Pharmacists

Pharmacists DON'T UNDERSTAND ENGLISH

- Most prescriptions derivetheir terminology from LATIN phrases
- It avoids jargon and makes prescription language more precise and consistent

Pharmacists DON'T BELIEVE IN AMERICAN VALUES!

- Like the LB, OZ, tablespoon etc
- Poor Jimmy tried to get us to turn down the thermostat, wear sweaters, swat in Summer and FORCE US TO LEARN THE COMMUNISTIC, EUROPEAN METRIC SYSTEM
- I'M FROM AMERICA-I WON'T GIVE AN INCH-
- I mean 2.54 cm
- But officer, I was only going 90 (km/hr)

Make sure to yell at and give the pharmacist a hard time

- They will get even
- Even if their information does not apply to the eye or your case, explain why they are wrong and thank them for their interest

Pharmacists don't get any respect

- Actually, the public trusts them more than docs

Pharmacists Don't Know Their:

- Ass
- From their Phos

Pharmacists CAN'T READ

- Bad handwriting

Pharmacists CAN'T SEE GRAY

- It's all black and white

Pharmacists Have a hard time COPING

- With dumb asshole doctors

Pharmacists will change your brand to a GENERIC

- Only if the doctor approves it

Pharmacists ALWAYS give BAD NEWS

- Don't shoot the messenger
- The bad guys are the insurance companies that won't cover the branded product or assign it a high co-pay
- AND
- The drug companies that try to wring out as much money as the system will allow

Don't listen to the drug company shills

- People GET paid, directly or indirectly to steer you to a specific brand
- Patients cannot use a drug that they can't afford

The Pharmacist is a POOR SOURCE of clinical information

Pharmacist's know the eyes

- Specifically that we all have 2 of them

Pharmacists are NOT Clinicians

- They are not diagnosticians

Pharmacists don't know eye drops

- That's your job

Pharmacists don't know how to treat eye disease

- They know 2 eye drugs
- Visine
- Yellow mercuric oxide ointment

The pharmacists job is not to make you happy

- It is to protect the patient

Pharmacists DON'T Fill Prescriptions

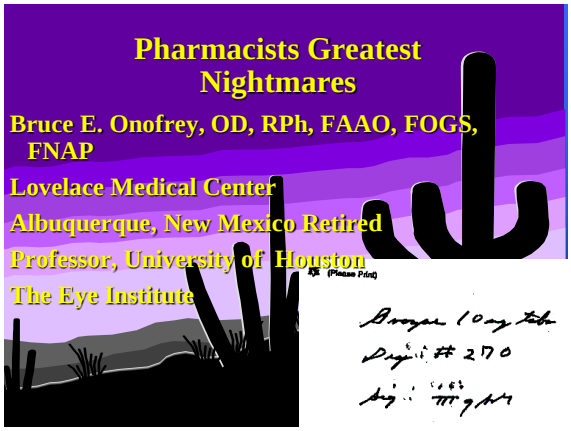
- Technicians fill and dispense most prescriptions
- Their previous job-yep. You guessed it
- DO YOU WANT FRIES WITH THAT?

DON'T ask the Pharmacist to do YOUR MATH homework

- They won't thank you-they will think you're an idiot
- You are responsible for calculating concentrations and dosages in liquid form

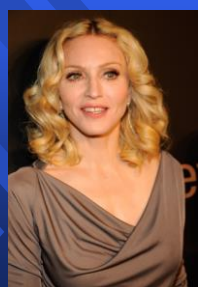
Pharmacists Greatest Nightmares

Bruce E. Onofrey, OD, RPh, FAAO, FOGS, FNAP
Lovelace Medical Center
Albuquerque, New Mexico Retired
Professor, University of Houston
The Eye Institute



- In seeking Wisdom, the first stage is silence, the second listening, the third remembrance, the forth practicing, the fifth teaching.
- Kabbalist Solomon Gabirol, c. 1045

OR WAS IT MADONNA 2009??



