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

• 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

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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

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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
Substances That May Interact with HIV Drugs

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
  - Calcium or iron should not be taken with INSTIs

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Substances That May Interact with HIV Drugs

• **Recreational or street drugs and alcohol**
  – Reports of overdoses from taking *recreational* and HIV drugs
  – Interactions between boosting agents and methamphetamine, MDMA, mephedrone or ketamine 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
  – Inform both opioid treatment and HIV providers about all drugs and supplements you are taking
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 or prescription heartburn medicines
- Antihistamines and nasal sprays (allergy medications)
- Opioid-based pain killers (narcotics)

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

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

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Food

Any pills that you take *go through your stomach*

- What you eat can affect how much of your drugs get into your 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
- If you have trouble getting the right food, ask for help

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Taking Care of Yourself

• There are many possible 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 the same pharmacy

• Read 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
• Tell provider about any side effects

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• 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
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