>
<td>15.4%</td>
<td>2.8%</td>
<td>7.2%</td>
<td>10.0%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Not prescribed at discharge</td>
<td>22.6%</td>
<td>42.7%</td>
<td>28.6%</td>
<td>43.5%</td>
<td>42.1%</td>
</tr>
<tr>
<td>Stopped by MD unrelated to intolerance/side effects</td>
<td>25.0%</td>
<td>19.3%</td>
<td>24.8%</td>
<td>14.9%</td>
<td>11.8%</td>
</tr>
<tr>
<td>No reason provided</td>
<td>43.3%</td>
<td>37.3%</td>
<td>41.2%</td>
<td>35.3%</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

*1/3 of patients discontinued therapy without instruction from their physician


Supplement with pictures

Use a medically trained interpreter or translator

Check for understanding

Obtain hospital records if not received

Include 11,855,702 Medicare beneficiaries discharged from hospital

Supplement with pictures


Jencks FS, Williams MV, Coleman EA. Patient or family counseling until the handoff is complete. 2010;31(3):188-196.
Definition: Medication Reconciliation

- "The comprehensive evaluation of a patient’s medication regimen any time there is a change in therapy."
- "This process should include a comparison of the existing and previous medication regimens and should occur at every transition of care in which new medications are ordered, existing orders are rewritten or adjusted, or if the patient has added nonprescription medications to [his or her] self-care."

Barriers to Medication Reconciliation

- Poor standardization of data elements within medication records
- No universal standard for medication records yet adopted
- Insufficient communication of medication information by both patients and HCPs
- Absence of established best practices

Multi-Center Medication Reconciliation Quality Improvement Study (MARQUIS)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Toolkit Examples</th>
</tr>
</thead>
</table>
| Assigning roles and responsibilities | - Identify resources available for each person
| - Outline required knowledge, skills
| - Goshowage use of personnel for efficiency
| - Assign "ownership" for the process |
| Patient owned medication list | - Provide patient with med list at discharge
| - Possible med list in ambulatory setting |
| Guidelines for taking "best possible" medication history | - Two sources of information
| - Resolve discrepancies
| - Use probing questions |
| Risk stratification | - Stratify patients into high, intermediate, low risk (example number of medications, Morisky Scale) |
| Discharge counseling | - Correctly identify the "active learner"
| - Review entire med list [new, old, instructions, side effects, etc.]
| - Use "teach back" and "ask 3" techniques |
| Use medication reconciliation bundle | - Assign high-risk patients to highly skilled personnel |


Is this a Role of Pharmacists?

- Largest medication reconciliation study to date (MATCH Study) found that 36% of patients had medication errors at admission¹
  - 85% of these errors derived from patients' medication history
- Medication review by pharmacists has been shown to reduce medication errors, physician visits, emergency department visits, hospital days, and overall healthcare costs²

Role of Pharmacists: Transition of Care

- A pharmacist-managed DVT treatment program was designed to transition patients with newly diagnosed DVTs from the ED to outpatient¹
  - Bridging process from LMWH to warfarin usually takes 25 days²
  - Patients in program were compared with those experiencing standard inpatient admission for DVT

Average Length of Stay for DVT Program: 18.3 Hours
Average Length of Stay for Inpatient Setting: 5.7 Days

A Key Role for Pharmacists

- Pharmacists should play a central role in designing and managing patient-centered medication reconciliation systems, educate patients and HCPs, and be patient advocates during transitions
- Pharmacist should work interdependently with HCPs of all categories to optimize communication and use of health information technology (HIT) to support transitions of care

¹. Gleason KM, McDaniel MR, Feinglass J, et al. "The comprehensive evaluation of a patient's medication regimen any time there is a change in therapy."
³. Davis KA, et al. "The comprehensive evaluation of a patient's medication regimen any time there is a change in therapy."

Pharmacist Intervention for Low Literacy in Cardiovascular Disease (PILL-CVD)

- ACS or CHF patients
- Intervention Counseling
- Usual Care
- 1. Med reconciliation
- 2. Med counseling
- 3. Adherence aids
- 4. Telephone follow-up call after discharge
- Medication errors, Adverse drug events

<table>
<thead>
<tr>
<th>HR 95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.92 (0.77-1.09)</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Favors intervention Favors usual care

Med Errors (N=851)

ADRs (N=851)

Potential ADRs (N=851)

IRR (95% CI)

0.92 (0.77-1.09) 0.32

0.79 (0.62-1.01) 0.06

Transitions of Care

Requires a multidisciplinary Approach and Ownership to be successful.

