Keynote: News Worthy “Unintentional Overdoses”

ACPE UAN 107-000-11-025-L01-P & 107-000-11-025-L01-T 0.1 CEU/1.0 Hr

Activity Type: Knowledge-Based

Program Objectives for Pharmacists & Technicians: Upon completion of this program, participants should be able to:
1. Define the terminology of unintentional misuse, intentional misuse, and intentional abuse.
2. Explain new stories involving drugs and why they are considered “accidental”.
3. Describe basic toxicology of drugs that have been involved in media-covered accidents.

Speaker: Tama Sawyer, PharmD, DABAT, graduated from Emporia State University with a double degree in Chemistry and Microbiology in 1980. She then went on and graduated from the University of Kansas School of Pharmacy in 1984, and earned her PharmD degree in 2004 also from the University of Kansas. Dr. Sawyer passed the American Board of Applied Toxicology exam in 2007 and is currently the Director of the Poison Control Center at the University of Kansas Hospital.

Speaker Disclosures: Tama Sawyer report she has no actual or potential conflicts of interest in relation to this program. The speaker has indicated that off-label use of medications will be discussed during this presentation.
News Worthy “Unintentional Overdoses”

Tama Sawyer, PharmD, DABAT
Director
The University of Kansas Poison Control Center

Faculty Disclosure
- Tama Sawyer reports she has no actual or potential conflicts of interest associated with this presentation.
- Tama Sawyer has indicated that off-label use of medication will be discussed during this presentation.

Learning Objectives
- Understand the terminology of unintentional misuse, intentional misuse and intentional abuse
- News stories involving drugs. Why are they all accidental?
- Basic toxicology of drugs in the News

Fact
- "Unintentional poisoning" is now the second leading cause of unintentional injury death in the US.
- In 2005 (ages 35 to 54), unintentional poisoning surpassed motor vehicle crashes as the leading cause of unintentional injury death.

Poison Center Terminology
- Unintentional Misuse
- Therapeutic Error
- Intentional Misuse
- Intentional Abuse

Pre-Assessment Questions
- A 72 yo female bleaches her coffee cup to remove the stains. She left the cup of clorox on the counter only to come back later and drink from it.
- A 16 yo passes out after using a keyboard duster spray.
Pre-Assessment Questions

- A 21 yo takes 6 methylprednisolone tablets thinking it was her Tylenol.
- A 21 yo took 6 Tylenol 500 mg tablets thinking it was her methylprednisolone.
- A 24 yo male calls because he ingested a mouthful of gas while siphoning.
- A 29 yo male calls because he got gas in his ear when a gas line broke while he was working underneath his car.

What is a Poison????

Oh mama! Does she expect me to know this?

The Number One Poison
Our number one victims of toxic substances

Innovative Poison Prevention!

Let's Look at Drug Related Events

Last thing I remember I was running for the door
I had to find the passage back to the place I was before
“Relax,” said the night man, “We are programmed to receive
You can check out any time you like but you can never leave”

Poison Centers VS Coroners

Historically, it has been that accidental overdose of antidepressants, a coroner has determined.

Fluoxetine is used as a treatment for major depression, and bupropion is used for depression and to aid quitting smoking.

Pekar had been suffering from prostate cancer, asthma, high blood pressure and depression, according to Cannon. Pekar had gone to bed about 4:30 p.m. Sunday in good spirits, his wife told police.

Accidental Overdose? Really?

- Goes to bed at 4:30 pm
- He had fought cancer twice before and was recently diagnosed with cancer yet again.
- Fluoxetine and Bupropion?
- Just finished writing what he called the last book of his life.

Is this accidental?

- This would be a reasonable depiction of the amount of pills Mr. Pekar would have to have taken.

A brave man once requested me to answer questions that are key to be or not to be and I replied “oh why ask me?” “Cause suicide is painless it brings on many changes and I can take or leave it if I please.”
Accidental...or Not?

