

# **OTC/Rx Drug Abuse Education**

## **University of Hawaii at Hilo College of Pharmacy**

### **Project Description & Implementation Overview**

OTC/Rx Drug Abuse Education began in August of 2011. The idea of this project arose from wanting to provide more education on this issue as a supplement to the curriculum. Our objective is to empower the high school students with knowledge on abused drugs so they can make informed decisions for their life. It has become an interactive event educating high school students on OTC (Over The Counter) and prescription drugs potential abuse. To determine the effects of the educational program surveys were sent to participants. The surveys measured their knowledge of these drugs before giving the presentation and after. The surveys also aimed to determine how this knowledge changed their view on OTC/Rx drug medications.

### **Purpose of the Project**

The purpose of OTC and prescription drug abuse education was to:

- Address the issue of rising drug abuse among teens;
- Expose student pharmacists to public speaking events;
- Applying volunteerism as part of the values of being a student pharmacist.

### **Project Budget: Expenses and Revenues**

1. OTC/Rx Drug Abuse Talk –Active classrooms were used at local high-schools at no cost to the chapter. Student pharmacists that participated in the project transported themselves to and from the schools. Pre and post surveys were designed and printed by active members using their own funds and not the organizations budget. Computers and internet access were borrowed and pre-recorded multi-media were used at no additional cost. Lunch was provided during one of the talks for several students. The local high-school provided these lunches complimentary to our presentation.
  - **Total cost = \$0.00**

### **Who and How Many Chapter Members are Involved?**

The high school talks were created using PowerPoint by AMCP members. The AMCP Chapter collaborated with APhA for volunteers. All material in this presentation was covered in the P1 year so that all student pharmacists could participate.

### **Who Should be Targeted? Audience or Involvement? How Do You Find Them? How Do You Contact?**

The school presentations were open to student pharmacists in either APhA or AMCP. There were sign-up sheets that limited the student pharmacists to 3-4 per session. The school presentations were publicized via school-wide emails, as well as announcements made in classes.

## **What Materials are Needed? Outside Resources, Ordering, etc?**

Classroom with projection system, laptop, water were needed for all of the presentation.

## **Timeline for Implementation and Execution**

At the start of the Fall semester contact local school principals to book time slots. At a general AMCP chapter meeting the dates are announced and recruitment begins. Once chapter members volunteer they attend a training session. A few days prior to the presentation a reminder email is sent out to the volunteers.

## **Follow-up with Faculty Members/Volunteers/Participants**

Thank you letters were sent to faculty that helped with the preparation of the PowerPoint and in advising the presenters by sharing their experience with bringing educational knowledge into a rural high school setting.

### **Project Evaluation:**

## **What Went Well? What Didn't? How Would You Improve for the Next Year?**

This was a very educational experience for both the student pharmacists involved and for the high school students. Presenters reviewed many of the top over the counter and prescription drugs that are abused nationally. Feedback from the high schools was positive. The schools were very welcoming when presenters came back to the same school for other health care classes. The high school students participated actively in the question and answer portion of the presentation. This was a great opportunity for educating high school students on this growing problem and for them to start thinking critically about this issue.

### **List Each "To Do" for Project**

- Review top abused over the counter and prescription drugs
- Create a PowerPoint presentation
- Contact local high school principals to book time slots
- Promote the event at chapter meetings
- Gather volunteers to present
- Train volunteers
- Present "OTC/Rx Drug Abuse" at local high schools

### **Project Checklist:**

- Coordinate with high school (dates, times, etc)
- Recruit volunteers from both the AMCP and APhA chapters
- Gather information on drug abuse
- Make a PowerPoint presentation
- Make driving arrangements to site
- Send thank you notes to faculty

# OTC and Prescription Medications

Academy of Managed Care Pharmacy  
UHH College of Pharmacy



# Objectives:

I. Video

II. Short Quiz

III. What are OTC drugs? Prescription Drugs?

IV. Commonly Abused Prescription and OTC Drugs

a. Tylenol (APAP)

b. Opiates (Oxycodone, Percocets, Methadone)

c. Amphetamines (Adderall, Concerta)

V. Overdosing & Diseases

VI. Epidemic & Help



# Over-The-Counter Drugs (OTC):

What are OTC drugs and how are they different than prescription drugs?