Tools for Transition of Care—Standardized Checklist

Hospital Discharge Medications List

Care Coordination Checklist

Adherence Factors to Medication

- Factors influencing adherence to prescribed therapy include:
  - Frequency of dosing
  - Knowledge of prescribed drug
  - Prior authorization requirements
  - Out-of-pocket costs

- Among older Americans (60+)
  - 75% ≥2 prescription drugs
  - 40% ≥5 prescription drugs

- Approximately 11% of all prescription drug class use is antiplatelet agents

U.S. Prescription Drug Use


- Approximately 11% of all prescription drug class use is antiplatelet agents
Barriers to Adherence

- Complex regimens
- Lifestyle
- Cost
- Clinician to patient relationship
- Side effects
- Failure to explain benefits

Adherence and Dose Frequency

- Comparison: once daily vs. BID cardiovascular medications
- Pharmacy prescription claims database
- Adherence measure: Medication Possession Ratio (days of medication supplied/365)
- Antiplatelet agent adherence was 29.4% greater with daily vs. BID

Medication Adherence

- One in three patients fail to fill their prescriptions
- Approximately three of four Americans report they do not consistently take their medications as directed
- Sixty percent of patients cannot correctly name their medications and up to 20 percent of patients take other people’s medications
- Between 33 and 69 percent of medication-related hospital admissions in the U.S. are due to poor adherence
- Approximately one-fourth of all nursing home admissions are related to improper self-administration of medications
- In common chronic conditions such as diabetes and hypertension, adherence rates average between 50-65 percent

Nonadherence >> Resistance

- Adverse effects
- Complex Regimens
- Expense
- Uneducated
- Priorities
- Unspecified (~30%)

Delays in Filling Clopidogrel Prescription After Hospital Discharge

- 7,402 patients after MI and stent placement
- 1 in 6 patients failed to fill their prescription on the day of discharge
- Median delay 3 days

Prescriptions Abandoned in CVS Pharmacies

- 10,349,139 prescriptions
- 5,249,380 patients
- 3.3% were abandoned
- 1.0% were antithrombotic medications
- New medication users had a 3x greater probability of abandonment
- Prescription Cost >$50 there was a 5x greater probability of abandonment

Incidence of Death or MI

- 2 fold increase
- Same Day
- Late or Never
Discharge and Post-Discharge

- Discharge is one of the most crucial transitions in care, with potential impact on patient outcomes post-discharge, including readmission.
- The discharge summary is an obvious target for quality improvement, as it is the most common vehicle for sharing patient information with the PCP and other healthcare providers.

Primary Care Physician Communication at Hospital Discharge Reduces Medication Discrepancies

**Objectives:**
- To determine whether primary care physician (PCP) contact with patients at hospital discharge impacts the frequency of medication discrepancies at 24 hours post-discharge.

**Design:**
- With the PCP-Enhanced Discharge Communication Intervention, PCPs were asked to speak with treating hospitalists and contact patients within 24 hours of hospital discharge (either in person or by phone) to discuss any hospital medication changes.
- Research staff enrolled subjects during their hospitalization and telephoned subjects 48 hours post-discharge to determine medication discrepancies and PCP contact.

**Participants:**
- One hundred fourteen community-dwelling adults, admitted to acute medicine services >24 hours on >5 medications.

**Results:**
- Of the 114 subjects enrolled in the hospital, 75 subjects completed 48 hours post-discharge phone interviews.
- Of the 75 study patients, 39 patients (50.6%) experienced a total of 84 medication discrepancies (mean, 2.1 discrepancies/patient).
- Subjects who were contacted by their PCP at discharge were 70% less likely to have a discrepancy when compared with those not contacted (P=.04).
- Males were 4.34 times more likely to have a discrepancy (P=.02).

**Conclusion:**
- PCP communication with patients within 24 hours of discharge was associated with decreased medication discrepancies.