- A Utah nursing home is facing a wrongful death lawsuit after a resident allegedly died due to a fentanyl overdose that occurred when a staff member applied three fentanyl pain patches to the resident's neck, instead of one patch every three days.

Numero Uno Medication in the High School Crowd

Recent Drug Events

- Greg Giraldo -- The Harvard law graduate turned full time comedian died September 29, 2010 after 5 days in the hospital. The comic was found unconscious at a party in New Jersey just after his initial appearance at New York drug addiction recovery rally. The cause of death for the young celebrity? Overdose. Giraldo died from an accidental overdose of prescription pills leaving his 3 young children fatherless and family devastated.

- Comedian Greg Giraldo not so funny anymore

Adverse Drug Reaction

- Police report finding an "emotionally disturbed person" at New York's Plaza Hotel
- Actor Charlie Sheen suffered an "adverse allergic reaction" to medicine while at New York's Plaza Hotel and was taken to a hospital early Tuesday, his representative said.
- Sheen spent at least a month this year at a Malibu, California, rehab center, but it was never disclosed what he was treated for.

Adverse Reaction to what?

Disulfiram is being tested to treat cocaine addiction. Disulfiram may block the pleasurable and rewarding effects caused by an excessive release of dopamine in the brain after cocaine use. Instead of experiencing euphoria and other feelings of well being associated with cocaine use, an individual who has taken disulfiram before using cocaine will experience adverse reactions such as anxiety, dysphoria or paranoia.

Corey Haim - Accidental OD

- "He got out of bed about 1:30 this morning, was a little unsteady on his feet," Winter said. Haim's mother then called the paramedics.
- Haim's mother said her son had been suffering from "flu-like symptoms," Winter said, adding that four prescription pill bottles were found in the apartment but no illicit drugs.
- Haim struggled with cocaine and Valium addiction and was reportedly admitted to rehab more than 15 times.
- The causes of death include diffuse alveolar damage (from respiratory distress), pneumonia and hypertrophic cardiomyopathy (thickening of the heart muscle) with coronary arteriosclerosis.

Dead
Age 38
No illicit drugs found but……..

- Haim bought 195 doses of the anti-anxiety drug Valium, 194 doses of the muscle relaxant Soma, 149 doses of the powerful painkiller Vicodin and 15 Xanax anti-anxiety pills from February 2 to March 5.
- He died March 10, 2010 from an accidental overdose.

Similar circumstances

- Jimmy Lee Lindsey Jr. (May 1, 1980 - Jan. 13, 2010), better known by the stage name Jay Reatard, was an American garage rock musician from Memphis Tennessee.
  - Lindsey was found dead in his home in Memphis, around 3:30 a.m. on Wednesday, January 13, 2010. He was found in his bed by a roommate. Lindsey was 29 years old. A statement was posted on the website of Goner Records, that Reatard had died in his sleep. Friends of Lindsey stated that he had recently complained of flu-like symptoms.
  - An autopsy was performed reported on February 3 that Lindsey had died of "cocaine toxicity, and that alcohol was a contributing factor in his death."

Alcohol and Cocaine...

- When you mix Alcohol with Cocaine it forms the active compound. COCAETHYLENE
- This is significant because this compound has a longer half life than either alcohol or cocaine and it significantly increases the risk of sudden death
- Beta Blockers should be avoided in patients with cocaine cardiac effects. Cocaine-induced vasoconstriction appears to be due to alpha-adrenergic stimulation. Unopposed alpha-adrenergic stimulation, associated with beta-adrenergic blocking agents, may result in the potentiation of coronary vasoconstriction.

Cocaine drug detection = 3 hours
Metabolites = 24 hours

- Many users report flu-like symptoms when coming down from a high very soon after the effects of the substance have worn off.
- Cocaine is thought to be responsible for a quarter of all heart attacks in people under the age of 45. Cardiac effects from cocaine usually occur 48 hours after the last use.
- Cocaine users risked life-threatening abdominal problems with symptoms including abdominal pain, nausea, vomiting and bloody diarrhea, which can occur between one and 48 hours after taking the drug.
- Autopsies associated with cocaine abusers frequently indicate respiratory failure due to pulmonary edema and pneumonitis caused by the crystals associated with cocaine being imbedded in the lining of the lungs.

