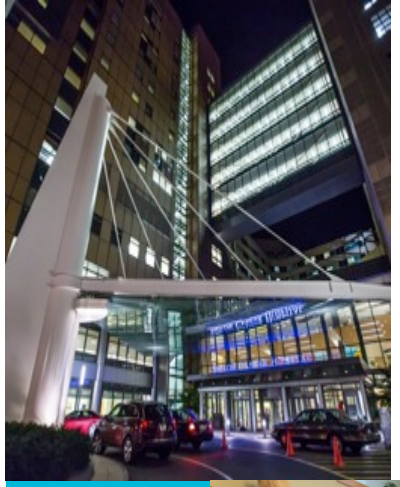
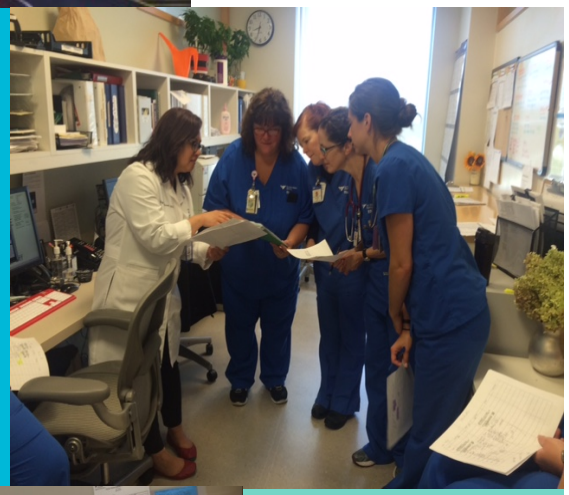
UTILIZING INFORMATION TECHNOLOGY TO IMPROVE ADHERENCE AND QUALITY OF CARE FOR PATIENTS ON ORAL CHEMOTHERAPY

NCODA Forum 3/3/2018

2018 NCODA Spring Forum

Who are we - Smilow Cancer Hospital





- Nationally recognized 1541 bed Yale New Haven Hospital
  - Smilow Cancer Hospital
    - 168 inpatient beds
    - 150 infusion chairs
  - One of 69 National Cancer Institute (NCI) Designated Cancer Hospitals
  - One of 27 National Comprehensive Cancer Network Hospitals (NCCN)
- Smilow Cancer Hospital Care Centers and Network
  - **12 Cancer Hospital Care Centers throughout Ct.**
  - **4 Community Hospitals**
- Oncology Pharmacy Staff – 126 fte's
- 160+ Oral Chemotherapy Rx's /week
- 174,132 chemotherapy doses compounded in FY 2017
- Over 500 open Investigational studies in Phase 1,2 &3

2018 NCODA Spring Forum

Oncology Pharmacy Practice Model

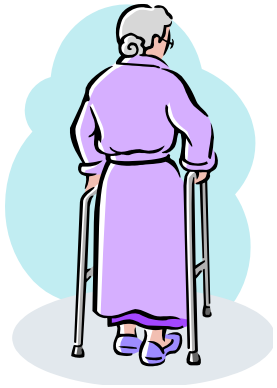
- Patient-centered, integrated model:
  - Collaborative practice - Clinical Pharmacists practice on oncology disease teams proactively assisting with medication selection, treatment plans, order verification, quality improvement, education
  - Pharmacy Technicians are well-trained and highly functional and manage distribution logistics
  - Use innovative technology to fully achieve optimal deployment of pharmacist and technician resources
    - Telepharmacy
    - EMR (Epic)
    - Automated Dispensing
    - IV Workflow
    - Robotics

Oral Chemotherapy

- Global costs of oncology therapeutics and supportive care medicines increased 11.5% in 2015 to $107 billion
- Use of oral chemotherapy is increasing
  - 25% - 30% of new cancer drugs in development
  - 50%-60% of oncologic drugs will be filled by specialty pharmacies

IMS Health Study: Global Market for Cancer Treatment Grows to $107 billion, Jun 2, 2016 - The study—Global Oncology Trend Report:

When we prescribe oral chemotherapy we shift much of the responsibility of managing the regimen from the oncology team to the patient



2018 NCODA Spring Forum

Background

- Oral chemotherapy are considered hazardous drugs
- There are multiple opportunities for error
- ASCO QOPI certification identifies oral chemotherapy patient monitoring and **adherence** as a mandatory requirement
- Monitoring and managing adverse effects, and assessing and addressing adherence is complicated
- Poor adherence to prescribed regimens can result in serious health consequences

So What is Adherence?

