INDIVIDUALIZING MEDICATION REGIMENS

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OBJECTIVES

- Understanding the long-term care medication industry, the effects of polypharmacy, particular concerns relating to medication use in the elderly and federal tag F329
- Identifying effects on the aging body on medications
- Educating and communicating residents and families about medications and creating a team approach to individualizing a medication regimen
- Creating a choice, knowing the meds, personalizing PRNs, managing medication distribution times, and assessing

1-800-BAD-DRUG

NO STRANGERS TO MEDS… ALWAYS IN THE NEWS

- Drug Companies Boosted Their Prices, Analysis Finds *NBCNews.com* - … Extraordinary price hikes by two small *companies*, Turing *Pharmaceuticals* and Valeant…
- **Global 2000: The Biggest Drug Companies Of 2015** *Forbes*
- *http://www.theguardian.com/business/pharmaceuticals-industry*

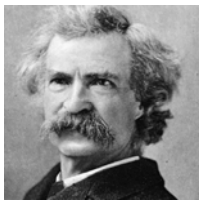
New Drugs Approved by the FDA in 2014

Exhibit 2

Therapeutic category	No of drugs approved	Percent of total	New modes of action
Infectious diseases	12	27%	4
Cancer	8	18%	4
Rare diseases	5	11%	4
Endocrine System	4	9%	0
Nervous System	4	9%	1
Hematology	4	9%	0
Respiratory	3	7%	2
Cardiovascular	1	2%	1
Digestive System	2	5%	0
Immune system	1	2%	1

Source: Calculated from FDA data

Source: *Forbes*, January 2, 2015



"There are three kinds of lies: lies, damned lies and statistics"

- Mark Twain

Startling Statistics

- 10.7% of hospital admissions in older adults are associated with adverse drug reactions (ADRs)
- Older adults are 2.5 times more likely to visit an emergency room due to an ADR than younger individuals
- ADRs cause over 100,000 deaths per year in the United States, making ADRs the fourth leading cause of death in the United States
- Warfarin, insulin and digoxin together account for over 1/3 of emergency department visits for ADRs among older adults
- About 1 in 3 older persons taking at least 5 medications experience one adverse drug event each year, and about 2/3 of these patients will require medical attention

More Statistics

- Elderly comprise 13% of the population
- Elderly use 25-30% of all prescription medications
- *75% of older adults take a prescription medication*
- *25% of older adults take 5 or more medications on a regular basis*
- Elderly use 5.8 prescription drugs concurrently with 3.2 OTC meds

Concerns with Medications in the Elderly

- Compliance/Adherence
  - Overuse/Underuse
  - Unclear medication regimen
- Polypharmacy
  - Treatment of side effects/symptoms vs treatment of the diseases
  - Multiple physicians including multiple specialists
- ADRs
  - Attributing adverse medication effects to "normal aging" or a new illness
  - Underreporting symptoms or atypical symptoms
  - Drug interactions
- Physiological changes with aging
  - Drugs affect the elderly differently

Compliance/Adherence (Community)

- Reasons for noncompliance
  - Lack of understanding
    - About disease state
    - About dosing regimen
    - About perceived need
    - About health in general
  - Cost
  - ADRs
  - Social Stigmas

"Do you solemnly swear to listen to my advice?"

Compliance/Adherence (Community)

- Discrepancies between the medical record and actual medication use
  - 76% had discrepancies
  - 51% taking a medication not noted in the chart
  - 29% not taking a medication that is noted in the chart
  - 20% taking a different dose than recorded

Medication mismanagement and its resulting problems is the

#1 REASON

patients are admitted into a nursing home

Some types of Medication Adherence problems

- Resulted in an adverse medical event
- Patient can no longer take medication appropriately

COMPLIANCE/ADHERENCE (FACILITY)

DO WE HAVE PROBLEMS WITH COMPLIANCE IN THE NURSING HOME?
"OF COURSE, JUST NOT IN MY HOME."

