Let’s not forget the responsibilities that we have been entrusted with

You must always be vigilant!
A closer look at medication errors in the Post E- Prescribing Era
“What do you think more or less medication errors?”

PROLOGUE
Most of you know that I never start a medication error presentation without the story of Pharmacist Eric Cropp.

All Pharmacists should learn from this Video that:

“There are no Excuses..... there are just Choices”
and

Your Best Professional “GPS” is “Good-old Pharmacy Savvy”
A closer look at a medication error

Eric Cropp weighs in on the error that sent him to prison (Feb 15, 2010)

https://youtu.be/iru56ZO9tKc
A closer look at a medication error on Eric Cropp weighs in on the error that sent him to prison

From the December 3, 2009 issue
A closer look at a medication error
Eric Cropp weighs in on the error that sent him to prison

• The error happened on a Sunday morning, with typical weekend staffing.

• Eric was busy and had taken no breaks and had not eaten any meals during his shift.

• Routine maintenance had been performed on the computer the night before, and the pharmacy system was not available until mid-morning.
A closer look at a medication error
Eric Cropp weighs in on the error that sent him to prison

• The labels for IV admixtures, which typically printed around 7 a.m., printed later that morning, causing a delay in preparing solutions.

• Eric received a call to dispense Emily’s chemotherapy right away, although it was not needed until hours later (unknown by Eric at the time).

• After the technician mixed the solution, he felt rushed to check the chemotherapy, which was among many other solutions, vials, and syringes in a very small, crowded checking area.

https://www.ismp.org/newsletters/acuteacare/articles/20091203.asp
A closer look at a medication error
Eric Cropp weighs in on the error that sent him to prison

- Eric saw an empty 250 mL bag of 0.9% sodium chloride near the bag of chemotherapy and assumed the technician had used it to prepare the base solution.

- Eric states that the technician later testified that she had told him something seemed “weird” about the solution. Eric does not recall this conversation.

- He only recalls asking the technician whether she had used sodium chloride, which she answered affirmatively.

https://www.ismp.org/newsletters/acutecare/articles/20091203.asp
• Eric also saw a many vials of 23.4% sodium chloride on the crowded table and assumed the technician had used this vial to prepare the prior chemotherapy order, which required the use of an automated compounding.

• The chemotherapy Eric was checking had been prepared by an experienced technician, but instead of premixed 0.9% sodium chloride, she had used three vials of 23.4% sodium chloride.

• Eric failed to detect the error and dispensed the solution. In this case, the confidence of built into system and human errors led to tragedy.
In February 2006, I reported to work in the early morning, at a primary pediatric hospital in Cleveland. I worked double shifts the previous two days, so I was tired when I arrived.

The hospital’s computer system had been down for ten hours prior, so I knew I was in for a busy day. The hospital staff was in a state of panic. The phones were ringing off the hook. Nurses and doctors were calling in looking for their missing medications.

By the time the computer system finally came back up, we were buried with labels printing from three different shifts.
Our pharmacy was compact; the area where we made IVs was the size of a small closet and the checking area was a 4’ x 6’ table. Within an hour the table was filled and beginning to pile up. We were running out of bins to put the finished products so many were mixed together.

I spent the next hour trying to check as fast as possible. I caught numerous errors that day, but I missed the most important: my technician had prepared a child’s chemotherapy base solution mix of sodium chloride 23 times more than what was ordered.
I asked the technician if the bag I was checking was sodium chloride, but didn’t confirm that it was 0.9%. I saw an empty bag of sodium chloride 0.9% on the table and thought that had been used to fill the empty via-flex bag.

After checking the bag, the solution was combined with the ordered chemo agent, checked again, and sent to the floor to be administered.

When the nurse administered the fatal dose of sodium chloride, it caused the child’s brain to swell sending her into a coma. Three days later, she died.
There is the “BUT”…Let’s be fair and ensure that they have been exhaustively trained in the protocols they will execute. Let’s support their registration, get them certified, pay them well, and respect both their skills and their weaknesses.

“But” let’s also always remember they are “not pharmacists nor pharmacy interns” who have this very special 6th sense called “Pharmaceutical Savvy”. In some hospitals they are scheduled and organizationally managed by experienced technicians.
Protocol Violation
Deadly Serious Aeroperú Flight 603 CRASHES 70 Dead in 10/2/1996

• Protocols – Follow them Exactly (e.g. Use “Bright Red Orange Tape” over speed sensors while cleaning static sensors on planes.

• Maintenance man used “Grey Duct Tape” Instead of the “Bright Red Orange Tape” that was in Protocol because he ran out of orange tape.

• The cause of crash was classified instrument failure. The pilot did not notice that the maintenance worker failed to remove the grey tape covering the static ports necessary to provide correct instrument speed and altitude data to the cockpit. Pilot never saw grey tape. We have flags to avoid errors.

HIGH ALERT MEDICATION
DOUBLE CHECK STRENGTH

15
What is a Medication Error?

• 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.
What is a Medication Error?

Such events may be related to:

• Professional practice
• Health care products

Including:

• Prescribing
• Orderings
• Product labeling
• Packaging
• Communicating
• Compounding

• Distributing
• Administering
• Counseling
• Monitoring
• Using/Applying
Definition of the Box is "Affectionately a place...."

A place where a goes for 6, 8 or 12+ hours at a time until another appears or until the box is closed with a 9 ½ foot high gate/partition.
While in the box, s are to have no normal contact with outside world. Here pharmacists go NPO (inhaling their food and water only) and NBM (having no bowel movements) unless their bowel status influences their professional judgment (e.g. IBS).
1. While in the box people have no place to hide!

2. The box is surrounded by people gazing in at you, who seemingly only move only when you do!

3. Caring pharmacists willingly (and are obligated to) approach the boundary of the box (but not escape from the box) hundreds of times a day to conduct the necessary counseling to minimize medication errors.
Pharmacists In Their Foxholes (boxes) Are Dispersed/Deployed Throughout the State
Still thinking about “not going to the bank or dry cleaners or the guy that cut you off…”

Pharmacists make the most errors in the first hour of work. Be extra vigilant!
What Happens When a Medication Error Occurs?

• As health care professionals we have all been there and predictably we will be there again.