Anatomy of Malpractice

- Duty: Obligation to provide health care services
- Breach of Duty: Failure to meet "Standard of Care"
- Proximal Cause: You were the cause of the damage
- Damages: No injury-No pay. Must show injury to receive reward ie compensatory damages

Medical Errors

- Failure to DX
- Surgical Errors
- **DRUG/RX Errors**

Medication error: Definition

A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer.

Magnitude of problem

"Americans are 10 times more likely to be hospitalized by a prescription rather than by a car accident"

Thomas Moore
Prescription for Disaster. Simon and Schuster

Medication Errors

- The institute of medicine report on medication errors estimates between 44,000 and 98,000 hospital patients die yearly as a result of medication errors
- Two out of every 100 hospital admissions experience a preventable drug event
- There is one medication error per patient per day of hospitalization

Medication Errors

- **Wrong Dosage**
  - Special populations
- **Inappropriate Medication**
  - Wrong drug
  - Contraindications
  - Side-effects
  - Adverse effects
  - Drug interaction
  - Failure to monitor

Accupril®	Accutane®
Alprazolam	Lorazepam
Cardene®	Cardura®
Flomax®	Fosamax®
Lamisil®	Lomotil®
Nizoral®	Neoral®
Plendil®	Prilosec®
Zantac®	Zyrtec®

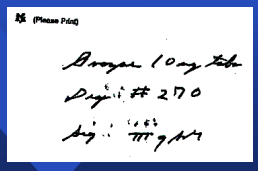
LOOK ALIKE DRUGS

What do Pharmacists hate most?

1. Their jobs
2. Drug interactions
3. Sloppy prescriptions
4. Trying to fit the bottle in the typewriter
5. Doctors

Pharmacists HATE 2 things

- Sloppy prescriptions
- Drug Interactions
  - Drug-Drug
  - Drug-Food
  - Drug-Disease



Patients Name _____ Phone # _____

Date _____

RX

LOOKS HARMLESS DOESN'T IT-HOWEVER, MISTAKES CAN JUST KILL YA

Generic equivalent unless otherwise noted Do NOT substitute ☐

Refill _____ Times

_____

DEA NO _____

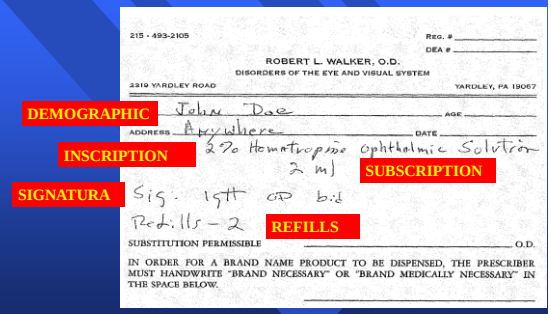
Phone NO _____

OPHTHALMIC PRESCRIPTION WRITING

- Four basic parts
  - –Patient demographic data
  - –Inscription
    - » Drug name , strength and/or concentration
  - –Subscription
    - » Amount of drug
  - –Signature
    - » Instructions

OPHTHALMIC PRESCRIPTION WRITING

- Other important parts of a written drug prescription
  - –Date
  - –Number of refills or other instructions
  - –Practitioner's name, address, phone #, license, DEA #
  - –Brand Name or Generic form
  - –Some practitioners include the clinical diagnosis



SAMPLE OPHTHALMIC PRESCRIPTION

- Patient demographic data: self explanatory
- Inscription: 2% homatropine ophthalmic solution
- Subscription: 5 ml bottle
- Signature: 1qtt OD bid x 2 weeks

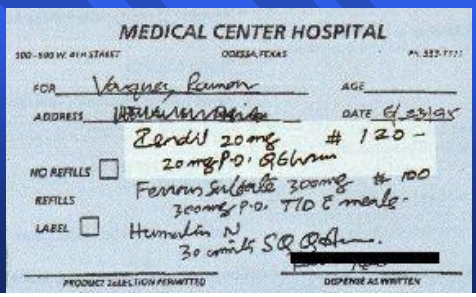
ADDITIONAL PRESCRIPTION INFORMATION

- Avoid alcohol
- Do not freeze
- For external use only
- For the eye
- Keep out of children's reach
- Keep refrigerated
- May cause drowsiness
- No refills
- ___ refills available
- Shake well
- Store in cool dry place
- Take every __ hours around the clock
- Take 30 to 60 min. before bedtime
- Take on empty stomach
- Take with food