- Staffing issues/irregularities
- Insurance/billing issues
- Packaging issues
- Order clarification/discrepancy issues
- Family issues
- Med Pass timing issues

POLYPHARMACY

- More chronic medical conditions means there are more medications
- Patient and prescriber's need to "do something" even if no cure
  - Patients go to the Doctor now expecting a pill. They "need to get my money's worth out of this doctor's visit.
  - Ex: Bronchitis (usually viral, but most cases get an antibiotic)
- Doctor shopping – if one doctor doesn't tell you what you want to hear, find another one that will
- Self medicating
  - OTCs/herbals
  - "Borrowing" from a friend
- Medications being prescribed to treat the side effects of another medication

PRESCRIBING CASCADE

- Medications are prescribed to treat the side effects of other medications, which in turn, need medications to treat their side effects
- Each medication added forms a new layer adding to the complexity of the patients medical situation

POLYPHARMACY

- Sometimes the best solution to a patient's medical problem is not to add another drug, but to begin removing some
- Ex: hospice patients

ADVERSE DRUG REACTIONS

- Any unintended, unwanted, harmful or unexpected effect of a drug
- 28% of hospitalizations in the elderly can be attributed to ADRs (18%) and non-adherence (11%)
- Up to 1/3 of elderly outpatients experience ADRs
- Up to ½ of elderly in the hospital experience ADRs
  - Think new admission after anesthesia now on psych med – NOT psych issue, ADR issue
- ADR risk doubles when increase from 1 to 4 drugs, increases 14 fold in elderly who use 7+ drugs

ADVERSE DRUG REACTIONS IN THE SNF

Per an Office of Inspector General report:

- 20% of SNF residents experienced at least one adverse event
  - Of these, 37% were related to medications
- 66% of medication related adverse events preventable because the events often occurred due to substandard treatment or insufficient monitoring

CAUSES OF ADRS

- Improper drug or dosage selection
- Non-adherence
- Multiple medications
- Multiple providers who don't know what another provider has prescribed
- Altered pharmacokinetics of the patient

ADR Risk Factors

- Female
- Age (>85)
- Live alone
- Low body weight
- History of ADR
- Regular alcohol use
- Recent hospitalization
- Dementia
- Renal insufficiency
- Hepatic impairment
- Multiple prescribers
- Long duration of use with no change
- Multiple chronic diseases
- Polypharmacy

Clinical Pearl

Any symptom in an older adult should be considered a drug side effect until proven otherwise!

- Fall
- GI distress
- Incontinence
- Constipation
- Depression
- Anxiety
- Mental status change/confusion
- Insomnia

Common ADRs in the Elderly

- Falls
  - Sedative/hypnotics, anticonvulsants, anti-hypertensives, antipsychotics, anti-neoplastics, hypoglycemics
- GI Distress
  - Aspirin, NSAIDs, iron, theophylline, lipid-lowering agents, antibiotics
- Incontinence
  - Caffeine, diuretics, theophylline, alcohol, sedative/hypnotics

Common ADRs in the Elderly

- Constipation
  - Verapamil/diltiazem, antipsychotics, antidepressants, narcotics, diuretics, antacids, anticholinergics
- Confusion
  - Any CNS agent, anti-Parkinson's agents, digoxin, metoclopramide, beta-blockers
- Depression
  - Beta-blockers, sedative/hypnotics, hormones, NSAIDs, digoxin, metoclopramide
- Anxiety/Insomnia
  - Caffeine, theophylline, SSRIs, decongestants, steroids

Drug Interactions

- Far too many to list
  - 2 medications = 13% risk
  - 5 medications = 38% risk
  - 7+ medications = 82% risk
- Preventable drug interactions account for about 1/3 of ADRs
- Nearly impossible to know exactly what is interacting and how when multiple meds are being given to someone
  - No one has ever studied that specific combination of medications in that specific patient; this is why we call it the "practice of medicine"