• Today’s talk is intended to help reduce the frequency and impact of medication errors.

• So now that we know Pharmacist Pfill and are reminded where he lives, let’s get started.
What Happens When a Prescription Error Occurs?

I’m going to get fired.

Did I really fill it?

I’m going to get sued.

Why me? If only I checked!

The State Board! Who can I tell?

Did I kill someone?

I’m going to lose my license

It’s the end of the world!
It’s over, I’m so dead.
No it not the end of the world! Also Remember It Is Not About You, It Is About Your Patients!

Let’s talk about how to prevent this from happening to our patients and to you!
Why So Many Errors?

- Stress
- Dose Regimens
- Abbreviations
- Brand Names
- Patient Literacy
- Processes
- Nomenclature
- Care Processes
- Communications
- Patient Literacy
- Label
- Patient Literacy
- Dosage forms
- Care Setting
- Patient Literacy
- Route
- Knowledge
- Indications
- Knowledge
- Storage Requirements
- Symbols
- Indications
- Fatigue
- Working conditions
- Generic names
- Tasks
- Languages
- Patient Literacy
- Purchasing
- Preparation
- Patient Literacy
- Computer
- Combo products
- Human factors
- Symbol
- Patient Literacy
- Knowldege
• The answer to why we have prescription errors is complex and probably *can not* be blamed on a *single* omission, error or person.

• But let us not forget... the Pharmacist is the drug “*GATEKEEPER*”

• The integral link that connects the product and the patient.
First, Let's Look at What’s Going on Locally and Nationally?

- Bar codes
- Electronic prescriptions
- Labeling changes
- Drug name regulations - Amazing initiatives undertaking by the FDA
- Public education programs - Key
- Consultation initiatives
- Revised literature for patient distribution
- ...and more - Med-guides Interesting concepts – What about NOW?
Be Prudent, Be Proactive or Be Doomed to Repeat Disaster

Opium Tincture
Camphorated Opium Tincture
Paregoric

“The Freddy Kruger of Pharmacy”
Part One
Pharmacist’s Liability & Poor Communication
Physician/Nurse and Patient From the Archives

• Nurse instructs patient getting Rx for 5mg tablets of coumadin to take 2 ½ on day 1 and 5 on day 2 and then repeat. *(Scary med to be confused about)*

• Patient understood to alternated 12.5mg *(2½ tabs)* with 25mg *(5 tabs)* for 7 days. The patient admitted to the hospital with hemorrhaging and almost died.
**Solution:**

- Have patient repeat instructions in their own words. Ensure patient understands your thought (tablets or mg).

- Most patients **are not capable** of easily managing or understanding fractions (half tablets), milliliter volumes, topical patches and drop measurements.

  Talk to them! And have them talk back!
Do patients know what milliliters are? 

Take 5 milliliters three times a day for 4 days.

Oral syringe or cup?, how many cups and syringes with three liquid medications?, All cups? Can I mixed the liquids together?, Where do I keep the cups in the refrigerator with medicine? Do I wash the cups or syringes. With a refill can I use old syringe? Etc....

What do you guys and gals think?

The doctor said teaspoonful. You say cup - Something wrong? I left the cup home so I did not take my medication this afternoon.
Normal study conducted without controls at large hospital.

Participants were invited to step up to the table and select the teaspoon that they thought actually measured 5 ml - the proper measurements that is meant by "teaspoon" when ordering medications.

The spoons ranged from 4.5 to 10 ml. Most chose spoons that were much “higher” than the proper 5 ml dose.

The instructor then explained why using a medicine spoon or dosing syringe was important to correct measurement. Dosing cups also presented problems. For example, it was pointed out how hard the lines can be to read.

Barriers to correct dosage measurement, such as poor vision, tremors or limited hand movement were discussed.
The Patch “Nightmare”

1. Dosing intervals are confusing and hard to remember for patients.

2. Abbreviations like TTS with Catapres and Testoderm – interpreted by some as Tuesday, Thursday and Saturday?

3. The term “remove overlay”, what is it?

4. Remove patch when? (e.g. Lidoderm)

5. Dangerous practice of cutting patches for pediatric use.

6. Not spotting the old tape has “not” been removed.
Poor Communications – Medicated Tapes
Physician/Nurse and Patient

Duragesic (fentanyl) tapes- Accidental exposure to old tapes and death. Have to be easy to spot (new bright colors) and easily removed so as to not be left on inadvertently. Easy to remove feature has resulted in over 10 deaths in children who had the tapes stick to them or their clothes unknowingly.
Physician / Nurse and Pharmacist / Intern

(Verbal Orders)

• Sound A-likes involving numbers, product names and abbreviations, etc. (e.g. **Brintellix** “now **Trintellix**” and **Brilinta**)  

• **Durezol** (Anti inflammatory eye drops) and **Durasal** (OTC salicylic acid prep)  

• In some electronic linkage between **Kadcyla** (abo-Trastuzumab emtansine) and **Herceptin** (Trastuzumab)

When in doubt always verify
Poor Communications (continued)

• Cell phone or taped messages (incomplete messages)

This prescription is very important, so write it down carefully...
Hello?
Poor Communications (continued)

Fax Errors / Fax Noise “gone forever”

- Patient received 10 mg instead of prescribed 40 mg
Pharmacist /Intern and Patient/Caregiver

- Language / **Culture differences**
- Mindset of patient
  - sick, tired, doubled parked and wants to go
- NYS requires patient consultation- “Get to the edge of the box”
- Health literacy or lack of it
• **Note:** 83% of all prescription errors are detected during patient consultation.

• From the archives: *Griseofulvin* mistakenly given for *guaifenesin* to a child. *Lamasil* given for *Lamictal*

• Clearly in this instance there was **NO consultation** between pharmacist and patient.
Poor Communications (continued)

• Language and cultural issues – Idiomatic Expressions-

• Level of intellect and comprehension

• Preconceived Impressions and who is likely to be a critical or more attentive listener

• More importantly:

Are patients listening and if so what are they hearing?
Medication Safety By Design: - “Medication Error Prevention”

Not a new concept for the FDA. The FDA adopted the same principles they use when they build quality into a commercial dosage.