Casey Johnson

- Diabetic Socialite daughter of Robert Johnson IV and heir to the Johnson and Johnson dynasty.
- After refusing to seek treatment for drug abuse, was cut off financially by her family.
- An unidentified caller reported that Johnson was ice cold, and her hands were turning blue. The caller also stated that Johnson was on medications, and that they often got "all screwed up".
- On February 4, 2010, the Los Angeles Coroner’s Office announced that she had died of diabetic ketoacidosis. She was reported to have neglected to take her medication, and died naturally.

Diabetic Ketoacidosis

- There is often a particular problem that has led to the DKA episode.
- Such things as pneumonia, influenza, gastroentertis, UTI, pregnancy, stroke or the use of cocaine.
- In a retrospective case control study of hospital admissions for diabetic ketoacidosis, cocaine users accounted for 102 of 720 admissions (14%)
- Cocaine abusers were less likely to have an illness as an identified precipitant for DKA, were more likely to have missed one or more doses of insulin.
Fame and famine
- Former American Idol winner Fantasia suicide attempt with painkillers (ASA) and sleeping pills. (DPH)
- "Her injuries are not life threatening. She was dehydrated and exhausted at the time." (she was also pregnant)

Aspirin
- Aspirin is a very bad player in overdoses.
- Initial symptoms include GI upset, tinnitus, and tachypnea/hyperpnea, followed by coma, seizures, hyperthermia, hypotension, pulmonary and cerebral edema and finally death.
- DPH causes tachycardia, hallucinations, delirium, hypertension followed by hypotension, seizures and coma
- Aspirin readily crosses the placental barrier and is found in a higher concentration in the fetal plasma than in the mother's plasma
- Suicide attempt or not?

Andy Irons 32, 11-2-2010
- 3 times World Surfing Champion dies of dengue fever... (or not)
- Methadone was found inside a prescription bottle labeled zolpidem.
- Numerous other medications were found on a nightstand.
- Irons is survived by wife, Lyndie and new born child born in December 2010.

Methadone
Methadone is a synthetic opioid similar in structure to propoxyphene
- Multicompartamental elimination. Initial elimination half-life 12 to 24 hours, followed by slower elimination half-life of 55 hours
- There is little margin between a therapeutic methadone dose for an opioid tolerant person and a toxic dose with doses of 30 to 40 mg potentially lethal for a non-tolerant adult. Children are particularly vulnerable to overdose. Inadvertent ingestion of methadone was found to be the most toxic of the opioids; doses as low as a single tablet can lead to death (10 mg can be potentially lethal for a 10 kg toddler).

Terrorists in Russia – Oct. 2002
- Terrorist stormed the Dubrovka Theater in Moscow in October 2002
- 30 - 40 terrorist?
- 700-900 hostages taken
- Russia shut pumped a super (fentanyl) gas through the ventilation system.
- 130 - 200 people died immediately, many others have long term medical effects
- Puttin says it was a harmless gas.

Propoxyphene – Goodbye to a bad drug
- Propoxyphene causes various dysrhythmias including tachycardia, bradycardia, ventricular dysrhythmias and atrioventricular blocks have been reported. QRS and QT intervals may become prolonged.
- Now add two other components:
  - Propoxyphene isn't a very good pain killer
  - It is almost always in combo with APAP
Antidepressant Death
- Authorities said on Sept. 13, 2010 a 53-year-old woman intentionally gave her 4-month-old grandson a prescription antidepressant (imipramine).
- She was a nurse, but had her license revoked in 1996 for diverting drugs.
- She initially denied giving the baby the drugs. She later admitted to putting pills into the baby’s bottle on two occasions.
- After discovering that the pills were not dissolving in the milk quickly, she told police she removed the coating and rubbed the medication on the baby’s gums until it nearly dissolved, washing it down with infant formula. She told police she knew the side effects to look for but didn’t see any.
- She went shopping after giving the baby the medication and didn’t return for 3 hours.