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What are OTC drugs and how are they different than prescription drugs?

**Over-the-counter (OTC) drug:** A drug for which a prescription is not needed.

**Prescription Drug:** a drug that is available only with written instructions from a doctor or dentist to a pharmacist.

What are the most common OTC medications accidentally taken by children?

# Over-The-Counter Drugs (OTC):

- What are the most common OTC medications accidentally taken by children?
  1. Acetaminophen (APAP)
  2. Cough & Cold Medicines
  3. NSAID's (non-steroidal anti-inflammatory drugs)

## Dextromethorphan (Robitussin)

NSAIDs  
(Ibuprofen, Motrin, Advil)



Acetaminophen (Tylenol)



# Over-The-Counter Drugs (OTC):

Excessive acetaminophen doses cause more acute liver failures than almost any other cause.

**Question** : Why, despite health care efforts, is Tylenol (Acetaminophen) still so widely misused?





# Over-The-Counter Drugs (OTC):

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# Over-The-Counter Drugs (OTC):

Tylenol is currently the most popular painkiller in the United States. Americans take over 8 billion pills (tablets or capsules) of Tylenol each year. Although Acetaminophen is contained in over 200 medications, most of them do not have the name "Tylenol" on their labels.



# Over-The-Counter Drugs (OTC):

## Question

What is the recommended daily dose of Tylenol for adults?

- a. 325 to 650mg every 6 hours as needed (not to exceed 3000mg in 24 hours)
- b. 200-400mg orally as needed (not to exceed 1200mg/day)
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# Over-The-Counter Drugs (OTC):

## Tylenol

Active Ingredient: Acetaminophen (APAP)

Strengths: 325mg, 500mg

Daily Dose: 325-650mg tablets orally every 6 hours as needed

Max daily dose of 3 grams/day

Uses: To treat many conditions such as headache, muscle aches, arthritis, backaches, toothaches, colds and fevers.



# Over-The-Counter Drugs (OTC):

**Question 1:** Hypothetically.... Lets say you have had a headache for the past week and you've been self-medicating with **Tylenol 500mg**, taking the max dose of 3grams/day. However, nothing seems to help. You decide to make an appointment with your PCP next week. Is it okay for you to take more tablets than the recommended max dose?

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**NO.** It is never okay to exceed the maximum daily dose. Why?

# Over-The-Counter Drugs (OTC):

## Is it safe for me to take Tylenol?

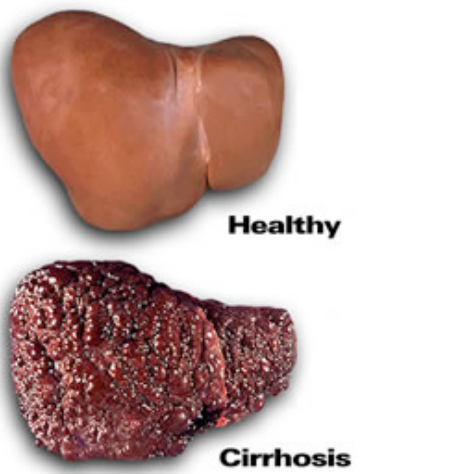
As already mentioned, an overdose of Acetaminophen can cause liver damage. This damage occurs in a **dose-related manner**.

Some other medications can cause liver injury in an unpredictable fashion that is unrelated to the dose.

In other words, liver injury from Acetaminophen occurs only when someone takes more than a certain amount of the drug.

The higher the dose, the greater is the likelihood of the damage.

Even though Tylenol most likely does not cause serious liver damage in recommended doses, it can cause elevations of liver enzymes in the blood suggesting injury to the liver.



This liver injury from an overdose of acetaminophen is a serious matter because the damage can be severe and result in liver failure and death.