Outpatient Follow-up Phone Call

- Help reinforce critical information:
  - review the care plan (including follow-up appointments, late test results)
  - identify any medication-related issues
  - confirm acquisition of medications
  - reinforce medication instructions
- Who should make the call?
  - inpatient healthcare provider
  - PCP
Transitions of Care Phone Line

- Dedicated transitions of care “hot line” for patients or their advocates
- Questions related to their medications or hospitalization
- Reinforce medication instructions
- Remind patients about follow-up appointments
- Discuss recent test results
- Identify any medication-related issues
- Any healthcare provider can staff the “hot line”
- Optimally managed by a pharmacist?
- “Hot line” shouldn’t substitute for the post-discharge follow-up call by hospital or PCP

Re-Engineered Discharge (Project RED)

<table>
<thead>
<tr>
<th>Toolkit Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascertain need for and obtain language assistance.</td>
</tr>
<tr>
<td>Make appointments for follow-up care (appointments &amp; tests/labs).</td>
</tr>
<tr>
<td>Plan for the follow-up of results from tests/labs pending at discharge.</td>
</tr>
<tr>
<td>Organize post-discharge outpatient services and medical equipment.</td>
</tr>
<tr>
<td>Identify correct medicines and plan for the patient to obtain them.</td>
</tr>
<tr>
<td>Reconcile the discharge plan with national guidelines.</td>
</tr>
<tr>
<td>Teach a written discharge plan that the patient can understand.</td>
</tr>
<tr>
<td>Educate the patient about his or her diagnosis and medicines.</td>
</tr>
<tr>
<td>Review with the patient what to do if a problem arises.</td>
</tr>
<tr>
<td>Assess the degree of the patient’s understanding of the discharge plan.</td>
</tr>
<tr>
<td>Expedite transmission of the discharge summary to clinicians accepting care of the patient.</td>
</tr>
<tr>
<td>Provide telephone reinforcement of the discharge plan.</td>
</tr>
</tbody>
</table>

Risk Specific Interventions

- General assessment of preparedness (GAP) Medications reconciled with pre-admission list Medication use/side effects reviewed using teach back Teach back used to confirm understanding of diagnosis, prognosis, self-care, symptoms requiring medical attention Action plan for management complications Discharge communication provided to post hospitalisation care providers and documented receipt Direct communication to principal outpatient provider Telephone contact arranged at 72 hours

Better Outcomes for Older adults through Safe Transitions (Project BOOST)

- Hospitalist to PCP discharge process has risks medically and legally, with the highest risk:
  - Incidental findings
  - Pending and/or revised hospital tests
  - Required testing as an outpatient
  - Medication changes
- PCPs and hospitalists share the risk burden
  - Hospitalists have a duty to “provide care” after discharge
  - PCPs have a duty to obtain hospital data

Summary

- Hospitalist to PCP discharge process has risks medically and legally, with the highest risk:
  - Incidental findings
  - Pending and/or revised hospital tests
  - Required testing as an outpatient
  - Medication changes
- PCPs and hospitalists share the risk burden
  - Hospitalists have a duty to “provide care” after discharge
  - PCPs have a duty to obtain hospital data

Understanding how to improve collaboration between hospitals and primary care in post-discharge care transitions: A qualitative study of primary care leaders’ perspectives

- Qualitative study with in-depth, semi-structured interviews of 22 primary care leaders in 2012 from California safety-net clinics
- Efforts to improve TOC should focus:
  - Aligning financial incentives
  - Standardizing regulations around EHR interoperability and data sharing
  - Enhancing opportunities for interpersonal networking
Summary

- Any type of hospitalist-PCP communication reduces that risk
- Verbal hospitalist to PCP communication should be strongly considered for any discharge with the highest risk (in addition to usual method)
  - Incidental findings
  - Pending and/or revised hospital tests
  - Required testing as an outpatient
  - Medication changes

Summary

- The data demonstrates poor performance on hospitalist-PCP communication
  - Written, verbal or faxed
- In general PCPs prefer telephone contact, but contact method will need to be individualized
- No IT systems solutions developed, although future promising
- Data on discharge facilitator demonstrates
  - Improved PCP follow-up
  - Decreased LOS
  - Mixed data on improved clinical outcomes