Identify the risks early in the product’s lifecycle. Design the dosage form and introduce the proper product labelling to avoid many predictable medication errors identified over the past 25 plus years.
The FDA has Adopted A Proactive Plan to Prevent the Incidence Medication Errors (continued)

**They now consider the following:**

1. Active ingredient
2. Strength
3. Dosage form
4. Product appearance
5. Size
6. Shape
7. Palatability
8. Storage and handling
9. Indication type of closure
10. Label to be affixed to closure
11. Secondary packing and overwraps
12. Labeling information including dose, preparation, administration that accompanies the product
The FDA has Adopted A Proactive Plan to Prevent the Incidence Medication Errors (continued)

They also include common environments for the drug product is like to encounter.

1. Hospitals
2. LTCF
3. Physician’s offices
4. Dialysis Center
5. Retail Pharmacies
6. Retail outlets for OTCs
7. Specialty Pharmacies
8. Emergency Transport
9. Patient Homes
The FDA has Adopted A Proactive Plan to Prevent the Incidence Medication Errors (continued)

From end users to product scoring

1. Pharmacists, nurses, doctors, etc.
2. Diversity of ages or just pediatric to geriatric
3. Complexity of product and need for assistance by user
4. Critical tasks measured against similar products in the same class
5. Physical strength requirements (e.g. stamina, swallow, palatability etc.)
6. Environmental aspects, (e.g. lighting for use, storage conditions, etc.)
7. Product scoring (uniform and careful watching for variable strengths)
8. In print codes
9. Dosage form designs abuse and misuse (e.g. lollipops, TDS, etc.)
   etc….IVs, TDs , container closure look alikes, .....................

All and any Proactive Risk Assessments (FDA 2016)
## Drilling down on the FDA Vigilance on Sound-alikes

<table>
<thead>
<tr>
<th>Type of similarity</th>
<th>Attributes identified in similar products</th>
<th>Potential effects</th>
<th>Potential cause of similarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonological Similarity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identical prefix</td>
<td>Names may sounds similar when pronounced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identical infix</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identical suffix</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of Syllables</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stresses</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placement of vowel sounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placement of consonant sounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overlapping product characteristics</td>
<td></td>
</tr>
</tbody>
</table>
Patients get confused about the correct dose. There have been cases when people have purchased higher strength tablets intending to split them, but then they forgot to split them. Instead, they took the whole tablet. This led to accidentally taking too much medicine.

There always how good is the split and is there good dose uniformity.

<table>
<thead>
<tr>
<th>Product</th>
<th>% of tablets that did not break evenly when split with razor blade*</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paxil (40 mg)</td>
<td>0</td>
<td>Split cleanly.</td>
</tr>
<tr>
<td>Zestril (40 mg)</td>
<td>0</td>
<td>Split cleanly.</td>
</tr>
<tr>
<td>Zoloft (100 mg)</td>
<td>0</td>
<td>Split cleanly.</td>
</tr>
<tr>
<td>Glucophage (850 mg)</td>
<td>30</td>
<td>Hard tablet. Required significant force, causing tablet halves to fly.</td>
</tr>
<tr>
<td>Glyburide (5 mg)</td>
<td>20</td>
<td>Very poor splitting. Many split into more than two pieces.</td>
</tr>
<tr>
<td>HydroDIURIL (50 mg)</td>
<td>15</td>
<td>Crumbled.</td>
</tr>
<tr>
<td>Lipitor (20, 40 mg)</td>
<td>30</td>
<td>Did not split cleanly. Coating peeled.</td>
</tr>
<tr>
<td>Oretic (25 mg)</td>
<td>60</td>
<td>Crumbled. Uneven break.</td>
</tr>
<tr>
<td>Oretic (50 mg)</td>
<td>20</td>
<td>Crumbled. Uneven break.</td>
</tr>
<tr>
<td>Viagra (50 mg)</td>
<td>25</td>
<td>Diamond-shaped tablets. Difficult to locate midline.</td>
</tr>
</tbody>
</table>

*Half-tablets needed to be between 85% and 115% of target weight to be considered evenly split.
FDA Would Advise Against Such Tablets - This type counselling take away from what really needs to be said
Patients often hear what they want to hear and then *secundum artum* (s.a.) they improvise. Be Specific!

The next few slides are some examples of how our creative patients improvise.
Level of Intellect, Language Issues Multicultural Differences

Hard facts on intellect:

1. **40%** of patients with chronic illnesses are functionally illiterate.

2. **25%** of all adults read below 5\textsuperscript{th} grade level.

3. **75%** of patients discard medication leaflets/Med-guides without reading them. The electronic age has desensitized to hard documents.

*Talk simple and be straightforward*
Talk Simple and Straight Forward

• Avoid using medical terms. We have enough now to deal with milliliters.

• Do not finish by asking patients do they understand? Yes often means they heard you.

• Instead ask them questions about the product usage:
  • e.g. How many times a day are you go to use the medicine? What time of day? What does that cautionary label really mean? etc.
Conversations between pharmacists and patients are also strained by

1. Prescription workload
2. Insurance issues
3. The patient’s preoccupation with ............

“What is their Co-Pay?”

and with electronic prescriptions they are more likely to be asking pharmacists

“What did the doctor write for, how many, etc.”?
Poor Communication Between Pharmacists and Physicians

Pretty much resolved with electronic prescribing!

1. Reading Prescriptions *(90 - 95% gone)*

2. Misconceptions of Abbreviations *(95 to 98% gone)*

3. Drug “Look and Sound-A-likes” *(really getting better)*

4. Generic Drug and Trade name Confusion *(under control)*
Misinterpretations
Thanks to Electronic Prescribing
Are Almost All Gone
Misinterpreted Handwriting or Abbreviations

• Prescription for: Amaryl (glimepiride) 2mg

• Medication Error: The “2” was too close to the “l”, which led the pharmacist to misinterpret the prescription as Amaryl 12mg daily. (Pharmacist Pfill dispensed Amaryl 4mg take 3 tablets daily).