# Over-The-Counter Drugs (OTC):

## How can accidental overdose be avoided in adults?

- Read the labels of the medication bottles carefully and determine the amount or strength of acetaminophen in each pill or spoonful.
- Become familiar with all of the other medications that you are taking. Remember that over 200 drugs contain acetaminophen as one of the ingredients and that certain drugs, such as phenobarbital, can significantly increase liver damage.
- Before you take the medication, write down (record) the maximum safe number of pills or spoonfuls that you can ingest over 24 hours. Stick to that quantity and do not deviate. If, however, you are unsure of the safe number of doses or think that you need to take more than you should, call your doctor or pharmacist.
- When you receive a prescription for a new medication, ask your doctor or pharmacist whether it affects the body's metabolism (processing) of the other medications that you are taking, including acetaminophen.
- If you have been drinking alcohol regularly, do not exceed taking 2 grams of acetaminophen over 24 hours. Be honest with yourself about the ingestion of alcohol.

# Prescription Drug Use

**Opiates** (Oxycodone, Hydrocodone)

**Amphetamines**  
(Adderall, Concerta)



# Over-The-Counter Drugs (OTC):

Fact:

The most commonly abused class of prescription drugs is:  
**Pain Killers** ( Opiates- Vicodin, Oxycontin)

The latest survey shows that nearly 5.3 million people abused pain relievers in the past month (NSDUH, 2009)

[Nida.nih.gov/infofacts/PainMed.html](http://Nida.nih.gov/infofacts/PainMed.html)

# Opiates (Oxycodone, Hydrocodone)

## What are Opiates?

- Opiates are most commonly prescribed for their analgesic, or pain-relieving properties
- Among teens, the most abused opioid is oxycodone (OxyContin, Percodan, Percocet) however hydrocodone (Vicodin) is also a widely abused opioid as well



## Opiates (Oxycodone, Hydrocodone)

The prescription drug **Vicodin (Hydrocodone)** is from the same class of drugs as **Heroin** and can be dangerous if used to get high.

### Fact:

In 2007, prescription pain medications like Vicodin and Oxycontin were involved in more overdose deaths than Heroin and Cocaine combined.

# Opiates (Oxycodone, Hydrocodone)

## How do Opiates work?

- Opioids bind to specific proteins called opioid receptors in the brain, spinal cord, and GI tract
- When the drug binds to receptors in the brain, it produces the effect of euphoria, drowsiness, in addition to pain-relief



Opioid receptors in the brain

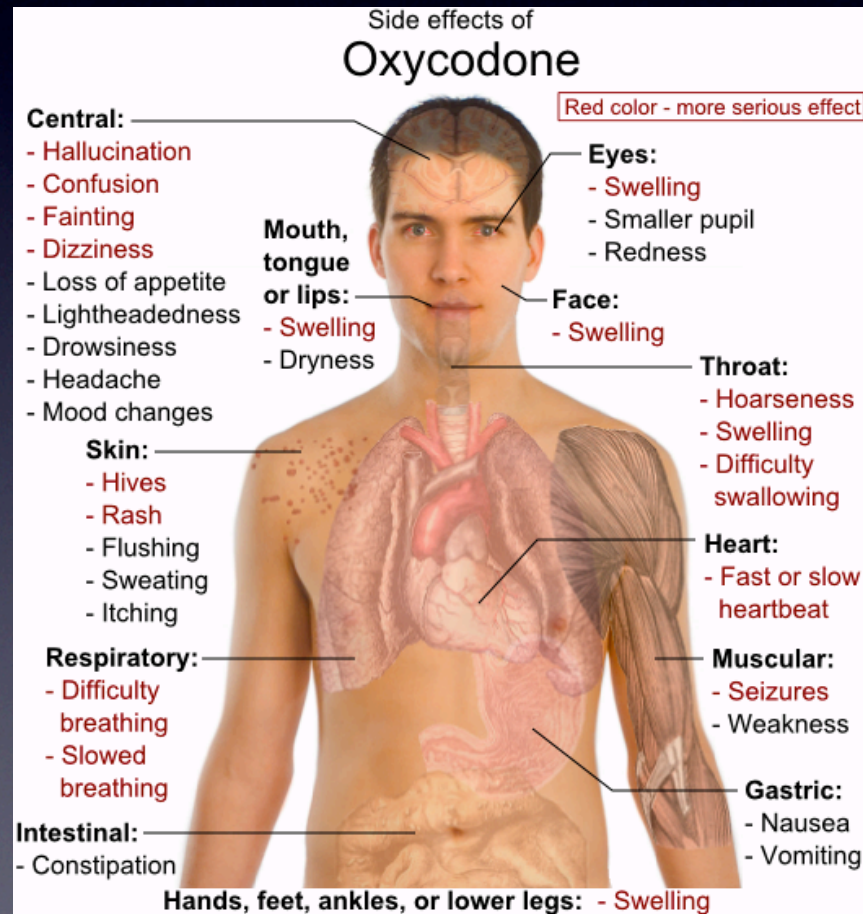
# Opiates (Oxycodone, Hydrocodone)

