Building on Pharmacy Involvement in Transitions of Care

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Objectives

- Define transitions of care (TOC) and why it is important.
- Review how pharmacists and pharmacy technicians can assist in TOC.
- Discuss what is being done nationally and in Alaska with TOC.
- Review what the pharmacy department at Providence has done to advance TOC, and how this can be applied to my practice.

The "New" hot topic?

TRANSITIONS OF CARE

What is Transitions of Care

- "Transitions of care" refers to changes in the level, location, or providers of care as patients move within the health care system
- Think about a patient admitted to the hospital for ACS
  - Outpatient -> inpatient -> outpatient
    - Prior to admission medications to inpatient medications back to outpatient
  - What About Transitions within the hospital?
    - ER -> Cath lab -> ICU -> Medical Floor -> pre op -> OR -> recovery -> back to medical floor -> Long term care facility -> Home …

TOC IN THE NATIONAL SPOTLIGHT

Institute for Safe Medication Practices (ISMP)

- Between 30-70% of patients make a medication error in the immediate weeks following hospitalization
- Centers for Medicare & Medicaid Services reports an average national hospital readmission rate of 17.5-19.5%.
- A recent study of patients with acute coronary syndrome or heart failure found that 36% were taking a previously prescribed medication that should have been discontinued and 27 % were not taking a newly prescribed medication that they should be on
- 59% of all discharged patients also misunderstood the indication, dose, or the frequency of use of the prescribed medications.
- Medication errors that occur during the first few weeks after discharge from the hospital can cause significant harm.
  - one study showed that almost a quarter of all post-discharge errors were considered serious or life-threatening

More on TOC

- According to the Institute of Medicine's Preventing Medication Errors report, the average hospitalized patient is subject to at least one medication error per day
- Research findings that medication errors represent the most common patient safety error
- More than 40% of medication errors are believed to result from inadequate reconciliation in handoffs during admission, transfer, and discharge of patients
- JACO NPSG 03.06.01
  - There is evidence that medication discrepancies can affect patient outcomes. Medication reconciliation is intended to identify and resolve discrepancies—it is a process of comparing the medications a patient is taking (and should be taking) with newly ordered medications. The comparison addresses duplications, omissions, and interactions, and the need to continue current medications. The types of information that clinicians use to reconcile medications include (among others) medication name, dose, frequency, route, and purpose. Organizations should identify the information that needs to be collected to reconcile current and newly ordered medications and to safely prescribe medications in the future.

CMS and readmission

- Oct 2012 – CMS implemented Hospital Readmission Reduction Program (HPPR)
  - Targeted: MI, HF, COPD, PNA, THA/TKA
  - Implemented reimbursement penalty for 30 day readmissions
    - according to a *Kaiser Health News* analysis of the latest data, CMS under HRRP will withhold $528 million in payments over fiscal 2017

Comparison of Clinical pharmacy services

Clinical Service	ROI of FTE Pharmacist (Adjusted to 2016 dollars)
Decentralized Clinical Pharmacist in collaborative team	$783,646
Pharmacist in ICU	$384,121
Pharmacist Kinetic dosing medications	$379,330
Pharmacist run TOC program	$786,529

TOC AT PROVIDENCE

PAMC pharmacy transitions of care program

- Target populations: "High risk" index, COPD, anticoagulation
- We started with admission med rec
  - Took ~1 year to get the 2.4 FTE techs all trained and in place
  - We wanted to get admission established before moving to discharge
  - In 2014 we expanded the PGY-1 from two to four residents
- 3 month trial of a TOC pharmacist focusing on DC med rec – Nov 2, 2015 through Jan 31, 2016
  - Discharge med rec, Education, Rx assistance
    - Work flow
    - Establish processes and procedures
    - Challenges, barriers
    - Supervise and guide technicians
      - Also the primary for changes to PTA medications for patients within target
- Then added one extra clinical pharmacist to bring the total to seven
  - Expectations was that the TOC services still get covered
- TOC didn't get covered by the decentralized services so we went back in Nov 2016