- Medication adherence refers to the extent of the patients conformity to treatment recommendations with respect to the timing, dosage, frequency, and duration of a prescribed medication
  - Poor adherence to prescribed regimens can result in serious health consequences

The Adherence Problem

One published study on medication non-adherence found that :

- 62% of patients forgot to take a medication,
- 37% had run out of the medication
- 23% were careless about taking the medication

- Clearly there is an opportunity for improvement

Unintentional non-adherence to chronic prescription medications: How unintentional is it really?
Abhijit S Gadkari and Colleen A McHorney; BMC Health Services Research201212:98

The Adherence Problem

- Medication non-adherence has important health consequences, ranging from decreased quality of life and poorly managed symptoms to morbidity and death.

- Medication non-adherence is associated with societal costs. Upwards of $300 billion of avoidable health care costs have been attributed to medication no-adherence annually in the U.S.
  - comprising up to 10% of total health care costs

Engaging Patients to Optimize Medication Adherence, Leah L. Zullig, PhD, MPH & Hayden Bosworth, PhD
Duke University; Durham Veterans Affairs Medical Center, NEJM Catalyst, May 14, 2017

The Adherence Problem

- Historically, oral chemotherapy prescriptions have been filled by for-profit Specialty pharmacies, often located far from site of patient care.
  - Lack of documentation of prescription or refills in our health record
  - No formal documentation or process for patient education
  - Often didn't know when our patients started treatment
  - Patients had long delays in receiving drug

Stakeholder Analysis – Developing a Process Improvement Plan

- Surveyed clinical staff to identify barriers, current process and identify gaps:
  - 111 responses from MD, APP, RN, Pharmacists
    - Identified 87 gaps and risk points
- Surveyed patients (N=39) to identify issues and challenges
  - Patients didn't understand dosing instructions up to 33 percent of the time
  - 66% of pts did not take their medications as prescribed
- Created a multidisciplinary task force to develop a program for patients prescribed oral chemotherapy

Gaps and Risk Points Identified
The Adherence Problem

Ordering oral chemotherapy drugs often takes about 10 days from the initial Rx to the patient.

2018 NCODA Spring Forum

Gaps and Risk Points Identified
The Adherence Problem

- Delivery of drug from specialty pharmacies

- Ordering oral chemotherapy drugs often takes about 10 days from the initial Rx to the patient
- Concern about proper storage

2018 NCODA Spring Forum

Gaps and Risk Points Identified
The Adherence Problem

Non-adherence results in:

1) Increase in hospital readmissions
2) Increase in patient morbidity

2018 NCODA Spring Forum

Gaps and Risk Points Identified
The Adherence Problem

1. Patients often forget to take their medications
2. Many patients indicate that taking medications according to health providers instructions is challenging

2018 NCODA Spring Forum

Stakeholder Analysis - Creating a Charter

- Patients prescribed oral chemotherapy should be supported, educated and monitored to ensure access, monitor adherence to regimens and to identify and address potential toxic effects
- Oral chemotherapy should be treated with the same vigilance and rigor as any other chemotherapy
- Use Information Technology to improve adherence, education, and toxicity monitoring