## What are the possible consequences of opiate abuse?

- Opiates constrict the pupil of your eye
- Withdrawals occur with discontinuation of use. (Nausea & Vomiting, Anxiety, Diarrhea)
- Opiates can slow the rate of breathing & heart rate to dangerously low levels, especially when taken with alcohol
  - Taking a single, large dose can causes severe respiratory depression, **leading to death!**
- Taken as directed by your doctor, short-term opioid use can manage pain effectively and safely... However opioids are notoriously ADDICTIVE!!
- Addiction to opioids is a slippery slope to more severe problems...
  - A recent study has concluded that teens who misuse prescription opioids might be more likely to progress to heroin and further become **addicted to heroin** (Jeanne Kreek MD, Rockefeller University, New York)

# Opiates (Oxycodone, Hydrocodone)

## Side Effects of Oxycodone:





# Opiates (Oxycodone, Hydrocodone)

## Why do teens abuse opiates?

- There is a misperception that because opiates are legal and are prescribed for legitimate use, they are safe....
- “It’ll make me have more fun”
- Opiates are easy to obtain simply by taking them from the family medicine cabinet or purchasing them from a schoolmate or friend...Overall, most High School seniors who abused prescription drugs got them from a friend or relative.



# Opiates (Oxycodone, Hydrocodone)

FUN?



# Opiates (Oxycodone, Hydrocodone)

## Will you be a statistic?

- More than 1 in 10 high school seniors used a prescription opioid without a doctor's authorization in 2009

(National Survey on Drug Use and Health, an annual survey representing the nations high-school seniors in over 135 public and private schools)

- Approximately **142,000** teenagers (age 12 to 17) are treated for substance abuse each year.

# Opiates (Oxycodone, Hydrocodone)

According to the Substance Abuse and Mental Health Services Administration,

"Education is needed to counter any misperceptions that abusers of prescription pain relievers have about the risks involved in abusing these drugs."

No matter how well intentional friends and family may be, only a physician is qualified to prescribe the right medication in the right dose for you.

Read more: <http://www.livestrong.com/article/233726-opiate-abuse-in-teenagers/#ixzz1VpQoiOHw>

# Amphetamines (Adderall, Concerta..etc)



# Amphetamines (Adderall, Concerta..etc)

What is it?

- A class II drug that is a combination of dextroamphetamine and amphetamine used to treat ADHD and narcolepsy



How does it work?

- The combination of drugs work on the CNS by changing chemicals in the brain to keep it stimulated.

# Amphetamines (Adderall, Concerta..etc)

Someone should contact their doctor when experiencing which of the following side effects to Adderall?

- a. Shortness of breath
- b. Pounding of heartbeat
- c. Nervousness
- d. Uncontrollable shaking of a part of the body

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- b. Pounding of heartbeat
- c. Nervousness
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\*However, if nervousness and the shaking become severe, the doctor must be notified.\*



# Amphetamines (Adderall, Concerta..etc)

## Side effects

- Adderall may cause sudden cardiac death in children and teenagers, especially those with heart problems
- Adderall increases blood pressure so it has the same effects of other ADHD drugs
- Risk of seizures
- Decrease of growth rate
- Changes in vision



# Amphetamines (Adderall, Concerta..etc)

## Fact:

Abuse of prescription stimulants like Adderall can cause serious health problems, including panic attacks, seizures, and heart attacks.

# Amphetamines (Adderall, Concerta..etc)

What defines the crime of buying and/or selling of Adderall without a prescription?