PRESCRIPTION ERRORS

Use of abbreviations coupled with poor hand writing can result in common drug prescribing mistakes that can potentially cause serious or even life threatening adverse effects

FIRST-CAN YOU READ IT!! THE $450,000 ERROR Plendil VS Isordil



Written Medication Orders: Decimals

- Avoid whenever possible[1]
  - Use 500 mg for 0.5 g
  - Use 125 mcg for 0.125 mg
- Never leave a decimal point "naked"
  - Haldol .5 mg → Haldol 0.5 mg
- Never use a terminal zero
  - -Colchicine 1 mg not 1.0 mg
- Space between name and dose[1,3]
  - Inderal40 mg → Inderal 40 mg

MR. DECIMAL POINT

The Smoking Gun

- RX is a legal document
- Once it leaves your office you have lost control
- Any mistakes are now in hard print
- Pharmacy that fills script, owns the script
- Legal document can be ordered into court
- Mistake on glasses RX-remake the glasses
- Mistake on critical drug RX-lose the farm

WHY IS EVERYTHING WRITTEN IN A DEAD LANGUAGE (LATIN)?

1. It makes the Doctor look smarter
2. Pharmacists can only read Latin
3. It is code for "I GOT MY MONEY, NOW YOU GET YOURS".
4. Doctors have bad hand writing
5. Julius Ceasar was the first pharmacist

Abbreviation \ Meaning

a.c.	before meals
p.c.	After meal
cap	Capsules
g	gram
h.	hour
mg	milligram

Abbreviation \ Meaning

ml	milliliter
Bid	Twice daily
p.o.	by mouth, orally
p.r.n.	when necessary
q.d.	once a day
q.i.d.	4 times a day

Abbreviation \ Meaning

q.h.	every hour
q.2h.	every 2 hours
t.i.d.	3 times a day
IA	Intra-arterial
IM	Intramuscular
IV	intravenous

Cap	Capsule
Sup, supp	suppository
Susp	suspension
Tab	tablet
Stat	**At once**
D/C	**Discontinue**
CD	**Controlled drugs**

PHARMACEUTICAL WEIGHTS AND MEASURES OR HOW BIG IS GRANDMAS TABLESPOON

- METRIC@@@@
- APOTHECARY
- HOUSEHOLD

Written Medication Orders: Weights, Volumes, Units

- Use metric system
- Avoid apothecary system

Cohen MR. *Medication Errors. Causes, Prevention, and Risk Management*, 8.1-8.23.
Cohen MR. *Am Pharm* 1992; NS32: 26-8.

PHARMACEUTICAL MEASURES

Household Notation	Metric Notation	Apothecary Notation
One Drop	1/20 ml.	gtt i
One Teaspoonful	5 ml.	ʒi
Two Teaspoonfuls	10 ml.	ʒii
Three Teaspoonfuls = One Tablespoonful = 1/2 ounce	15 ml.	ʒiii = ʒ ss
Two Tablespoonfuls = One Ounce	30ml.	ʒi
One cupful = Eight Ounce = 1/2 pint	240ml.	ʒviii = pt ss

Special dosing formulas

- Age
- Weight
- Body Surface Area

Young's Rule

- Based on age
- $\frac{\text{Age (yrs)}}{\text{Age + 12}}$ X Adult dose = Pediatric dose
- Example: 6 y/o gets acetaminophen q 4h. Adult dosage = 650mg q 4h
- $\frac{6}{6 + 12}$ X 650mg = 216 mg

Webster's Rule (Modified Young's)