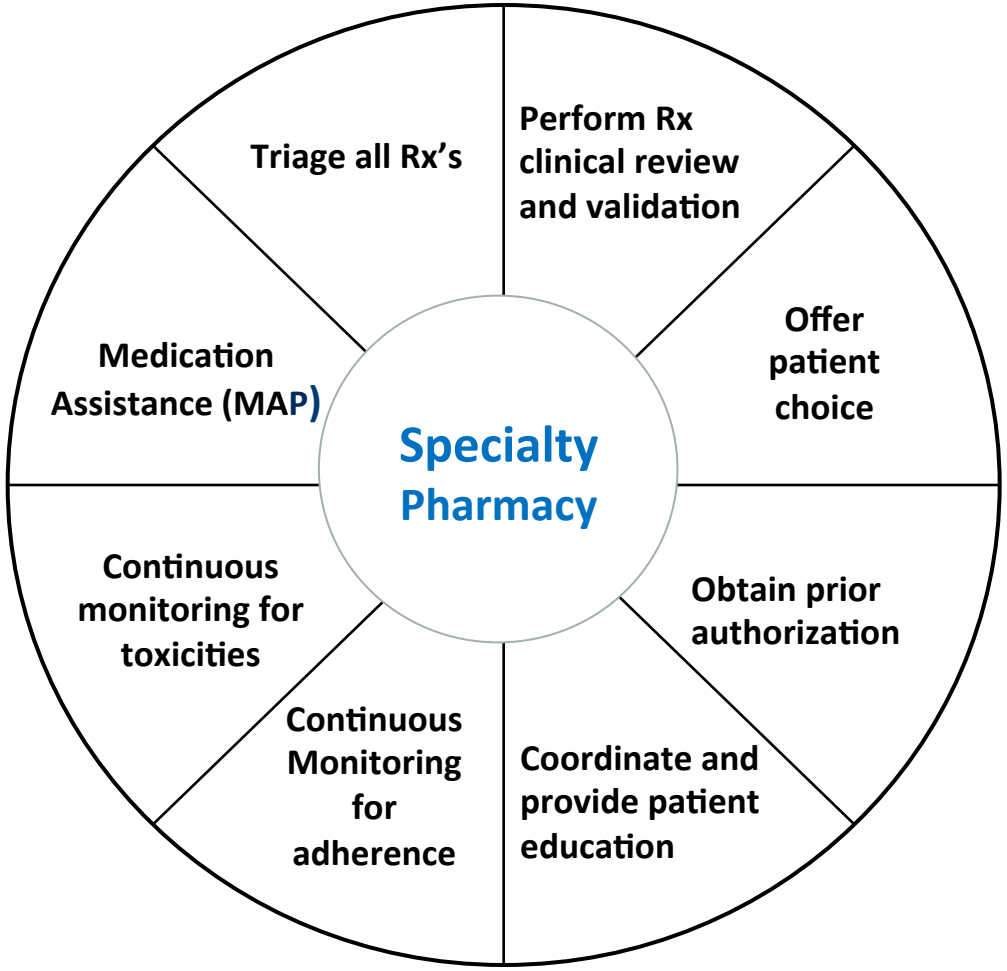
2018 NCODA Spring Forum

Opportunity

- Although challenging, the scenario creates opportunities for the development of an owned specialty pharmacy to fill the gap by providing patient monitoring and counseling, and facilitating the integration of care through proper documentation in the EMR and closer communications with physicians and other providers.

- Expands pharmacists role throughout the continuum of cancer care.

Created a Specialty Pharmacy that Serves as the HUB for all Oral Chemotherapy Rx's



2018 NCODA Spring Forum

New Current State

- MD prescribes in Epic oral chemotherapy via treatment plan

- EMR prescription triggers an inbasket message to the Clinical Oncology pharmacist staff who performs a clinical verification of the order the same way as done for intravenous chemotherapy

- The verified order is sent to the Specialty pharmacy

- Specialty Pharmacy then serves as “hub” to oversee the oral chemotherapy prescription. They contact patient to determine where they would like to fill prescription
  - Complete prior authoriztion, schedule and provide pt education, fill prescription and either mail, deliver or patient pick up. Develop plan for day 5 and day 21 patient monitoring.