- A. Misdemeanor
- B. Felony

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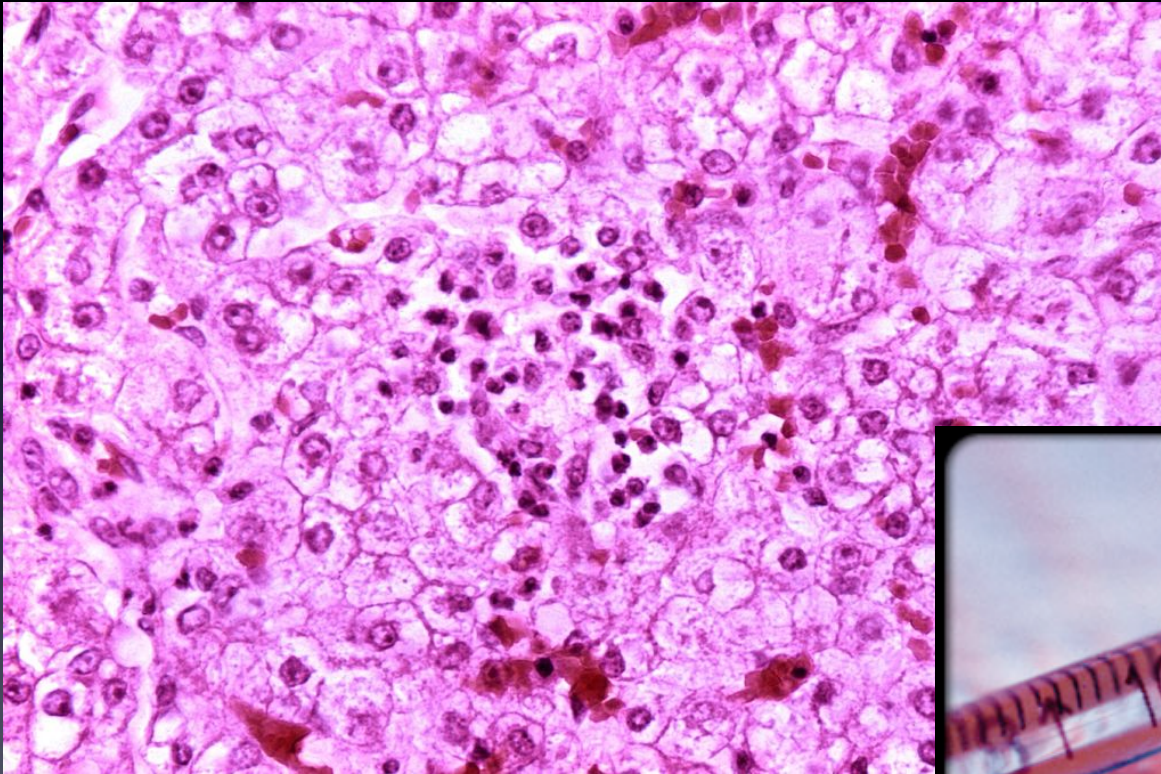
**B. Felony**

\*The federal government defines a felony as a crime punishable by death or imprisonment in excess of one year

\*Misdemeanors are DUIs, minor with possession of alcohol

\*Felonies are murder, rape, kidnapping

# Overdosing & Diseases



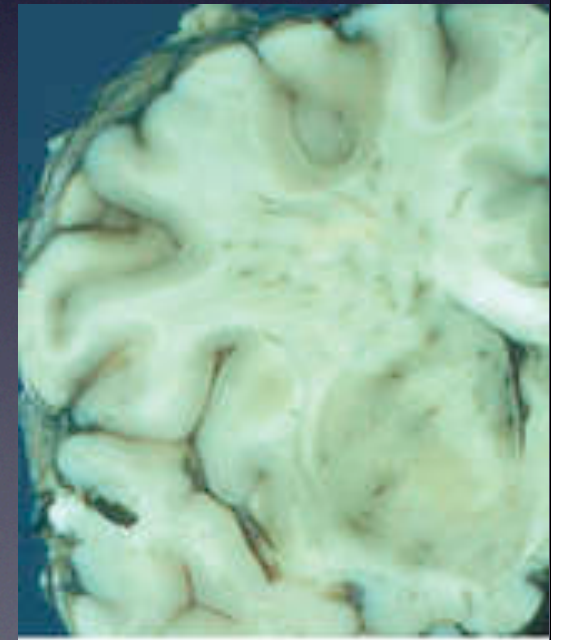
# Overdosing & Diseases

## Reye's Syndrome:

Reye's syndrome is a potentially fatal disease that causes numerous detrimental effects to many organs, especially the brain and liver. In addition it also can lead to hypoglycemia.