- Based on age (modified-Kids are fatter now)
- $\frac{\text{Age + 1 (yrs)}}{\text{Age + 7}}$ X adult dose = Pediatric dose
- Example:
- $\frac{6 + 1}{6 + 7}$ X 650 = 350mg

Clark's Rule@@@@

- Based on weight-Most accurate@@@@
- More realistic and individualized
- Kids are larger today/greater obesity
- $\frac{\text{Wt (Lbs)}}{150}$ X adult dose = Pediatric dosage
- Example: 50/60/70 lb 6 Y/O's/ acetaminophen at adult dose of 650mg q 4h
- $\frac{50/60/70}{150}$ X 650mg = 216/260/303mg

Body Surface Area (BSA)

- Complicated logarithmic formulas
- Very precise calculation
- Mosteller has simplified formula
- M^2 = the square root of: $\frac{\text{Ht (cm) X Wt (kg)}}{3600}$

  or $\frac{\text{Ht (in) X Wt (lbs)}}{3131}$

BSA example

- 3ft 3in tall child weighting 44 lbs has a BSA of:
- $\frac{\text{39 in X 44 lbs}}{3131}$ = 0.548-sq rt = 0.74 sq meters
- $\frac{\text{100 cm X 20 kg}}{3600}$ = 0.555--sq rt = 0.75 sq meters
- Quick BSA dose calculation =

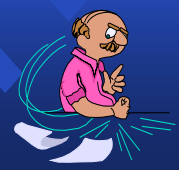
Adult BSA = 1.73 sq M/adult dose acetaminophen = 650mg q 6h

- Child's dose = $\frac{\text{0.74 sq.M}}{\text{1.73 sq. M}}$ X 650mg = 282mg

Simple weight/dose calculations

- PDR/package insert/facts and comparisons lists dose by weight
- Weight is almost always in Kg
- Dose is the full 24 hour dose
- Must know the frequency of dosing/D
- Must know the concentration of liquid dosage forms
- Must know the strengths of all solid dosage forms

If the standard pediatric DAILY dosage of prednisolone is 1mg/kg in divided dosage
Prescribe a standard dose for a 33 lb child to be administered TID
NOTE pediapred syrup contain 5mg/5ml prednisolone



PEDIATRIC DOSAGE CALCULATION

- CONVERT WEIGHT TO KILOS LBS/2.2 = KILO 33/2.2 = 15 KILOS
- DOSE OF 1MG/K X 15 K = 15MG TOTAL DAILY DOSE
- DIVIDE DAILY DOSE BY NUMBER OF DAILY DOSAGES 15MG/3 = 5MG PER DOSE
- CONC = 5MG/5CC ADMINISTER 5 CC TID PO

WHEN COUNSELING PATIENTS BE SPECIFIC

- Ointments---APPLY
- Ophthalmic solutions or suspensions--INSTILL
- Suppositories---INSERT
- Oral preparations---TAKE

WHAT'S WRONG WITH THIS RX?

You prescribe Pilopine HS gel. You want her to use it once daily at bedtime in the left eye specifically as you showed her in your office

Patients Name Mary Edwards Phone # _____ Date _____

RX

Pilopine HS Ophth. Gel
5 GM Tube
Sig: Instill QD OS at h.s. ut dictum

Generic equivalent unless otherwise noted
Do NOT substitute ☐

Refill 5 Times

_____
DEA NO _____
Phone NO _____

Never use the term:

- 1. HS
- 2. OS
- 3. QD
- 4. UT DICT
- 5. You don't "INSTILL" a gel

Never, ever use the term QD or qd-write once daily or daily

A "minimum list" of dangerous abbreviations, acronyms, and symbols has been approved by Joint Commission. Beginning January 1, 2004, the following items must be included on each accredited organization's "Do not use" list:

Set	Item	Abbreviation	Potential Problem	Preferred Term
1.	1.	U (for unit)	Mistaken as zero, four or cc	Write "unit"
2.	2.	IU (for international unit)	Mistaken as IV (intravenous) or 10 (ten)	Write "international unit"
3.	3. 4.	Q.D., Q.O.D. (Latin abbreviation for once daily and every other day)	Mistaken for each other. The period after the Q can be mistaken for an "I" and the "O" can be mistaken for "I"	Write "daily" and "every other day"
4.	5. 6.	Trailing zero (X.0 mg) *[Note: Prohibited only for medication-related notations]*; Lack of leading zero (.X mg)	Decimal point is missed.	Never write a zero by itself after a decimal point (X mg), and always use a zero before a decimal point (0.X mg)
5.	7. 8. 9.	MS MSO_4 $MgSO_4$	Confused for one another. Can mean morphine sulfate or magnesium sulfate.	Write "morphine sulfate" or "magnesium sulfate"

Effective April 1, 2004 (if your organization does not already have additional "do not use" items in place), each organization must identify and apply at least another three "do not use" abbreviations, acronyms, or symbols of its own choosing. [Revised 11/3/03]

THE RIGHT WAY

You prescribe Pilopine HS gel. You want her to use it once daily at bedtime in the left eye specifically as you showed her in your office

Patients Name: Mary Edwards Phone # _____ Date _____

RX

Pilopine HS Ophth. Gel
5 GM Tube
Sig: Instill OS at h.s. ut dictum

Generic equivalent unless otherwise noted
Do NOT substitute ☐

Refill 5 Times

DEA NO _____

Phone NO _____

WHAT'S WRONG WITH THIS RX?

You want MJ to use Timoptic 1/2% eye drops twice daily in her right eye

Patients Name _____ Phone # _____ Date _____

RX

Timolol maleate 0phthal. Sol. .5%
15 CC
Sig: Instill I gtt BID OD

Generic equivalent unless otherwise noted
Do NOT substitute ☐

Refill _____ Times

DEA NO _____

Phone NO _____

You should not use the term:

- 1. SOL.
- 2. BID is wrong
- 3. Never use the .5% designation
- 4. You don't "INSTILL" eye drops

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4.	5. 6.	Trailing zero (X.0 mg) *[Note: Prohibited only for medication-related notations]*; Lack of leading zero (.X mg)	Decimal point is missed.	Never write a zero by itself after a decimal point (X mg), and always use a zero before a decimal point (0.X mg)
5.	7. 8. 9.	MS MSO_4 $MgSO_4$	Confused for one another. Can mean morphine sulfate or magnesium sulfate.	Write "morphine sulfate" or "magnesium sulfate"

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Clinical Pearl

- BID = q 12h @@@@
- TID = q 8h
- QID = q 6h
- NO DECIMALS IN DRUG STRENGTH

THE RIGHT WAY

Timolol maleate 1/2% Ophth. Sol

15 ml

Sig: i gtt q 12H OD

Refill 3X

CLINICAL PEARLS

- USE GENERIC IF THERAPEUTICALLY EQUAL TO BRAND PRODUCT
- STATE THAT IT IS AN OPHTHALMIC PRODUCT
- SUSPENSION VS SOLUTION
- CHRONIC MED-MOST ECONOMIC SIZE
- DOSE BETA BLOCKERS q 12H
- ONLY ENOUGH REFILLS TILL NEXT SCHEDULED VISIT

You want M.E. to take 250mg amoxacillin orally 3 times daily for 10 days. She can't swallow pills.

Patients Name _____ Phone # _____ Date _____

RX

Generic equivalent unless otherwise noted
Do NOT substitute ☐

Refill _____ Times

_____
DEA NO _____
Phone NO _____

Proper notation?

- 1. Take i teasp 3 times daily
- 2. Take 5cc q 8h PO X 10D ←
- 3. Instill 5cc PO TID
- 4. Take 5cc TID PO X 10D ←
- 5. Take 5cc q 6h PO X 10D

Clinical Pearls

- Suspensions are excellent alternative for people that can't take pills
- Must know concentration
- Note that a suspension must be shaken
- Must give enough to cover 10 days dose
- Note 10 day limit on acute vs chronic meds
- No refills on acute meds

CLINICAL PEARLS

- LIST DOSAGE FORM-SUSPENSION
- ENOUGH MEDICINE FOR 10 DAYS-
- 8 HOUR DOSE INTERVAL
- PO = BY MOUTH
- PUT TX DURATION IN INSTRUCTIONS-10 DAYS
- NO REFILLS OF ACUTE MEDS

THE RIGHT WAY

You want M.E. to take 250mg amoxacillin orally 3 times daily for 10 days. She can't swallow pills.