Potentially Inappropriate Medications

- Beer's Criteria
  - Published in 1991, list provides a list of medications and classes of medications that should generally be avoided in people 65 years or older because they have an unnecessarily high risk/benefit profile.
  - Also provides a list of medications to be avoided when a patient has a specific condition
  - Updated in 1997 and again in 2003
- This became the historical basis for F329
  - As of March 25th, not anymore
  - No more medication tables

Physiological Changes with Aging

- Pharmacokinetics
  - How the body affects the drug (or the management of the drug by the body)
  - Absorption, Distribution, Metabolism, Excretion

NOTE: These are not universal truths. Everyone is different, and every body ages differently. The following are generally accepted truths but should be used as guidelines only.

Pharmacokinetic Changes: Absorption

- Changes
  - Decrease surface area and blood flow to GI
  - Decreased GI motility
  - Increased pH
- Result
  - Depends on the drug
    - Drugs needing a low pH for absorption will be less absorbed, drugs needing a high pH will be more absorbed
    - Some highly lipophilic drugs will increase absorption due to decreased GI motility as they are in the GI tract longer resulting in a longer absorption time

Pharmacokinetic Changes: Distribution

- Protein Binding
  - As we age we have less albumin
    - Albumin binds drugs
    - Many SNF residents are sick and/or malnourished resulting in a further reduction in albumin
    - Result is a lower dose needed for the same effect
      - Albumin bound drugs are not active, the less albumin the more drug is free and thus active
  - Examples
    - Digoxin, Phenytoin, Warfarin, Diazepam

Pharmacokinetic Changes: Metabolism

- Reduced hepatic blood flow
  - Lower blood flow results in a reduced amount of drug that passes through the liver during first pass. This in turn results in an increased bioavailability of that drug
- CYP450 – change as we age
  - Major issue with polypharmacy and the interaction of drugs
- Drugs affected
  - Calcium channel blockers, beta blockers, narcotic, nitrates, tricyclic antidepressants, hydralazine, labetalol

Pharmacokinetic Changes: Excretion

- Renal function gradually decreases with age
- CrCl decreases ~10% per decade after age 40 in most people
- Pearl: Should we judge kidney function by serum creatinine or creatinine clearance in the elderly?
  - Creatinine Clearance
    - Why? Because SCr is a measure of muscle breakdown. Generally the elderly have decreased muscle mass which means decreased muscle breakdown. Will give false high kidney function many times.

Pharmacokinetic Changes: Takeaway

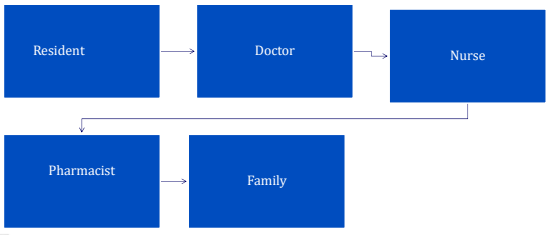
- Many times the physiologic condition of the elderly patient means they need a lower dose of a drug or less drugs than the normal adult population
- So why do they get so much?
  - Because we don't do a good job of managing our patients
  - If we work together as a team, we can do much better

Clinical Pearls for Safe Medication Use

- Every drug must have a clearly defined indication
- Patient/caregiver education is critical
- Records that contain a complete medication review, including OTCs and herbal supplements
- Therapeutic endpoints and ADRs must be monitored
  - Medications for acute conditions should have a limited duration
- Work closely with your Consultant Pharmacist