The disease causes fatty liver with minimal inflammation and severe encephalopathy (with swelling of the brain).

The liver may become slightly enlarged and firm, and there is a change in the appearance of the kidneys.



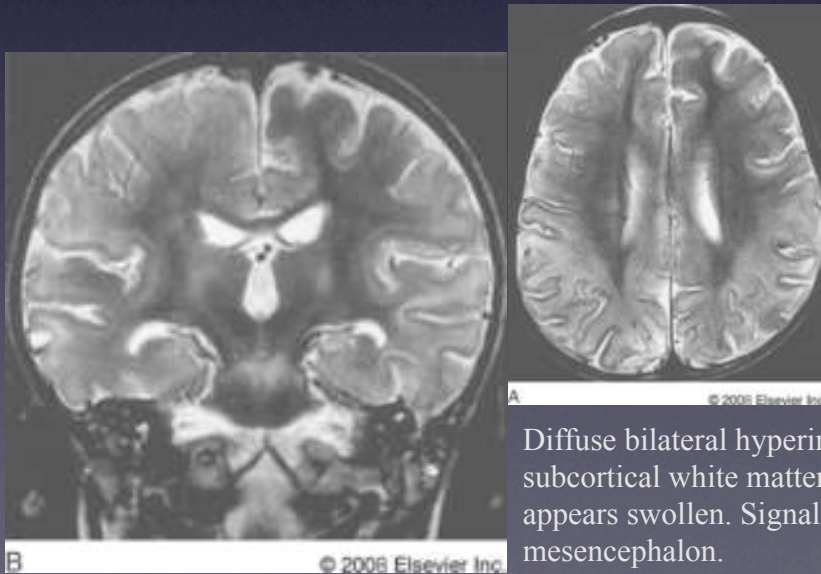
# Overdosing & Diseases

## Reye's Syndrome:

Children and adults develop Reye's Syndrome as they are getting over a viral illness, such as the flu or chicken pox.

Reye's Syndrome usually affects people from infancy through young adulthood; however, no age group is immune.

Severe brain injury or death are potential complications.



The mortality rate may be as high as 50%

Diffuse bilateral hyperintensity of supratentorial subcortical white matter and the cortex. The brain appears swollen. Signal alteration involves the mesencephalon.

# Overdosing & Diseases

What OTC medication can cause Reye's Syndrome?

- a. Aspirin
- b. Pepto Bismol
- c. Alka Seltzer
- d. All of the Above





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# Overdosing & Diseases

What age groups should not take Pepto-Bismol, Aspirin and Alka-Seltzer?

- a. Elderly, Adults, Children
- b. Infants, Children ,Teenagers
- c. Eldery, Teenagers, Children



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# Overdosing & Diseases

## Symptoms of **Reye's Syndrome**:

- \*Continuous vomiting
  - \*Listlessness
  - \* Loss of Energy
- \*Nausea & Vomiting
  - \*Aggressiveness
  - \*Delirium
  - \*Convulsions
- \*Loss of Consciousness
- \*Coma & Brain Death

# OTC and Prescription Medications Outreach Programs

## Help Hotline:

If you or someone you know needs help call:

1-800-662-HELP

# OTC and Prescription Medications Outreach Programs

Big Island Substance Abuse Council (BISAC)  
East Hawaii: (808)-935-4927

## Services:

- Intensive Outpatient Treatment
- Therapeutic Living
- Clean & Sober Housing & Continual Care

Ku Aloha Ola Mau (DASH)