• Inadequate/Lack of Knowledge:
  • MDD for Amaryl is 8mg/day (Got you litigation)
# Misinterpreted Handwriting or Abbreviation

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Intended Meaning</th>
<th>Error</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.D., q.d.</td>
<td>Latin for “every day”</td>
<td>Period after “Q” mistaken for “I” and has led to medications being administered four times daily (qid) rather than once daily</td>
<td>Write out “daily”</td>
</tr>
<tr>
<td>+</td>
<td>Plus sign</td>
<td>Misread as 4 (numerical four); e.g., “+6 units” misread as “46 units”</td>
<td>Spell out “and”</td>
</tr>
<tr>
<td>AU, AS, AD</td>
<td>Both ears, left ear, right ear</td>
<td>Misread as Latin OU (both eyes), OS (left eye), or OD (right eye)</td>
<td>Write out full intended meaning.</td>
</tr>
<tr>
<td>µg</td>
<td>Microgram</td>
<td>Misread as milligram (mg)</td>
<td>Use “mcg.”</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Intended Meaning</td>
<td>Error</td>
<td>Recommendation</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Q.O.D., q.o.d.</td>
<td>Latin word for “every other day”</td>
<td>Mistaken for “QD” or “qd” or for “QID” or “qid”; if “o” is poorly written, it may look like a period or “l”</td>
<td>Use “q other day”</td>
</tr>
<tr>
<td>TIW</td>
<td>Three times a week</td>
<td>Misinterpreted as “three times a day” or “twice a week”</td>
<td>Write out “three times a week.”</td>
</tr>
<tr>
<td>U</td>
<td>Units</td>
<td>Misread as zero (0), four (4), or cc</td>
<td>Write out “units”</td>
</tr>
<tr>
<td>x3d</td>
<td>For three days</td>
<td>Mistaken for “three doses”</td>
<td>Write out “for 3 days”</td>
</tr>
</tbody>
</table>
Directions for the oral contraceptive ethinyl estradiol and norgestimate (Tri-Sprintec-Teva) were entered incorrectly.

The directions should have been

- “Take 1 tablet daily for dysmenorrhea”;
  instead, the prescription was labeled
- “Take 1 tablet daily for dyspepsia”
• The pharmacy discovered that the sig code “dys” had been created as a shortcut for dyspepsia, but the technician thought it represented dysmenorrhea. The technician entered “dys” during data entry.

• The translation to dyspepsia was not caught by the verification pharmacist, nor was it caught during two subsequent refills.

Once an error starts it goes viral
• A contributing factor for this error may have been the newness of the technician, but adding ambiguous, **dangerous sig codes** to computer systems at store level was also a factor.

• Pharmacists should routinely run reports of system *sig* codes and mnemonics in use, **review for dangerous and error-prone codes and mnemonics**, and remove dangerous or outdated codes from the computer system.
No More Misinterpreted Handwriting or Abbreviations with EP

Examples:

4 or 44 units?

44 regular insulin

6 or 60 units?

60 regular insulin
What’s the Problem?
Illegible prescription

• Delays medication administration
• Increases potential for a serious medication error due to a misunderstanding of the intended drug, dosage, route of administration, or frequency.

Almost all of these type errors are in our rearview window now thanks to electronic prescribing.

Scripts are being written and scripts are being filled.

An Average 20 seconds longer per prescription or 6 minutes a day for Doctors

Think about those pictures in your phone that just stay in your phone.

Better patient compliance resulting in better patient care.
Doctor is in the game! And on your team!

- Complete directions for use
  - Route of administration
  - Frequency of dosing
  - Ambiguous orders should be avoided unless accompanied by further directions “Take as directed”

- **Purpose of the medication – Got to get this!**
  - This does NOT violate HIPPA regulations as stated by the US Department of Health Services

- Duration of therapy and refill information
Better communication

If you have any doubt about any prescription, DO NOT dispense it until complete verification and clarification are done.
What’s the Problem?

Misinterpreted prescription

• Tricks but no treats: Illusions and medication errors

  • Confirmation bias – seeing something familiar while overlooking any disconfirming evidence.

• Minds can be “tricked” into incorrect assumptions and errors especially when reading drug names and strengths.

• Illegible handwriting
Do Not Work On Several Prescriptions At One Time

PARIS
IN THE
THE SPRING
Do Not Work On Several Prescriptions At One Time

PARIS
IN THE
THE SPRING
• Recommendations

  • Read prescriptions and labels carefully.

  • When working rapidly, people begin to picture a sought after item in their minds leading to medication errors. **Human Robotics – Bad!**

  • Be aware of sound alike medications on those taped messages.
Drug Name Confusion

1. Look-A-Likes
2. Sound-A-Likes
3. Same Product, Different Brand Names
4. Potentially Confusing Sustained Release Products
Lamisil

Lamictal
Lamisil confused with Lamictal

- Patients with *epilepsy* who do not receive Lamictal due to an error would be *inadequately treated* and could experience serious consequences.

- Conversely, patients erroneously receiving Lamictal would be unnecessarily subjected to risk of potential side effects (including *serious rash*) and would *miss important antifungal therapy.*
Look-Alike / Sound A-Like (continued)

Toprol XL / Topamax / Tegretol

• At least one suicide attempt was possibly linked to failing to receive the right drug

• At least one patient who erroneously received Toprol XL experienced a dangerous drop in heart rate

• Recurrences of seizures, hallucinations and hypertension due to receiving the wrong medication
Salagen

Selegiline
Sound-A-like- Salagen and Selegiline

Home health care nurse took order from DDS for dry mouth. Both drugs are available as 5mg/tab.
Nurse misheard order and called pharmacy for Selegiline 5 mg. (Scope error)
Error not detected until Fentanyl patch was ordered that signaled a drug interaction
Caught by . NICE JOB! – I guess?
Heparin Sodium Injections
(Available as 10U/ml and 10,000U/ml)

The higher dose heparin was mistakenly used for a heparin lock. The mistake was attributed

1. Both strengths are packaged in same size vial.
2. Both vials have blue backgrounds and similar closures

Manufacturer capitalizing on its logo inadvertently created a Look-A-Like
Hepflush10 and Heparin 10,000 units

Hepflush-10

Heparin 10,000 units
Healthy Life (02.20.08) - ABC News

http://abcnews.go.com/Health/video?id=4318168
What Was the Problem? (Key Points)

- The pharmacist *used a computer guided program for dosage units* and entered milligrams instead of micrograms.
- Dangerous abbreviations (JCAHO clearly prohibits the use of potentially confusing abbreviation.)
  - On JCAHO’s *“Do Not Use”* list

*If you work in a minefield your likely to step on a mine.*
Zinc Overdose

• Pharmacist calculated perfectly but click on mg and not mcg

• Two pharmacist obligated to check did not. (busy day in disorganized operation).