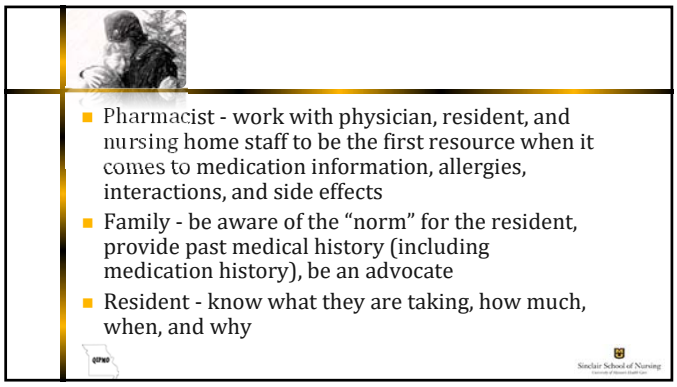
Educating and Communicating with Residents, Families, Doctors, and Long-term Care Staff

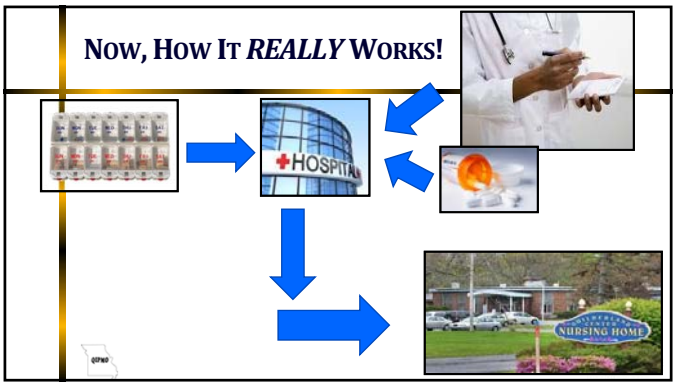
When it Comes to Meds, Who Should be In-The-Know?

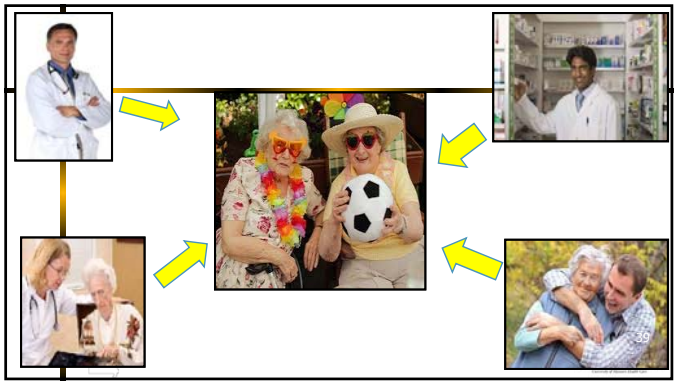


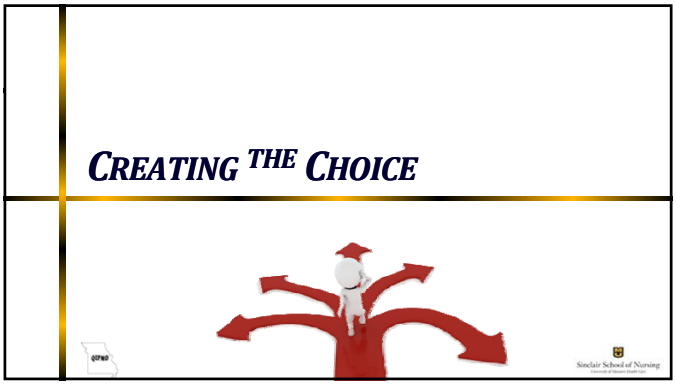
We All Have A Responsibility

- Doctor/Medical Director-diagnosis and treat based on analysis of condition, including labs, x-rays, general constitution, and other diagnostic tools
- Nurse-assess the patient constantly for effectiveness, side effects, and reactions; reconcile medication lists; be the main communicator between hospital and nursing home; act as liaison for families and residents, doctors, and pharmacists; SERVE AS ADVOCATE for the resident!