What is a good medication history

- Make a good faith effort to obtain the best possible medication history (complete & accurate list of medications which can be used to safely create medication orders)
  - Attempt to use at least two reliable sources (patient or caregiver, Rx vials, tx MAR, o/p Rx, out-patient provider office) of information
  - Before conducting patient interview, try to obtain medication list(s) & compare to PMH & HPI to identify any possible errors.
  - Patient / caregiver interview
    - Determine best source of information (patient vs. spouse vs. caregiver)
    - Use open ended questions
      - » How many times a day do you take _____?
      - » Do you take anything for _____?
      - » What eye/ear drops, inhalers, nasal sprays, patches, creams/ointments do you use?
      - » How often do you use ______? When was the last time you used _____? (for prn medications)
      - » What samples, OTCs, or herbals do you use?
      - » What medications have recently been changed?
      - » Address discrepancies between Rx sig & how patient takes
        - Self prescribed (d/t side effect, cost, lack of efficacy, etc.) vs. PCP instruction
- Update information in EPIC PTA medications
  - Use the Medication Notes (white paper icon) to include extra information (i.e. discrepancies between Rx sig & how patient takes, etc.)
  - Update the PTA Medication List Status appropriately
  - Update PTA Medication List Comments with the source of information
  - Click Save Changes
- Write a progress note
  - At minimum includes:
    - Prior to admission medication list (@PTAMEDS@)
      - » To alter the chart contents (i.e. remove columns, update content):
        - Right click & choose MAKE SELECT TEXT EDITABLE
    - Pertinent discrepancies between prior to admission med list & in-patient med list
    - Sources of information

Technician contribution PAMC

- First contact for targeted patients
- Obtain best possible medication history (at least 2 reliable sources as able)
- Enter updated medication list into EPIC
  - Document changes made to the PTA list in the EMR
- Contact appropriate Pharmacist & provide them with collected info (med list from out-PT Rx, family, tech notes, etc.)
- Follow-up on any questions pharmacist may have to ensure medication history is correct
- Notify ED physician, when applicable (patient in ED not getting admitted or significant error found & admitting physician not seen patient yet), of changes to home medication list.
- Average time spent by the Tech is ~40 min/patient

Pharmacist finishes it up

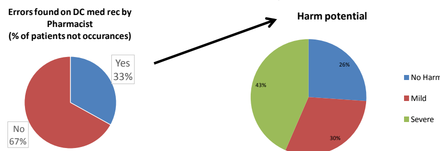
- Assist technician in troubleshooting
- Review info collected by technician
  - Work with technician to resolve errors / clarify.
  - Notify technician of any changes you made to the med list.
- Assist technician on whether or not they need to notify ER MD (significant error found & admitting physician not seen patient yet).
- Cosign technician progress note - Write progress note to include changes to PTA medication list, changes made by pharmacist to active inpatient orders, changes not made to active inpatient orders and why
- Contact appropriate provider when applicable to address changes not addressed
- Average time spent is ~20 min (down by over 10 min thanks to P&T)

Discharge med rec

- Discharge med rec, think of it as closing the loop
  - New medications started?
  - Changes to PTA meds during the admission?
  - Medications stopped?
  - Correct community pharmacy for discharge prescriptions
  - Are they discharging to: Another hospital, SNF, ALF, home?
  - Are their chronic diseases appropriately managed?
  - Medication education
  - Assist in care coordination (Rx assistance, prior authorizations, …)

After Visit Summary (AVS)

Errors found on D/C



- From the graph 43% of errors had the potential for severe harm and 73% of errors had the potential for any harm

Admission List Discrepancies At PAMC

- ~250 PTA medication history and reconciliation completed by Rx per month
  - Of those ~92% contained at least one error
    - ~1300 medications that are inaccurate or incorrect
      - Additions ~350 per month
      - Deletions ~380 per month
      - Changes ~600 per month
    - Estimated monthly cost of these inaccuracies
      - Cost to PAMC: ~$8000
      - Cost to patients: ~$60,000

From May 2016 P&T

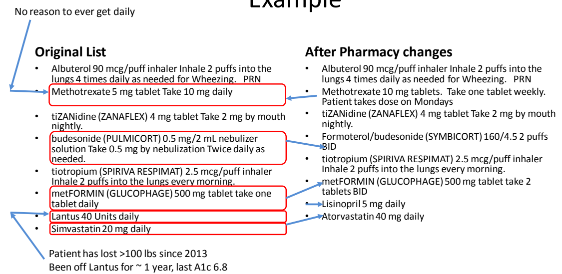
On admission Pharmacist on admission can

- Change doses, frequency and formulation of non-injectable products
- May discontinue ordered medications if they were not taking them prior to admission and there is no clinical reasoning for the medication.
- Pharmacist will continue to enter a progress note in EPIC regarding all changes.
- Pharmacist will use clinical judgment regarding all changes.
- Pharmacist will communicate with the provider around PTA medications that were not ordered from the PTA list on admission or medications that were adjusted even if the medication that was adjusted was incorrect on the PTA list.

Pharmacist on Discharge can

- Upon discharge the pharmacist may correct discrepancies between the DC summary, AVS and discharge prescriptions.
  - Correct AVS if medications were continued based on an incorrect PTA med history
  - Correct AVS based on DC summary or prescriptions
  - Change discharge prescriptions based on provider progress notes or DC summary
  - Add/remove medications on the AVS based on DC summary and discharge Rx's not done in EPIC
  - Change delivery method of the prescription and location of DC prescriptions based on patient preference
  - Pharmacist will NOT order discharge prescriptions without provider approval
  - Pharmacist can call out patient pharmacies to cancel refills of medications that were stopped at discharge when applicable.