Tricyclic Antidepressants
- Half life of imipramine 13 ± 3 hours.
- Doses above 3.5 milligrams/kilogram of tricyclic antidepressants or serum concentrations higher than 150 nanograms/milliliter may increase the risk of asymptomatic electrocardiographic changes in children and adolescents. As little as 15mg/kg may be fatal in a child.
- CNS depression, lethargy, disorientation, and ataxia are common. Coma and seizures may develop abruptly.
- Uncontrolled seizures may result in brain damage, hyperthermia, metabolic acidosis, rhabdomyolysis, and myoglobinuria.

Interesting News from around the World
- We (the USA) aren’t the only country with problems.

"The radio is blatin', someone's knockin' at the door
I'm lookin' at my girlfriend - she just passed out on the floor
I've seen so many things I ain't never seen before
Don't know what it is - I don't wanna see no more"

NO Naloxone in Australia
- "Australia is the only continent left where there's no Naloxone distribution," Dr Maxwell told AAP.
- She says while there are understandable concerns about intervening while users are taking drugs, Naloxone saves lives.
- "We're supposed to wait until they are ready to stop using but in order for them to get better they need to still be alive," she said.
- "Naloxone is inexpensive, it's ridiculously safe, there's simply no downside to it."

Marijuana- Crazed?
- "Cannabis-crazed schizophrenic free to murder policeman after care in the community scaled back his treatment."
- "It's too bad that stupidity isn't painful" Anton LaVey.
History

- Illicit drugs have a history in prescription and OTC products.
- Some are quite interesting
- Some are just scary

Cocaine

- 1914
- Sold OTC
- Instantaneous Cure!

If you wanna get down, down on the ground
“She don’t lie, She don’t lie, She don’t lie……..

Cocaine and Alcohol

Heroin

I don’t ever wanna feel like I did that day
But take me to the place I love, take me all the way
I don’t ever wanna feel like I did that day
But take me to the place I love, take me all the way

Morphine

Sweet cousin cocaine, lay your cool cool hand on my head
Ah, come on sister morphine, you better make up my bed
Cause you know and I know in the morning I’ll be dead

Quaaludes

Now, they call you prince charming
Can’t speak a word when you’re full of ludes
Say you’ll be alright come tomorrow
But tomorrow might not be here for you
Tobacco

Smokin' cigarettes and writing something nasty on the wall (you nasty boy)
Teacher sends you to the principal's office down the hall
You grow up and learn that kinda thing ain't right
But while you were doing it—sure felt natta right.

I could pay off my tab, pour myself in a cab,
An' be back to work before two.
At a moment like this, I can't help but wonder,
What would Jimmy Buffet do?

Chloroform

Marijuana, Codiene, and Chloroform

We suggest Cosadein to Relieve Coughs
Cosadein provides adequate dosage of codeine, the most generally effective and satisfactory salve for controlling coughs. Other effective ingredients of this preparation are derived by its formula, each and none of which represents:

- Codeine Phosphate, galls
- De-Cafine, N. P. F. 2 grains
- Bryon, 1 grain
- Resorcinol, 1 grain
- Menthol, 1 grain
- B. P. B. and P. B. 5 grains
- K. O. B. and C. N.

Coughlin's is available in 16 fluid-ounce bottles; also in gallon.

Coca-Cola

Who in particular gave Amphetamines to their "workforce"??
Many of your patients—particularly housewives—are crushed under a load of dull, routine duties that leave them in a state of mental and emotional fatigue. Dexadrine will give them a feeling of energy and well-being, renewing their interest in life and living.

Death of the Dream

“They knew all the right people, they took all the right pills. They threw outrageous parties, they paid heavenly bills.”