• Pharmacy Technician lack savvy and used over 48 vials

• Nurse hangs bag bigger than baby

• Baby dies.
Look-A-Like / Sound-A-Like (continued)

• **Problem**
  - *Three infants received 1000 times more heparin than intended*
  - *Vials containing 10 000 units/mL instead of 10 units/mL were used in error to flush vascular access lines*

• **Prevention**
  - Separate vials containing different strengths
  - Uses saline to flush patient peripheral lines
• Pyridium given for Pyridoxine

• Metolazone given for Methimazole

• Risperidone given for Ropinirole
Sound Familiar- Hospitals?

- Heparin Errors
- Zinc Overdose
- Saline Overdose
- Insulin Doses
- Infusion Rates
- The Invisible IV errors
- Etc.
1. On Monday, Dec. 1, Loretta Macpherson came to the St. Charles Bend Emergency Department for treatment following a brain surgery at Swedish Medical Center in Seattle. The physician who cared for Ms. Macpherson here ordered **fosphenytoin**, an anti-seizure medication, to be administered intravenously.

2. The drug was correctly entered into the electronic medical records system and the **correct order was received by the inpatient pharmacy**.

3. The order was read in the inpatient pharmacy, but an IV bag was inadvertentlly filled with **rocuronium** – a paralyzing agent often used in the operating room.
4. The label that printed from the electronic medical records system and was placed on the IV bag was for the drug that was ordered – fosphenytoin – although what was actually in the bag was rocuronium.

5. The vials of rocuronium and the IV bag that was labeled “fosphenytoin” were reviewed without the error being noticed.

6. The IV bag was scanned in the Emergency Department, but because the label on the bag was for the drug that had been ordered, the system did not know to sound an alarm.

7. The bedside caregiving staff had no way of knowing the medication within the bag was not what had been ordered.
8. Shortly after the IV was administered to Ms. Macpherson, a fire alarm, known as a “code red,” sounded due to an issue in the Heart and Lung Center.

9. A staff member closed the sliding door to Ms. Macpherson’s Emergency Department room due to the code red to protect her from potential fire hazards.

10. The paralyzing agent caused Ms. Macpherson to stop breathing and to go into cardiopulmonary arrest. She experienced an anoxic brain injury. She was taken off of life support on Wednesday morning and died shortly thereafter.
Fosphenytoin and Rocuronium

Fosphenytoin
anti-seizure

Rocuronium
paralyzing agent
Brand names that look or sound alike play a large role in medication errors.
Brilinta and Brintellix

Brilinta (ticagrelor)
Antiplatelet agent

Brintellix (vortioxetine)
Major Depressive Disorder
- A family medicine physician was attempting to electronically prescribe Brintellix 10 mg daily for a patient’s major depressive disorder.

- However, after typing the first few letters of the brand name into the computer system, he incorrectly selected Brilinta, an antiplatelet agent that is used with acute coronary syndrome.
• In this case, Brintellix being a 10 mg tablet (also available in 5, 15, and 20 mg tablets) and Brilinta being a 90 mg tablet did not prevent this selection error and the patient picked up the prescription from the pharmacy.

• Later, at home, she read the attached information regarding this new medication and realized that it did not sound like something she was supposed to take for depression.

• **Resolved by FDA!**
Desyrel and Seroquel

Desyrel (trazodone)
Antidepressant

Seroquel (quetiapine)
Antipsychotic
• A prescription for Desyrel (trazodone) 50 mg was mistaken for Seroquel (quetiapine) 50 mg.

• Both medications may be used for patients given a psychiatric diagnosis.

• The error was only noticed by the patient right before he paid for the prescription at the pharmacy because the cost of the Seroquel was much higher than what he was used to paying for the Desyrel.

• Although E-prescribing is not perfect, it can help prevent mix-ups involving hand writing.
Fetzima and Farxiga

Fetzima (levomilnacipran)
antidepressant

Farxiga (dapagliflozin)
antidiabetic
Fetzima was approved in July 2013. It is a selective norepinephrine and serotonin reuptake inhibitor for major depressive disorder.

- It is available in 20, 40, 80 and 120 mg ER capsules.

Farxiga was approved in January 2014 to lower blood glucose levels in adults with type 2 diabetes when used with diet and exercise.

- It is available in 5 and 10 mg tablets.
Upon review of 5 medication error reports received by the FDA, it is believed that the errors can largely be attributed to the drugs being approved and marketed within 6 months of one another, as well as both drug names beginning with the letter F and ending with the letter A, being the same length, and having the same number of syllables.

Prescribers and pharmacists also may choose the wrong item from computer screens.

Furthermore, the container labels might appear similar since both display the proprietary name of the product in red font.
Scope of Practice

Authorized Prescribers

• Physicians (M.D., D.O.)
• Registered Physician Assistants (R.P.A.)
• Dentists (D.M.D., DDS)
• Veterinarians (D.V.M.)
• Podiatrists (D.P.M.)
• Nurse Practitioners, Certified (C.N.P.)
• Mid-Wives (F)
• Optometrists (O.D.)

Authorized Dispensers

• Pharmacists
• Pharmacy Interns
• Authorized Prescribers
Scope of Practice (continued)

Michael Jackson
1958-2009

Dr. Conrad Murray

Short-acting, Intravenously administered hypnotic agent
Only fill prescriptions that are in scope of the prescribers practice
<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Multiple FDA Approved Indications</th>
</tr>
</thead>
</table>
| **Revatio and Viagra** *(Sildenafil)* | **Revatio**: Pulmonary arterial hypertension  
Viagra: Erectile dysfunction |
| Zyban and Wellbutrin *(buproprion)* | Zyban: Smoking cessation  
Wellbutrin: Depression |
| Propecia and Proscar *(finasteride)* | Propecia: Male pattern baldness  
Proscar: BPH |
| Sarafem and Prozac *(fluoxetine)* | Sarafem: Premenstrual dysphoric disorder  
Prozac: Depression, OCD and bulimia |
Pro-drug metabolite duplication

**Classic:** Patient dies of sepsis when given azathioprine an immuno-suppressant and mercaptopurine the metabolite of azathioprine concurrently.