    OR
  - Transfer to designated specialty or local pharmacy

Using IT to improve patient adherence

1) Epic EMR

- Integrating Epic into the oral chemotherapy care model was a critical step
- Epic serves as the source for ordering, entering, storing and communicating all oral chemotherapy information
- Limit ordering to standardized and clinically built order sets (treatment plans)

Oncology Pharmacy and Hospital developed Oral Chemotherapy Treatment Plans in Epic

- Afatinib (Gilotrif)
- Afatinib (Gilotrif) + OP Cetuximab
- Aletretamine (Hexalen)
- Axitinib (Inlyta)
- Bosutinib (Bosulif)
- Capecitabine (Xeloda) BID x 14 days every 21 days
- Capecitabine (Xeloda) BID 7on/7off every 28 days
- Capecitabine (Xeloda) 625mg/m2 BID continuous/
- Bevacizumab 7.5mg/kg every 21 days
- Capecitabine (Xeloda) + XRT
- Capecitabine (Xeloda) + OP Oxaliplatin
- Capecitabine (Xeloda) + OP Trastuzumab
- Ceritinib (Zykadia)
- TH/OP EOX (TH capecitabine (Xeloda), OP Epirubicin, OP Oxaliplatin)
- Chlorambucil (Leukeran)/OP Obinutuzumab
- Lapatinib (Tykerb) + TH capecitabine (Xeloda)
- Chlorambucil (Leukeran)/OP Obinutuzumab
- Crizotinib (Xalkori)
- Cyclophosphamide PO daily (Cytoxan)
- CYborD (Cyclophosphamide (Cytoxan)
- Dabrafenib (Tafinlar) + Trametinib (Mekinist)
- Dabrafenib (Tafinlar)
- Dasatinib (Sprycel)
- Erlotinib (Tarceva)
- Erlotinib (Tarceva) + OP gemcitabine
- Etoposide (Vepesid)

* Over 130 treatment plans developed in Epic

Epic Oral Treatment: Prescription

Treatment Plan Manager - TH Erlotinib / OP Gemcitabine

? Resize Close

Save | Restore | Add Future Plan | Advance to Next Plan | Discontinue Plan | Put Plan On Hold | Add/Remove Views | Send Plan | Pharmacy | Cumulative Dose Tracking | Calculator

TP Weight: **68 kg** +0.0 % **17d ago** | TP BSA: **1.83 m2** +0.0 % Height: 17d ago | CVS CAREMARK MAILORDER ELEC...

Add | Modify Dose | Show

Oral Chemo - Provider: Do Not Release – 7/5/2017, Planned — Sign | Actions

Oral Chemo - Provider: Do Not Release – Planned for 7/5/2017 — Sign | Actions

Nursing Orders — Sign | Actions

Oral Chemotherapy - Pharmacy to Release — Sign | Actions

Communication to Provider — Sign | Actions

The standard starting dose of Erlotinib is 150 mg daily for NSCLC and 100 mg daily for Pancreatic Cancer.

Erlotinib is available in the following strengths: 25 mg, 100 mg and 150 mg tablets.

If a combination of strengths are needed to achieve a total dose, please add a separate order for each strength needed.
Please discontinue the orders for the strengths that are not needed.

erlotinib (TARCEVA) 100 MG tablet — Sign | Actions

Take 1 tablet (100 mg total) by mouth daily.. Take on an empty stomach at least one hour before or two hours after the ingestion of food.
Normal, Disp-30 tablet, R-0

Cycle 1 – 7/6/2017 through 8/2/2017 (28 days), Planned — Sign | Actions

Day 1, Cycle 1 – Planned for 7/6/2017 — Sign | Actions

Day 8, Cycle 1 – Planned for 7/13/2017 — Sign | Actions

Day 15, Cycle 1 – Planned for 7/20/2017 — Sign | Actions

Advance prescription for next cycle's take-home chemotherapy., Cycle 1 – Planned for 7/26/2017 — Sign | Actions

