Drug Interactions

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Together, we can change the course of the HIV epidemic...one woman at a time.

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Drug Interactions

• Some drugs, herbs, supplements, foods, beverages can change amount of HIV drugs in the bloodstream

• When one drug affects the level of another it is called an interaction
  – Some drug interactions do not cause problems
  – Some interactions can be harmful
Drug Interactions

• In order for a drug to work properly:
  – Must take the correct dose at the correct time so the right amount of drug enters the bloodstream

• Before an HIV drug is approved:
  – Researchers study different doses, choose one that is safe and effective
  – Dose has to be high enough to stop HIV from making copies, but not so high that it causes a lot of side effects

• Individuals should discuss drug interactions with providers when choosing new HIV drug combination, adding/removing any drug from regimen

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The Body Metabolizes Drugs

- This process involves the liver and kidneys:
  - Liver makes chemicals called enzymes to break down drug
  - Kidneys filter drug out of bloodstream and into urine
  - Drug is removed from the body in urine or feces ("poop")

- Sometimes, one drug affects the way another drug is metabolized
  - Speeds up or slows down action of liver enzymes
  - Can cause big changes in blood levels of other drugs that are broken down by the same enzyme
Drugs That **Slow Down Metabolism**

- Causes other drugs to be metabolized and removed from the system more slowly, which:
  - Increases amount of other drugs in body
  - Increases how long other drugs stay in bloodstream
- Individuals taking drugs that slow down liver enzymes should talk to their providers about adjusting doses of other medications
Drugs That Slow Down Metabolism

• *Can be useful in HIV treatment, for example:*
  – Norvir (ritonavir), a PI, makes liver enzymes work more slowly
  – “Boosts" levels of other PIs like Reyataz (atazanavir); amount of Reyataz in the blood is higher than it would be without Norvir
  – Lowers chance of developing resistance

• However …
  – Norvir can cause other types of drugs to have higher levels in the blood
  – Increased blood levels of drugs can cause overdoses or increase side effects
Drugs That Speed Up Metabolism

- Causes other drugs to be metabolized and removed from the system more quickly, which:
  - Decreases amount of other drugs in the body
  - May cause other drugs to be less effective
- Some drugs used to treat HIV-related conditions speed up liver enzymes
  - Can be serious if it causes the HIV drugs to be metabolized too quickly
Drugs That Speed Up Metabolism

- If HIV drug levels drop too low:
  - HIV can make more copies of itself
  - Viral load can go up
  - Resistance can develop
  - HIV drugs can stop working

- For example, NNRTIs like Viramune (nevirapine) and Sustiva (efavirenz), speed up enzymes
  - May remove other drugs from the system more quickly

- Individuals taking drugs that speed up liver enzymes should talk to their providers about adjusting doses of other medications
Other Types of Drug Interactions

• If drugs cause similar side effects, combining them may *increase the amount or seriousness* of those side effects
  – E.g., Combining Zerit (stavudine) with Videx (didanosine) may increase risk of **lactic acidosis** (high levels of lactic acid in the blood), especially in pregnant women

• Some drugs work against each other and should not be taken together
Prescription, OTC, complementary, and recreational drugs *may have major interactions* with HIV drugs:

- **Birth control pills** with ethinyl estradiol (form of estrogen) can interact with HIV meds, making birth control pills less effective, increasing chance of pregnancy

- **Complementary therapies**
  - Most vitamins and herbs have not been studied with HIV drugs
  - St. John's Wort (herbal anti-depressant) and garlic supplements should not be taken with any PIs or NNRTIs
Substances That May Interact with HIV Drugs

• **Recreational or street drugs and alcohol**
  – Reports of overdoses caused by taking *recreational drugs* and HIV drugs
  – Interactions between boosting agents (Norvir, Tybost) and methamphetamine (crystal meth, speed), MDMA (ecstasy), methedrone (meow mewo), or ketamine (vitamin K) are particularly dangerous
  – Combining alcohol and older HIV drugs (e.g., Videx) can be dangerous, but social drinking is considered safe

• **Methadone and buprenorphine**
  – Can interact with many HIV drugs
Other Drugs That May Interact with HIV Drugs

Classes of drugs that are more likely to interact with HIV drugs (*not a complete list*):

- Antianxiety drugs (benzodiazepines, or benzos)
- Antifungal drugs
- Antibiotics
- Antacids
- Antihistamines (allergy meds)
- Opioid-based pain killers (narcotics)

- Drugs to treat:
  - Convulsions or seizer disorder
  - High cholesterol
  - Depression
  - Problems with heart rhythm
  - Erectile dysfunction
  - Tuberculosis
  - Hepatitis C

- Drugs that:
  - Thin the blood
  - Increase bowel activity
Food

Any pills that you take *go through your stomach*

- What and when a person eats affects how much of a drug gets into the system
  - Most drugs are absorbed faster on an empty stomach, which can be a good thing, but can cause more side effects

- Some drugs need to be taken with food so they break down more slowly, or to reduce their side effects
  - Others should be taken with fatty foods

- Important to follow food instructions carefully
Taking Care of Yourself

• There are many possible drug interactions with HIV drugs
  – Important for health care provider and patient to review medications together, including OTC, prescription, street drugs, complementary therapies
  – Even if only used occasionally

• Providers may need to adjust doses or change drugs based on possible interactions
Taking Care of Yourself

To get the best results, it is a good idea to:

- Keep a list of all your drugs
- Give copy of drug list to all providers
- Discuss all medical conditions with provider
- Each time you are prescribed a new medication, check with provider to see if it’s safe to combine with other therapies
- Have all prescriptions filled at one pharmacy

- Review information that comes with each medication ("package insert")
- Learn about all possible side effects of your drugs
- Learn how, when, with what to take your drugs
- Do not stop/change drugs without talking to provider
- Report any side effects to provider

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Learn More!

• To learn more, please read the full fact sheet on this topic:
  – Drug Interactions

• For more fact sheets and to connect to our community of women living with HIV, visit:
  – www.thewellproject.org
  – www.facebook.com/thewellproject
  – www.twitter.com/thewellproject