“Duplication of dosage”
<table>
<thead>
<tr>
<th>Drug Name</th>
<th>United States (Use)</th>
<th>Europe (Use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilacor</td>
<td>Diltiazem (angina, hypertension)</td>
<td>Digoxin (CHF, arrhythmia)</td>
</tr>
<tr>
<td>Flomax</td>
<td>Tamsulosin (BPH)</td>
<td>Morniflumate (pain, inflammation, fever)</td>
</tr>
<tr>
<td>Vivelle</td>
<td>Estradiol (estrogen deficiency, menopausal disorders)</td>
<td>Ethinylestradiol, norgestimate (acne, tri-phasic oral contraceptive)</td>
</tr>
<tr>
<td>Norpramin</td>
<td>Desipramine (depression)</td>
<td>Omeprazole (peptic ulcer, GERD)</td>
</tr>
</tbody>
</table>
The degradation of drug potency occurs when the compounded pharmaceuticals are stored for periods of time exceeding 24 hours.

The results are based on testing that these hospital pharmacies and outsourced compounding facilities are required to perform as compounders of pharmaceutical products.
Long Acting Formulations

- **Can not** be split/chewed
- q8h, q12h, or q24h
  - Problem: XR Mix-up
    - Wellbutrin SR (BID)
    - Wellbutrin XL (QD)
      - Both available as 150mg
  - **Solution: Standardize the abbreviations (XL-24 or SR-12)**
Long Acting Formulations (continued)

• Problem
  • Cipro (q12h)
  • Cipro XR (q24h)
    • Both available in 500mg strength

• Problem
  • Ritalin SR (QD – BID; spaced 8 hours apart)
  • Ritalin LA (QD)
    • Both available in 20mg strength

• Problem
  • Depakote (Delayed Release – QD to TID)
  • Depakote ER (Extended Release – QD)
    • Not Substitutable

• Problem
  • Metadate ER (BID to TID)
  • Metadate CD (QD)
    • Not substitutable
Medication Guides & Counseling
What Can We Use To Help Patients To Understand The Proper Use of Their Medications?

Medguides represents a federally approved alternative for

• Drugs that are likely to be misused,

• Drugs that must be used correctly to be effective, and for those, drugs that patients should be allowed to participate in the risk assessment as to whether they want to use or not to use the drug prescribed.
The FDA deems a prescription drug requires a Medguide if it meets at least one of the three criteria listed below:

1. Patient labeling that would help prevent serious adverse events.
2. Patient labeling of serious drug risks that could affect patient’s decision to use product.
3. Patient labeling that would enhance adherence to directions crucial to drug’s effectiveness.
The FDA was urged at the June 2007 meeting:

1. To increase **awareness** of Medication Guides.
2. To make Medication Guides **easier to read and understand**.
3. To move to make Medication Guides **available electronically**.
4. To **combine** with other information sources such as in Consumer Medication Information.
General Format Requirements for Medication Guides

• Are written in English using **10 point type** and highlighted for emphasizes.

• Are accurate and **not contrary** to approved labeling.

• Are **specific** and comprehensive.

• Bears the **generic, brand and proper** names of the prescription product.
1. Itemizes the risk benefit statements regarding the drug’s use.
2. Identifies which patients and under what circumstances when a drug should not be used.
3. Stresses the importance of complete compliance to dosing instructions.
4. Lists instructions as to what to do if patient misses dose or take overdose.
5. Identifies activities to be avoided (e.g. driving, sun bathing, etc.) and drugs, foods and alcohol to be avoided.
7. Identifies pediatric, geriatric and specific race risks.
Medication Guides Also Include General Information About the Safe and Effective Use of The Rx Product

- Lists the “Safe and Effective Use” of the product.

- Advises to use the product for “intended condition only”.

- Cites possible Use of Medication “off label”.
Lack of Patient Comprehension (continued)

No time to counsel

I’m in a hurry... Just take it as directed.
Pharmacists Are Expected To Explain To Their Patients (Using Medication Guides) The Risks and Benefits of These Carefully Selected Medications”

The pharmacist’s role in risk management is commonly reduced to the 5 Cs. Pharmacists must be:

1. CORRECT
2. COMPLETE
3. CONCISE
4. CONSISTENT
5. CAUTIOUS
Let’s Try The 5 Cs Using a Symbicort Pressurized Metered Dose Inhaler

1. CORRECT

Be accurate in conveying information

• Wrong!
  • “ and to use your Symbicort correctly, shake well, press/actuate and breath deeply....

• Right!
  • “ and to use our Symbicort correctly, shake well, breath deeply and press/actuate....”
“and to use our Symbicort correctly, shake well, breathe deeply and press and **hold your breath** for 5 to 10 seconds and then exhale slowly to maximize deposition in the lungs....”
Symbicort (continued) - Be Concise
(Too much information overloads patients)

3. CONCISE

• Say only what is necessary and just don’t say what ever comes to mind.

• If the doctor writes take twice daily for asthma then do not start talking about the product’s use in COPD. It is irrelevant and distracts from important information.
Symbicort (continued)- Be Consistent
(Stay with the medication guide’s directions)

4. CONSISTENT

• Adopt what is given in the medication guide. If you differ from the guide, you will create confusion for the patient.

• e.g. Do not say “hold the Symbicort 4 to 6 inches from the mouth before actuating.”

• There are those that argue better results, but in fact, it is not only not true but it is also confusing because it differs from the medication guide.
• Do not be overly judgmental unless it is critical to the patient’s safety.

• Do not say “if Symbicort does not work ask your physician to write for Advair.”