Patients Name _____ Phone # _____ Date _____

RX

Amoxacillin 250mg/5cc oral susp. 150 CC

Sig: Take 5 CC q 8H PO X 10D

Generic equivalent unless otherwise noted Do NOT substitute ☐

Refill _____ Times

_____

DEA NO _____

Phone NO _____

You want M.E. to use Pred Forte 1% every hour OD for 3 days, then 2 hours for 3 days, then 4 times daily for 3 days, then twice daily for 3 days, then once daily for 3 days

Patients Name _____ Phone # _____ Date _____

RX

Generic equivalent unless otherwise noted Do NOT substitute ☐

Refill _____ Times

_____

DEA NO _____

Phone NO _____

Clinical Pearls

- Don't try to put complex instructions on a 2 X 2 lablel
- Don't use generic steroid suspensions
- Write out instructions and take time to counsel patient in office
- Write shake well on RX-Help the pharmacist to do what's important

THE RIGHT WAY- FOR THE PHARMACIST

You want M.E. to use Pred Forte 1% every hour OD for 3 days, then 2 hours for 3 days, then 4 times daily for 3 days, then twice daily for 3 days, then once daily for 3 days

Patients Name _____ Phone # _____ Date _____

RX

Pred Forte Ophthal. Susp. 10 CC

Sig: Instill ii gtts OD UT Dict

SHAKE WELL

Generic equivalent unless otherwise noted Do NOT substitute ☐

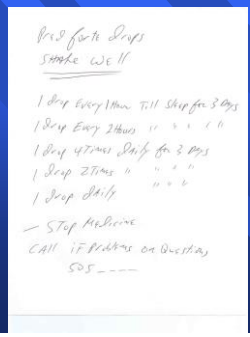
Refill _____ Times

_____

DEA NO _____

Phone NO _____

FOR THE PATIENT



John Doe 7/20/00
100 Low Life Ln.

Acetaminophen with Codeine #3

#20 (Twenty)

SIG: i-ii tabs q 4-6H prn pain

Refills: Zero

B. Onofrey MO 0182597

- Controlled drugs: Substance, which may produce physical, psychological dependence / both
- Prescribed for not > than 2 weeks

because sudden withdrawal may lead to withdrawal symptoms..

Classification of controlled substances. Based on estimated addiction liability

Class	Potenti -al for abuse	Rationale for category & Rx rules	Examples
I	High abuse potential	No accepted medical use, All no research use forbidden, can Not be prescribed lack of accepted safety as drug	Heroin, LSD (Lysergic Acid Diethylamide), marijuana
II	H	Current accepted medical use but abuse may lead to severe physical/ psychic dependence	Opioids as morphine, amphetamines
III	< class II	Current accepted medical use. moderate or low potential for physical & high potential for psychologic dependence, No refills, Rx must be rewritten after 6 months	Weaker opioids such as codeine, some amphetamine-like drugs
IV	< III	Medical use is accepted. Limited / low potential for dependence	Diazepam, phenobarbital, chloral hydrate etc
Schedule V	< IV	Medical use is accepted. ! least potential for abuse	cough syrups e codeine , antidiarrheal e diphenoxylate etc

- Schedules of Controlled Drugs: ! drugs are divided into 5 schedules:

Schedule I

Drugs in this schedule have no accepted medical use & have a high abuse potential. Ex. heroin, marijuana, LSD, etc.

Schedule II

- Drugs in this schedule have a high abuse potential e severe psychic or physical dependence liability. Included are certain narcotic analgesics, stimulants, & depressant drugs. Ex. opium, morphine, codeine, methadone, cocaine, amphetamine.