Hilo: (808)-961-6822

## Services:

- Outpatient Opioid Therapy
- Early Intervention Services

# Sources

1. Image Consult, 'Reye's Syndrome', Copyright 2009 Elsevier Health,  
<http://imaging.consult.com/login>
2. MedlinePlus, 'Over-the-Counter Medicines'  
<http://www.nlm.nih.gov/medlineplus/overthecountermedicines.html>
3. Facts & Comparison, 'Tylenol', Copyright 2011 Walters Kluwer Health  
<http://online.factsandcomparisons.com/>
4. MedicineNet.com, 'Tylenol Liver Damage', 'Amphetamine & Dextroamphetamine, Adderall', 'Reye's Syndrome', Copyright 1996-2011 MedicineNet, Inc.  
[http://www.medicinenet.com/tylenol\\_liver\\_damage/page2.htm](http://www.medicinenet.com/tylenol_liver_damage/page2.htm)
5. National Institute on Drug Abuse, The Science of Drug Abuse & Addiction, 'Research Report Series - Prescription Drugs: Abuse and Addiction'  
<http://www.nida.nih.gov/researchreports/prescription/prescription2.html>

## OTC & Prescription Drugs

In Class Quiz

## Pre-Lecture Quiz

Short Answer/Multiple Choice

Date of Birth: \_\_\_\_\_ Grade Level: \_\_\_\_\_

Date: 18<sup>th</sup> November 2011

1. What are OTC drugs and how are they different than prescription drugs?

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2. What are the most common OTC medications accidentally taken by children?

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3. Why, despite health care efforts, is Tylenol (Acetaminophen) still so widely misused?

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4. What is the recommended daily dose of Tylenol for adults?

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- B. 200-400mg orally as needed (not to exceed 1200mg/day)
- C. 220-440mg now, then 220mg every 8 to 12 hours (maximum 660mg/day)

5. Question 1: Hypothetically.... Lets say you have had a headache for the past week and you've been self-medicating with Tylenol 500mg, taking the max dose of 3grams/day. However, nothing seems to help. You decide to make an appointment with your PCP next week.

Is it okay for you to take more tablets than the recommended max dose? Explain.

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6. Someone should contact their doctor when experiencing which of the following side effects to Adderall?

- A. Shortness of breath
- B. Pounding of heartbeat
- C. Nervousness
- D. Uncontrollable shaking of a part of the body

7. What defines the crime of buying and/or selling of Adderall without a prescription?

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- B. Felony

8. What OTC medication can cause Reye's Syndrome?

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- B. Pepto Bismol
- C. Alka Seltzer
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9. What age groups should not take Pepto-Bismol, Aspirin and Alka-Seltzer?
- A. Elderly, Adults, Children
  - B. Infants, Children ,Teenagers
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10. The most commonly abused class of prescription drugs is:
- A. Sleep medications (Ambien,Lunesta, Sonata)
  - B. Tranquilizers (Benzodiazepines- Valium, Xanax)
  - C. Pain Relievers (Opioids- Vicodin, Oxycontin)
  - D. Stimulants (Concerta,Ritalin, Adderall)
11. Many teens abuse prescription drugs. How do most get them?
- A. They steal them.
  - B. They get them free from a friend or relative
  - C. By faking symptoms to a doctor
  - D. From a drug dealer
12. How many teens (age 12 to 17) are treated for substance abuse in a year?
- A. 1,000
  - B. 28,000
  - C. 142,000
  - D. 1.2 million
13. It's safe to use prescription medications when:
- A. You've checked WebMD and know what you are doing
  - B. You've taken them before for another problem
  - C. They are prescribed for you by a doctor for a current problem
  - D. Your mom gave them to you from her prescription
  - E. All of the Above
14. True or False: Vicodin (Hydrocodone) is derived from the same class of drugs as Heroin.
15. Adderall is a prescription drug used to treat all of the following except:
- A. Anxiety
  - B. Attention deficit hyperactivity disorder (ADHD)
  - C. Narcolepsy (a sleep disorder that causes excessive sleepiness)

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- C. They are prescribed for you by a doctor for a current problem
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14. Prior to our presentation, proper OTC and prescription medication use had been explained to you by:

- A. A parent
- B. Healthcare Professional (Doctor, Nurse, Pharmacist)
- C. Other
- D. This is the first time you've learned about this.

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17. Are there any topics you wish we had talked about today?

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