• Suggest only “if you should not see any improvement, call your physician.”
Lack of Patient Comprehension
Pressurized Metered Dose Inhalers (pMDIs) Like Symbicort

<table>
<thead>
<tr>
<th>MANEUVER</th>
<th>% OF SUBJECTS PERFORMING MANEUVER CORRECTLY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COPD (N=51)</td>
</tr>
<tr>
<td>Remove cap</td>
<td>100.0</td>
</tr>
<tr>
<td>Shake inhaler</td>
<td>64.7</td>
</tr>
<tr>
<td>Hold inhaler upright</td>
<td>92.2</td>
</tr>
<tr>
<td>Tilt head back</td>
<td>82.4</td>
</tr>
<tr>
<td>Close lips</td>
<td>78.4</td>
</tr>
<tr>
<td>Breath in &amp; activate inhaler; inhale slowly and deeply</td>
<td>60.8</td>
</tr>
<tr>
<td>Hold breath (10 seconds)</td>
<td>25.5</td>
</tr>
<tr>
<td>Breath out through the nose</td>
<td>29.4</td>
</tr>
<tr>
<td>Use one puff</td>
<td>74.5</td>
</tr>
<tr>
<td>Wait 30 seconds</td>
<td>58.8</td>
</tr>
</tbody>
</table>
FIGURE 2: INSTRUCTIONS FOR USING INSs

1. Blow nose gently to clear nostrils.
2. Remove cap and shake spray bottle.
3. Press against the outside of one nostril with your finger to close off that nostril.
4. Insert spray nozzle into the other nostril, and aim the nozzle toward the back of the nose and away from the nasal septum.
5. Spray into the nostril while snifing gently. Depending on the dosing, another spray may be administered into the same nostril.
6. Repeat steps 3 through 5 for the other nostril.
7. After use, wipe the nozzle with a tissue and replace cap.

INS = intranasal corticosteroid.
**Unexpected Positive Fallout from Patient Consultation**

- **Drug duplication can be avoided** because patients often get **samples** (not on their profile) from the physician or State sponsored programs
  - Zyban
- **Drug duplication can also be avoided** with **common OTC products**
  - Antivert with Bonine or Dramamine II
- **Drug – Device Interactions**
  - e.g. Tetracycline with UV lamp
  - e.g. Surgical stockings with Lo Ovral
- **Drug – Herbal Interactions can also be avoided.**
  - e.g. Garlic and Coumadin
For Example Some Herbal Products Aggravate Hypertension
Unexpected Positive Fallout from Patient Consultations

Allergic reactions associated with foods may also be associated with selective drug additives. (e.g. Tartrazine, FD&C #5)

1. **Milk proteins** are found in Advair & Serevent Diskus and in the Foradil Aerolizer.
2. **Soy protein isolates** are present in Benadryl Fastmelts.
3. **Sodium caseinate** is an ingredient in chewable calcium products.

Allergic patients should **carry Epi-pen**
What’s in a name? & Safety Concerns
What’s in a Name?  
(For Starters The FDA Approval Process)

• Brand Names are
  • Chosen by drug manufacturer
  • Designed to appeal to patients and doctors.
  • Designed to fit or **convey a specific therapeutic modality**.
  • Subject to FDA approval
  • Often rejected by the FDA if confusing. One third of the hundreds of names proposed each year are in fact rejected.
What’s in a Name? (continued)

• Efforts to reduce medical errors stemming from look or sound alike drugs
  • Drug makers contract with advertising companies to test their proposed drug names
  • FDA does in-house testing to ensure they are not approving a name that’s a problem
  • FDA Office of Postmarketing Drug Risk Assessment has the authority to evaluate brand names
    • Works with the manufacturer if the name is considered to be confusing
Recommendations

• Be aware of the new active ingredient and its potential adverse effects.

• Provide shelf talkers to alert consumers.

• Advise patients to read the label.
Summary

Lets go to the Numbers (Pharmacy Math 101)

Number of Patients hurt by Prescription Errors = \[
\left( \text{Total Rx's Filled Annually} \right) \left( \% \text{ Filled Incorrectly} \right) \left( \% \text{ Harmful if Wrong} \right)
\]

\# of Patients Hurt = (8,000,000,000) (1.7%) (0.1%)
Assumes 99.9% of all Rxs are filled correctly
Summary

# of Patients Hurt = (8,000,000,000) (1.7%) (0.1%)

= 136,000 patients
Dangerous Drug Classes – Dangerous Doctors

• Central nervous system drugs
• Cardiovascular drugs
• Oncology drugs
• Psychiatrists with a flare
• Dermatologists who dare
• Psychodermatologists with flare who dare
• Drugs used off label
Lack of Patient Comprehension
A little poetry:

Lack of patient illiteracy is known to rears it’s **ugly head** many ways. Sometimes humorously which helps us pass our days.

But there are serious other times, that **ugly head**, makes each of us more than earn our pay.

Make a difference, get to the edge of the box each day, and help counsel patient ignorance away.
From the Archives

Suppository Stories

• Mother brought her child into the ER to get a suppository removed.
  • Mother did not know that the foil wrapper on the suppository had to be removed before insertion. (Failure to remove foil also decreases bioavailability!)
From the Archives

Inhaler Problems

• Spiriva HandiHaler® and Foradil Aerolizer®

• 32 reports that patients accidentally swallowed the capsules rather than consuming them with an inhalation device
  • 1 patient reported breathing difficulties
  • 1 patient was hospitalized with breathing difficulties
  • 1 reported death (but the agency said it was unrelated)
From the Archives

• Nasal sprays for systemic drug delivery
  • (e.g. Calcitonin salmon, Butorphanol, Desmopressin, sumatriptan, and zolmotriptin)

• Some Electronic prescribing formats and patient habits often leads to overdosing by spraying drug in both nostrils.