2018 NCODA Spring Forum

Using IT to improve patient adherence

2) Epic EMR Tools

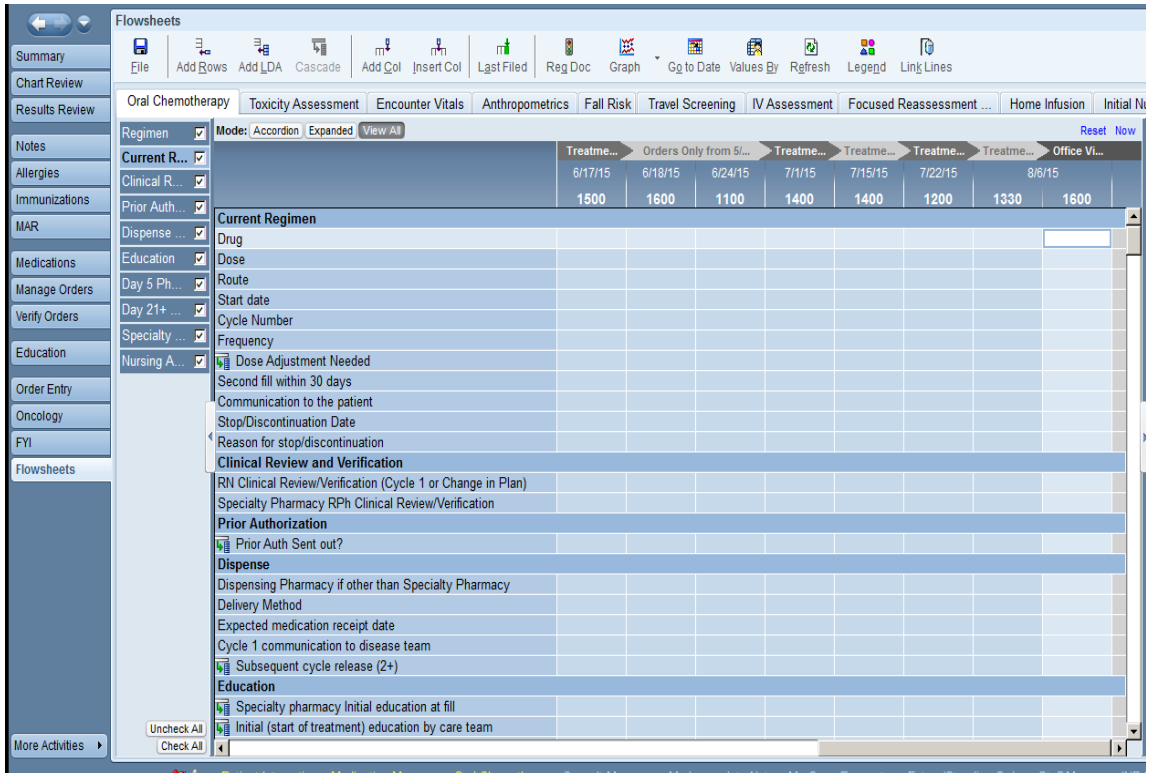
- Created Epic EMR tools to assist with ordering and prescribing and patient education of Oral Chemotherapy.
  - Disease Team Specialty Pharmacy Contact List
  - Patient calendar
  - EPIC Tips & Tricks
  - Epic trainer
  - Standardized drug patient education sheets

Using IT to improve patient adherence

3) Developed Multidisciplinary Chemotherapy Flowsheet

- Clinical Pharmacists directly communicate with physicians and other healthcare providers and document in the hospital EHR flowsheet.

- APRN
- Practice Nurses
- Pharmacy Staff



2018 NCODA Spring Forum

Using IT to improve patient adherence

4. We use IT to provide information at the point of care to increase adherence
5. We use IT to provide pharmacy with accurate counts of medication dispensed allowing pharmacist determine if patient is taking oral chemotherapy as prescribed
6. We use IT to identify patients at risk for non-adherence and to target interventions to improve adherence
7. We use IT to provide medication specific messages that can
   - Address care gaps
   - Monitor toxicities
   - Identify non-compliance issues
   - Identify other pt drugs that might interfere or cause adverse events

Key Takeaways

- Key Takeaway #1 - Oral chemotherapy are considered hazardous drugs
- Key Takeaway #2 –When we prescribe oral chemotherapy we shift much of the responsibility of managing the regimen from the oncology team to the patient
- Key Takeaway #3 - Poor adherence to prescribed regimens can result in serious health consequences
- Key Takeaway #4 – Utilizing Information Technology (IT) can be used to improve adherence to oral chemotherapy and quality of care

2018 NCODA Spring Forum

Thank You

Howard Cohen RPh, MS, FASHP

howard.cohen@ynhh.org

(203) 688-8584

2018 NCODA Spring Forum