Schedule III

- Drugs in this schedule have an abuse potential < than those in Schedules I & II & include such drugs as barbital, phenobarbital, chloral hydrate, chlordizepoxide, diazepam, oxazepam etc.

Schedule IV

- Drugs in this schedule have an abuse potential < than those listed in Schedule III & include such drugs as barbital, phenobarbital, chloral hydrate, chlordizepoxide, diazepam, oxazepam etc.

Schedule V

- Drugs in this schedule have an abuse potential < than those listed in Schedule IV & consist primarily of preparations containing limited quantities of certain narcotic analgesic drugs used for antitussive & antidiarrheal purposes.

Rx for controlled drugs:

- Should not be typed & written by hand
- Written in ink
- Signed & dated
- Prescriber's full name, address & registration number
- State ! form of ! drug
- State ! total quantity of ! drug or ! number of doses units (10.0 mg i.e. ten milligrams)

Not be refillable > than 5 times in a 6 months period for schedule III-IV-V Rx;

- No refilling for schedule II Rx.

Conclusions
Types of Prescribing Errors

- Prescription errors 49%
- Transcription errors 11%
- Dispensing errors 14%
- Administration errors 26%

Conclusions
Root Causes of RX Errors: Prescription error

- Wrong Drug
- Wrong dosage
- Unidentified drug allergies
- Cross sensitivity
- Drug interactions
- Drug error from patient's other doctors
- Poor RX writing skills
- Limited Drug knowledge
- Limited knowledge of patient's medical HX

Conclusions
Prescription error: Prevention

- Know your patient: Careful HX taking
- Know your drug: Pharmacology and proper dosing
- Use pre-printed drug pad to eliminate poor hand-writing skills
- Keep up with the latest drug information
- Have access to a digital drug information database
- Keep a duplicate of your written drug order to recheck accuracy of the RX

Conclusions
Root Causes of RX Errors: transcription

- Poor handwriting
- Similar names of drugs
- Untrained technicians
- Distractions during writing or reading of the RX
- Misread or confusing units of dose

Conclusions
Transcription error prevention

- Avoid delegating drug orders to office technicians
- Dbl check all drug refill orders for accuracy
- Avoid distractions when writing or transcribing drug orders
- Pharmacist should double check RX filled accurately
- Prescribe generically to avoid confusing drug brand names
- Print RX to avoid poor handwriting induced errors
- Avoid "phone in" scripts-Fax it instead
- Use proper writing techniques that avoid dosing or dosing unit errors
- Insure that technicians are properly trained
- Always verify technicians work

Conclusions
Dispensing error prevention

- Avoid in-office samples without specific written directions
- Keep accurate records of any samples dispensed to patients
- Write name of drug and directions for patient so that they can double check the drug they receive from pharmacy and the accuracy of the directions
- If need be, verify actual drug dispensed with pharmacy

Conclusions
Root Causes of RX Errors: Administration

- Inadequate patient education with regard to handling and drug usage
- Inadequate counseling with regard to drug-food and drug-drug interactions
- Inadequate counseling on drug benefits and drug side-effects (compliance issues)
- Inadequate evaluation of patient refills and drug usage (overuse vs underuse)
- Inadequate education of patient caregivers (particularly those in assisted living or nursing home environments)

Conclusions
Administration error prevention

- Educate, educate, educate
- Write out specific instructions for the patient, separate from the pharmaceutical prescription
- Ensure that the patient can demonstrate proper medication usage
- Have a spouse or other family member present during the instruction phase of drug use
- Inform the patient of all benefits and side-effects of the drug
- Fax very specific drug orders to all institutional caregivers and discuss proper drug administration with the staff.

Conclusions
Patient safety

- Educate your staff
- Educate yourself
- Educate your patient
- Be vigilant
- Train staff to recognize patient complaints that may be related to inappropriate drug use
- Avoid communication problems with the pharmacy
- Analyze your practice for any quality related issues
- Implement quality improvement programs

THE END

Thank You