Warn patients not to spray both nostrils
(Doubles the Prescribed Dose)
Note: 83% of all prescription errors are detected during patient consultation

Key error prevention step
Recommendations
Lack of Patient Comprehension

No time to counsel

• Recommendations
  • “Show and tell” technique
    • Open the container to take a final look at the medication
    • Show it to the patient – an error may be caught at this point if the patient does not recognize the medication
Recommendations

- Ask:
  - What did the doctor tell you this medication is for?
  - How did your doctor tell you to take this medication?
  - What directions did the doctor give you for using this medication?
  - Do you have any questions?
What’s the Problem? (continued)
No time to counsel

• Recommendations

  • Have patients recite back instructions

  • Assure patient understanding of proper drug preparation and storage
    • Nitroglycerin sublingual must be kept in original container – decreased efficacy if stored improperly

  • Encourage patients to ask questions about their drug therapy

  • Provide written information at appropriate reading level
What’s the Problem? (continued)

No time to counsel

• Recommendations
  • Tell the patient to:
    • Keep medications in their original containers
    • Read the label every time you take a dose
    • Turn on the lights or wear your eyeglasses
    • Do not store medications in the bathroom
    • Flush old medications down the toilet
    • Make a list of medications including the dose, how often you take them, name of the pharmacy and the imprint on each tablet or capsule.
What’s the Problem? (continued)

No time to counsel

• Recommendations
  • Contact the pharmacist or prescriber if they have any questions or concerns
Part 8 – Learning Objective 6

Impact of Electronic Prescribing (EP) on medication errors

Almost done!
EP allows for

1. Sending safety alerts
2. Efficient transmission of Rx s
3. Cost savings
4. Better patient compliance
5. Improving privacy
6. Ease in updating of electronic health records
What’s the Problem?
Support Staff Errors

• Bagging error
  • Wrong name or address on bag
  • Item omitted from bag
  • Extra item in bag

• Pick up dispensing error
  • Patient receives another patient’s medication (Wrong bag)
What’s the Problem?
Support Staff Errors

- Mixing up patient profiles
  - Poor visibility of patient’s last name
  - Same last names or look alikes
  - Orders entered into the wrong patient profile
What’s the Problem?
Support Staff Errors

• Reasons for the error
  • Failure to collect pertinent patient information (address, date of birth, allergies, etc.)
  • Failure to verify pertinent patient information
  • Errors in data entry
  • Disorganized work flow
What’s the Problem?
Support Staff Errors

• Recommendations
  • All prescriptions should always be reviewed by a pharmacist prior to dispensing.
  • *Systematic approaches*: checklists for accepting, dispensing, checking and delivering prescriptions to patients should be established.
  • At least two patient identifiers
    • Date of birth, address, etc.
  • Provide patient counseling!
Recommendations About Look and Sound A-Likes

- Maintain awareness of look-alike and sound-alike drug names

- Determine the purpose of the medication before dispensing when ever possible.
Recommendations

- Verbal orders
  - Encourage staff to read back all orders
  - Spell the product name
  - State its indication
  - Speak like pilots
    - 13 sounds like 30
    - 19 sounds like 90
    - Say “one-three” or “three-zero”
Recommendations (continued)

• Change the appearance of look-alike product names on
  • Computer screens
  • Pharmacy shelf labels
  • Automated dispensing cabinets
  • Bold face, color, and/or tall man letters (hydrOXYzine, hydrALAZine)

It looks like hydrALAZine.
I think it’s hydrOXYzine.
• Affix “name alert” stickers

• Store products with look or sound-alike names in different locations in the pharmacy
• Independent double checks in the dispensing process
  • One person interprets and enters the prescription into the computer
  • Another person reviews the printed label against the original prescription and the product
• Must contact the prescriber when uncertainties exist
• Report errors and potentially hazardous conditions
Compounding Prescriptions

PART EIGHT
Compounding Prescriptions - Potential Source of Major Medication Errors

• Let’s remember when we compound we often have some unexpected events even if we expertly compound and get our calculations right.

1. Dermatological preparations are tricky. The active release, stability, compatibility and calculated concentration is at best a guess if other than the exact same base is used.
The NYS Board of Pharmacy considers these issues so critical only pharmacy interns under the supervision of a pharmacist and pharmacist may compound.

They have made it clear no unlicensed personnel or pharmacy technicians may compound prescriptions.
Five Rights
5 Rights

• Right patient
• Right drug
• Right dose
• Right route
• Right doctor
What Should Pharmacist Pfll be Thinking About If a Medication Error Occurs?

- Stay calm
- This will not happen again.
- I’m so sorry.
- What went wrong?
- How is the patient feeling?
- Is the patient OK?
Apologies Gain Momentum

• In the past: Avoid making apologies because it could lead to problems if sued.

• Present: Sorry Works. May reduce malpractice claims, and ethically the right thing to do.
What To Do When a Prescription Error Occurs?

1. Stay calm
2. Patient safety is the first priority
3. Move the discussion to a private area if possible
4. Acknowledge the problem
   • Show concern and empathy
   • Focus on what the patient is saying
5. Apologize – speak to the patient directly

6. Find out what happened
   Ask questions and listen carefully to the answers
   Ask if any of the incorrect medication was taken. If so find out how much the patient took and for how long.

7. Ask how the patient is feeling – show your concern with your tone of voice and body language.
8. Identify the appropriate steps to be taken
   Keeping in mind policy, patient’s expectations, and what is possible

9. Describe what will be done and when, if the problem cannot be solved immediately. Be realistic!

10. Apologize again, and thank the patient for bringing it to your attention
11. Record the steps taken to investigate and address the problem

12. Follow up with those involved to assure satisfaction

13. Explain that the pharmacy is investigating how this happened so that it will not happen again.
DON’T

• Make excuses
• Use a defensive tone of voice
• Take any error or potential error lightly
• Delegate the responsibility to handle the error to a non-pharmacist
• Require the patient to make the effort to obtain the correct medication
DON’T (continued)

• Violate patient confidentiality
• Apologize via a voice mail or answering machine
• Underestimate the concern of the patient
• Assume the patient is okay
• Make the patient wait
Report The Error

PART TEN
Report the Error

• Error reporting is voluntary

• Information reported would be analyzed for trends and make recommendations to prevent future mistakes

• Without reporting, such events may go unrecognized and thus important epidemiological and preventive information would be unavailable
Report the Error (continued)

• Report errors to:
  • USP-ISMP Medication Error Reporting Program
  • Food and Drug Administration MedWatch for ADRs
  • National Coordinating Council on Medication Error Reporting and Prevention
• ISMP contacts regulatory authorities and manufacturers to encourage changes in products when safety is of concern.

• Device-related reports are also shared with ECRI, a nonprofit agency that focuses efforts on improving the use of medical devices.

• The reporter’s identity is not disclosed to anyone without the reporter’s permission

• Reports can also be submitted anonymously.
We learn from each other’s mistakes.
Don’t make the same mistake twice!
&
Don’t be like Pharmacist Pfill!
Remember you are the “GATEKEEPER”