“I’ve heard people say that Too much of a anything is not good for you baby”

Questionable Accidental/Unintentional Deaths

Or some with pretty darned good stories.

Chris Antley – champion horse-racing jockey, drug-related causes

Len Bias (22) – basketball star; died of cocaine overdose before ever playing in the NBA

“I used to do a little but a little wouldn’t do it. So a little got more and more. I just keep trying to get a little better. Said a little better than before.”

“It all goes back to when I dropped out at school. Having fun, I was living the life. But now I got a problem with that little white rock. See I can’t put down the pipe.”
Max Cantor – journalist, actor, heroin overdose, he became an addict while researching heroin addicts in New York.

"He's The One They Call Dr. Feelgood
He's The one That Makes Ya Feel Alright
He's The One They Call Dr. Feelgood
He's Gonna Be Your Frankenstein"

Albert Dekkar – actor, unknown drug

"Mother needs something today to calm her down
And though she's not really ill
There's a little yellow pill"

Chris Farley (33) – comedian who rose to fame on Saturday Night Live, cocaine and morphine overdose (speedball)

"There's a giant doing cartwheels a statue wearin' high heels.
Look at all the happy creatures dancing on the lawn.
A dinosaur Victrola list'ning to Buck Owens"

Trevor Goddard – former professional boxer, turned actor, cocaine, heroin, hydrocodone, and diazepam overdose

I want a new drug
One that won't make me sick
One that won't make me crash my car
Or make me feel three feet thick

Elizabeth Hulette (42) – professional wrestling manager, accidental overdose of alcohol, meprobamate, carisoprodol, hydrocodone, and promethazine

"I can see through the mountains
Watch me disappear
I can even touch the sky
Swallowing colors of the sound I hear
Am I just a crazy guy
You bet"

David Kennedy – 4th child of Robert F. Kennedy, cocaine/mepiperidine

"Am I sweating?
Or are these tears on my face
Should I be hungry?
I can't remember the last time I ate
Call Someone, I need a friend to talk me down"
Frankie Lymon – musician, doo wop singer, heroin overdose

I'm coming down, coming down like a monkey
Like a load on your back that you can't see
Try to shake it loose, cut it free, let it go, get it away from me

Billy Mays, TV promo salesman-cocaine induced hypertension

So send me to the pharmacy
So I can lose my memory
Lord knows I tried to find a way to run away

It don't make no difference,
Escape one last time
Oh this glorious sadness
That brings me to my knees

Elvis Presley, singer, multiple drug overdose

I was alone, I took a ride
I didn't know what I would find there
Another road where maybe I
Could see another kind of mind there

Don Rogers (23) – American football player, cocaine overdose

The higher you are, the farther you fall
The longer the walk, the farther the crawl
My body, my temple, This temple it tilts

Tom Simpson – road racing cyclist, dehydration-exhaustion while cycling and using amphetamines

D. M. Turner (34) – author, drowned in a bathtub, ketamine
W, (X), Y and (Z)

Dave Waymer (34) – NFL defensive back, cocaine-induced heart attack

One Pill makes you larger
And one pill makes you small
And the ones that mother gives you
Don’t do anything at all

Thank You for your Attention

They call it Wacky Dust
It’s something you can’t trust
And in the end the rhythm will stop
When it does, then you’ll just drop
From happy wacky dust

Wacky Dust
Ella Fitzgerald
1937

Post-Assessment Questions

☐ A 17 yo eats a tablespoon of Nutmeg. He tells mom he did it on a dare from his friend.

☐ A mom gives a dose of ibuprofen to her child, dad repeats the dose about 15 minutes later because he didn’t know mom had given it.

What drug should be avoided when dealing with a Cocaine OD?

Which is more likely to cause a problem
☐ Cocaine OD
☐ Alcohol OD
☐ Combo of Alcohol and Cocaine

What makes Methadone so deadly?

What is the medication of choice for teenagers (pre college age)?