Example



Case

- 64 YOM admitted for recurrent seizure admitted December 2016
  - Was also admitted for the same with hospital stay of 4 days and discharged ~5 weeks prior to this admission.
  - Last admission Phenytoin was increased from 100 mg TID to 200 mg BID and Depakote DR was increased from 125 mg morning and 250 mg night to 250 mg BID
    - Hospitalist discharged Patient with 30 day supply no refills and went via eRx to the patient's community pharmacy
  - After he used the 30 day supply of dose increase received a call from his pharmacy stating his refill was ready for pickup
    - However this was his "Old doses" that were on auto refill from a Rx from Feb 2016
  - Patient unintentionally went back on the lower doses and seized again this time spent 14 days in the hospital this time also complicated and was treated with IV antibiotics for healthcare associated aspiration pneumonia.
- Cost of admission ~$70,000

Discharge Case

- 71YOF 5'1", 44 kg presents to ED w/ worsening HA, N/V
  - Pharmacy didn't do PTA med history or med rec
  - Appears she had a course of Levaquin and Nitrofurantoin
- PMH
  - Liver transplant 2009, Kidney transplant 2014 (BL SrCr ~1.3)
    - Tacro, prednisone and Mycophenolate
  - Recurrent UTIs w/ E. Coli R to Cipro
  - h/o DVT (just ASA), HTN, Asthma, reflux
  - Allergies:
    - Keflex, AG, PCN – All anaphylaxis; Sulfa – Jaundice; Erythro – Rash
- Vitals and Labs
    - BP: 145/76, Pulse: 78, 98% on RA
    - WBC: 11.8, SrCr 1.27, CrCl ~30 mL/min

In the ED (12/24 Day 1)

- From ED MD Note
  - *CT scan of the headache was negative ED MD discussed with Neuro patient declined lumbar puncture.*
  - *In addition the patient does have a urinary tract infection, and initially she was tried on oral medications, but continued to have vomiting, and given that she is immunocompromised, does have both a renal and liver transplant, and has spent a considerable amount of time in the emergency Department with persistent symptoms*
  - *I felt it was best to admit the patient for IV antibiotics and further monitoring. I discussed this with Dr. who is covering the nephrology service who has agreed to admit the patient. The patient is aware of the plan of care and agrees to be admitted*
  - She received LVQ 750 mg IV once 12/24@2340
- ED MD did put in Rx for LVQ 750 mg daily #7 initially before decision to admit

Again: 71YOF, 5'1" 44 kg
Kidney transplant, BL SrCr ~1.3
H/O UTIs with FQ R E. Coli

Nephrology H&P (12/25 Day 2)

- *HA: DD: Migraine, Meningitis, Tension headache, Narcotic withdrawal headache: She has refused to have LP done. She had nausea and vomiting and also had low grade temp. She is non-focal neurologically with no vision changes. She does not have nuchal rigidity. Clinical suspicion for meningitis is low*
- *UTI: Urine culture sent. She was given one dose of Levaquin 750 mg. Previous urine culture grew E.Coli resistant to Cipro. Most likely has multi-resistant bacteria as she has a history of recurrent UTIs. Will continue iv fluids. Await urine culture result. Blood cultures sent. She is hemodynamically stable.*
- *ESLD due to PBC; s/p liver transplant: On Tacro, prednisone and Mycophenolate. No adjustments. Check Tacro level.*
- *ESRD due to calcineurin inhibitor toxicity; s/p DD renal transplant in 11/2014: on the above meds. Creatinine is stable and at baseline.*
- No Labs done, no ABX given

Time to go Home (Day 3 of stay)

- Dx: Headache; likely migraine precipitated by stress/overwork
- Labs: SrCr 1.82, CrCl ~19 mL/min, WBC 6.6
- Chronic UTI; Urine culture sent on 12/24 Cx pending
  - UA:10-20 WBC, 1+ LE, Nitrate (+), Bacteria 1+
  - No Mention of ABX?
- AVS:
  - Printed 12/24 in ED
  - Printed 12/26@0743
- DC Med rec
  - Done 12/26@0839

Again: 71YOF, 5'1" 44 kg
Kidney transplant, BL SrCr ~1.3

And returns 5 days later

- Now with Pylonephritis
  - WBC: 18.6, SrCr: 1.82
  - ID consult - > Azteronam
  - Urine Cx (+), Blood (-)

Culture

>100,000 CFU/ml Escherichia coli

10,000 CFU/ml Gram Negative Rods
Sensitivities performed on predominant organism only

