DRUG DELIVERY IN DIFFICULT SITUATIONS

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OBJECTIVES

- To define drug delivery systems
- To describe difficult situations in drug delivery
- To identify methods to utilize in drug delivery in patients having difficulty with medications
- To identify situations to avoid in manipulating medications for administration.
The method or process of administering a pharmaceutical compound to achieve therapeutic effect in the body
GOOD DELIVERY?

THE LATEST WAY TO DEAL WITH TROPICAL DEPRESSIONS
What do they have in common?

Answer: The majority of these drugs were never formally tested in pediatric patients.
PEDIATRIC DRUG ADMINISTRATION

http://www.youtube.com/watch?v=MGdBWSPr9cl
COMMON ROUTES OF ADMINISTRATION

- Oral (by mouth)
- Buccal (inner cheek / gum)
- Sublingual (under the tongue)
- Subcutaneous
- Intramuscular
- Intravenous
- Through mucous membranes such as rectally, vaginally, nasal
- Otic
- Inhaled
- Topical
ORAL ADMINISTRATION

- Medications taken by mouth
- In pill (tablet), capsule, or liquid form
- Absorption is slow
- Absorption is through the digestive system
- When is this not the best option?
  - Vomiting
  - Short gut
  - Slow gut (due to disease, medicine)
  - Underdeveloped oral skills (age, trauma, disease)
  - Age?
DOSING ORAL LIQUIDS

- Palatability (worst-steroids and clindamycin)
- Stability
- Administration
PEDIATRIC FORMULATION CONSIDERATIONS

- Taste (alcohol not usually good)
- Smell
- Texture
- Shape
- Inert ingredients
HELPFUL HINTS – INFANTS/TODDLERS

- Give prior to a feeding (when acceptance is higher and the child is less likely to vomit)
- Mix with a small amount of food or formula
- Use an oral dosing syringe – administer between the back of the gums of the mouth and cheek to avoid contact with the taste buds
- Avoid premixing in batches due to drug compatibility information being scarce.
HELPFUL HINTS – CHILDREN/TEENS

- Five years old is usually the minimum before tablet/capsule swallowing is introduced.
- Tablet/capsule swallowing should be a skill that is accomplished with a child in “double-digits” if no other problems are interfering.
- Use chilled solutions if possible.
- Avoid mixing in large amounts of food or drink.
- Avoid pre-mixing due to drug compatibilities.
- Make sure you know whether medicine can be put in or taken with juice, milk, water, etc. Acidity or non-acidity can affect molecules in drug.
- Still best to give with food if drug has good bioavailability with food (some have better with high fat meals).
PARENTERAL ADMINISTRATION

- Any medication that involves injecting a drug directly into a vein (IV), muscle (IM), artery (intrarterial), abdominal cavity (intraperitoneal), heart (intracardiac), into the bone (interosseous), or into the fatty tissue beneath the skin (subcutaneous).
- The speed of absorption varies but is faster than oral.
- IV is considered 100% absorption
- Parenteral is used when faster absorption is needed.
- Parenteral requires more preparation and skill
MUCOSAL DELIVERY

- Through the nose, rectum, vagina, or inhaled.
- The rectum is considered “enteral” or mucosal.
- Drops, suppositories, and creams should be warmed (not cold) prior to administration.
METHODS OF GIVING MEDICINE

- Ideally medication administration in any form can be accomplished with one person (family member/health care member)
- Assistance may be needed for medication administration at home or within the healthcare facility
- Some methods of assistance include the following
  - Positional – leaning the head, holding the body, holding limbs/hands/feet, stabilizing the head/neck
  - Distraction – one person distracts the child as the other administers medication
  - Reward – give a sticker, popsicle, or other reward (can even be “good job!”) as soon as medication administration is complete
  - Restraint - with or without papoose or other devices
Papoose Board

A board with velcro straps to restrain someone, usually a child
WHAT CHILD HAS NEEDED A PAPOOSE BOARD?

- Usually children with special needs
- Strong children
- Hyperactive children
- Scared children...have had procedures frequently enough to know something is about to happen
- Others....
A FOUR YEAR OLD STRONG WILLED CHILD
PAPOOSE BOARDS…WHAT DO “THEY” SAY?

As quoted from a local doc…”What are my options? Send the crying, flailing, little tornado home? Sedate him/her with drugs? Try to reason with a 3 year old that has a fishhook stuck through the cheek? It really depends on the situation. My daughter had to be papoosed one time to get a gummy worm out of her nose and I was grateful. It was a 10 sec procedure but they had to go precisely up the nostril with tweezers. She was young and scared and would NOT hold still.”

- As quoted from a parent…”There is something about the board that seems…unfair, really. Sneaky. A betrayal, and a ruthless display of dominance.”
PAPOOSE BOARDS...ETHICAL OR NOT?

Survey says....
OTHER DIFFICULT SITUATIONS

- Obese patients
- Hyperactive patients
- Patients with motor difficulty due to age, disease, or other health issues
A miracle drug is one that has now the same price as last year.

A new drug for Yuppies: It doesn’t give a sense of security or relaxation ---it makes you enjoy being tense.

Lady says to the pharmacist: “Why does my prescription medication have 40 side effects?” The pharmacist replies: “Because that is all we have documented so far.”
COMPLIANCE

Non-Compliance in kids about 50-70%
PATIENT COMPLIANCE (MANAGING THE PATIENT)

- Liquids (elixirs and suspensions) and chewable tablets are available for many medications
- Don’t forget the dosing syringes
- If possible, make all patients accountable regardless of age, but adolescent patients should definitely feel a part of medication decision making
PATIENT COMPLIANCE
(MANAGING THE PATIENT)
PATIENT COMPLIANCE (MANAGING MOM)

Mothers who were the most diligent in completing drug therapy had the following traits:

- Concerned about illness
- Felt the illness was a threat to the child’s health
- Had confidence in the child’s physician and the prescribed medications
SITUATIONS TO AVOID…

- Do not mix medicines with other food/liquid unless appropriate references are checked (drug references/pharmacist)
- Do not split or crush tablets unless ok –
  - Some drugs are NOT dispersed evenly in a tablet.
  - Some drugs are released differently if crushed.
  - Some drugs are ok to swallow but crushing allows them to be airborne which can have ill effects.
- Never store medicine in the bathroom or where moisture is released frequently
- Keep medicine in its original container
To help enforce the new medical privacy laws, pharmacists have been equipped with Tasers.
CONCLUSION

- Drug delivery can be difficult in pediatric patients
- Remember to utilize your references before suggesting to mix/crush medications.
- Consider getting assistance when needed.
- Keep your pharmacist number “handy” for questions regarding medications.
QUESTIONS????