Pharmacist - work with physician, resident, and nursing home staff to be the first resource when it comes to medication information, allergies, interactions, and side effects
Family - be aware of the "norm" for the resident, provide past medical history (including medication history), be an advocate
Resident - know what they are taking, how much, when, and why


NOW, HOW IT REALLY WORKS!
HOSPITAL
NURSING HOME




CREATING THE CHOICE

Personalize Those PRNs

Remember! Not every over-the-counter works for every person.

(Example: Tylenol versus Ibuprofen)

(Example: natural laxative versus Dulcolax PO tabs versus Milk of Magnesia vs an enema)

Watch out for that F329 tag (unnecessary meds)

Managing Medication Times

Conventional Med Pass

One-time-fits-all (8a, 12p, 5p, 8p)

Meds in the dining room and disrupting the resident's dining experience

INSTITUTIONAL

Person-Directed Med Pass

- Changing orders from QD, BID, TID to AM, AM/PM, bed time - more subjective, at resident's discretion within reason
- MIR - Meds in Room - not the hallway, not the dining room (locked med cabinets in the rooms)
- Why? - quiet, confidential, offers dignity, more like home, LESS MED ERRORS, more assessment and ability for nurses to monitor

Bringing THE Team Together

- Admission/readmission… after the nurse does the medication reconciliation EVERYONE
- Primary care physician follow-up (send/bring current med list) PCP, resident, and/or family
- 2-week care plan meeting (discuss any changes/side effects/problems with meds)with pharmacist (at least via notes), resident and/or family, nurse
- Discharge care plan meeting EVERYONE

NURSES ARE THE #1 KEY PLAYERS

- Admissions, discharges, and combined payment plans… oh my!
- Easy/accurate admission + simple, preplanned take-home = repeat customer and good word of mouth marketing

HOW DO YOU MAKE THIS HAPPEN?
YOU **SIMPLIFY** THE PROCESS!

NURSES ARE THE #1 KEY PLAYER

Knowledge is Power, right?! So EMPOWER the resident.

SILENT GENERATION…
YOU TELL ME

BABY BOOMERS

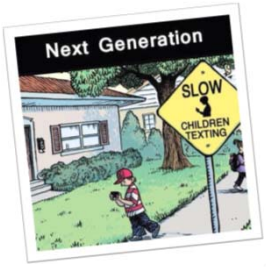
YOU TELL ME AND WE'LL TALK ABOUT IT!

GENERATION X

***I'LL TELL YOU* HOW THIS IS GONNA GO DOWN!**

Generation Y and the Millennials

Can't You Just Text Me?!



It's All about Communication… in 5 Steps

Nurses…It's on you!

1. Know and understand your diagnosis (why were you here?)
2. What are your medical goals?
   - Maintenance or management
   - Improvement of a condition
   - Palliative or comfort

It's All about Communication… in 5 Steps

3. Meds in conjunction with other therapies
   - Physical therapy, exercise, yoga, tai chi, swimming
3. Connect with the pharmacist… where did you go before? Who filled your meds while you were here? Whom would you like to continue with?
4. Stay in communication with your primary care - not the home's medical director if he/she isn't your regular doctor - and set a follow-up appointment.

Discharge Summary from (Name of nursing home)_____

Name_____ Date of birth_____Today's date_____

Reason why you came [current diagnosis])_____

Admitted from_____ on (date)_____

Primary care physician_____

Preferred Pharmacy_____(location)_____

Follow-up appointment(s)_____

_____

Current medication list

Medication	Dosage	Times taken	For what reason	Refill?

CONCLUSION

- Managing medication regimens HAS to be about a team.
- Reach out to your providing pharmacists as a resource in your resident's care.
- Nurses, empower YOURSELVES first. Remember why you went to nursing school!
- Empower the residents to be a proactive part of their care.
- Administrators, take a look at the whole picture, from admission to discharge. MANY opportunities there for good customer service.
- As always, CHOICE goes with SAFETY above all.

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