Susceptibility

	Escherichia coli VITEK	
Amoxicillin + Clavulanate	4 ug/mL	**Sensitive**
Ampicillin	8 ug/mL	**Sensitive**
Ampicillin + Sulbactam	4 ug/mL	**Sensitive**
Ceftriaxone	<=1 ug/mL	**Sensitive**
Cefuroxime axetil	8 ug/mL	**Intermediate**
Cephalothin	16 ug/mL	**Intermediate** [1]
Ciprofloxacin	>=4 ug/mL	**Resistant**
Gentamicin	<=1 ug/mL	**Sensitive**
Levofloxacin	>=8 ug/mL	**Resistant**
Nitrofurantoin	<=16 ug/mL	**Sensitive**
Piperacillin + Tazobactam	8 ug/mL	**Sensitive**
Tobramycin	<=1 ug/mL	**Sensitive**
Trimethoprim + Sulfamethoxazole	>=320 ug/mL	**Resistant**

[1] Cephalothin can be used to predict the activity of Cephalexin.

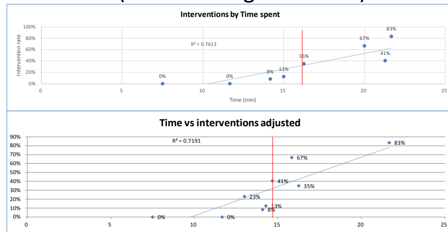
Where Pharmacy fits in to this one

- A pharmacist documented that they did a discharge medication reconciliation with this patient.
- Just like with admitted patients on discharge make sure everything makes sense.
  - h/o FQ resistant E. Coli -> got LVQ (ant incorrect dose and duration)-> no mention of ABX or clear plan in MD notes -> sudden ABX Rx on DC and no mention in DC summary
- There were a opportunities for pharmacist intervention but the DC med rec was the last line
- This re-admission most likely could have been prevented, although she possibly would not have left the hospital
- Liability issues around this?

Challenges

- Time and resources
  - Admission
    - Average tech time ~45 min for history
    - Average Pharmacist time for med rec ~20 min
    - It takes ~1 hr for the whole process
  - Discharge
    - Time for discharge med rec: Mean= 19.7 min, med= 20 min, Range 5-120 min
    - Time for education: Mean ~35 min, range 10-60 min
    - It takes ~1 hr for the whole process

Time spent (not including Education)



Patient complaint 82 YOF

- Pt age 82 called, she is concerned that each time she comes into the hospital over last few visits, she has given to nursing a list of the medications and dosing she takes at home.
- Her last pre op clinic visit she said she even brought in her medications from home.
- It appears to her that each time she is discharged the list of medications or dosing is incorrect and not want she takes.

82 YOF

- 5/2014 – Admitted 2 nights for fall and hypotension
- 4/2015 – Admitted 1 night cardioversion
- 5/2015 – seen in ED Heart Palpitations, not admitted
- 5/2015 – Seen in Pre OP clinic then admitted one night for ablation
- 11/2015 - admitted 1 night through ED for chest pain (Pharmacy did med history, note entered not fixed before DC)
- 3/2016 – admitted 2 nights for pacer (Pharmacy did med history, note entered not fixed before DC)

82 YOF med – same since 2014

- Eplernone 50 mg tab --her list stated she takes 1/2 tab in am and 1/2 tab in pm.
  - The document listed as : Take 25mg 1 x daily
- Seduxostat (Uloric) 40mg tab --new med only taken for 3 days so far, takes 1/2 tab
  - The document listed as : Take 40mg by mouth daily
- Nexium 20mg capsule, 1 x per day.
  - Document lists Nexium 40mg packet, daily
- Flomax-she takes 0.4 mg tab 1 x per day.
  - Document lists 0.4mg by mouth 2 x daily
- Warfarin (Coumadin) 1mg by mouth 1 x day
  - Document admin instructions read : 2mg daily, and 1 mg Sat & Sun.
- BenicarHCT 40/12.5mg once daily
  - Hasn't taken since 2014

Looking forward

- Expanding to the ED
- Pharmacy Residents
  - Current PGY-1 project is on pharmacy TOC impact on LOS and re-admission
  - Cover TOC pharmacy service weekends
  - Provide TOC services to the services they are rotating through
- Student Pharmacists
  - Ramping up the number we take
    - We are up to ~60 APPEs/Year, and did about half that 4 years ago
  - What is being done nationally
  - More patient education on discharge
  - Follow up calls

So where do we go?

- Pharmacy – Medications, it's what we are good at
- In hospital
  - Educate staff: Providers, nursing, case management, social work,…
  - Be proactive, not reactive
    - When home meds are corrected on admission less work is required down stream
  - You have to start somewhere
    - Ignoring the problem won't make it go away

So where do we go?

- Pharmacy – Medications, it's what we are good at
- In the community
  - Prescriptions from a hospital? Assess changes
    - Dose Changes
    - Therapy class changes
    - Stopped medications

References

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