Writing it right: What journalists need to understand about drugs and addiction

Wilkie A. Wilson, Ph.D.

Duke Medical Center
Common mistakes
Understanding drugs and addiction
Where the great stories will be

Common mistakes
Thinking abused drugs are all the same
Equating dependence with addiction
Substance use is not necessarily substance abuse which is not necessarily substance addiction.
An easy way to remember what you need to know about a drug—the TRUTH

• **Toxicity**: Will it kill you now, later, or make you wish you were dead?
• **Reinforcement**: How addictive?
• **Understand the effects.**
• **Time** (duration of effect).
• **H….?**

---

**Toxicity**

• A tremendous range of toxicities…
• **Alcohol**—acutely toxic through suppression of brain areas that control breathing. Long term liver toxicity.
• **Ecstasy**—acute toxicity through temp regulation. Long term neurotoxicity.
• **Marijuana**—difficult to find any significant toxicity. Cannot overdose, probably not neurotoxic (but there is a problem with it)
Reinforcement—addiction

- Addiction is the compulsive use of a drug (or a behavior) despite extremely negative consequences.
- Addiction is centered in a brain circuit called the reward system.
- Anything that is addictive activates the reward system.

The reward system

- The reward system motivates us to do what is good for preservation of the species.
- Stimulation of the reward system produces euphoria, power, focus, disinhibition—overall, a sense of well-being—the tools to get the reward.
- When you achieve a reward, the brain almost permanently “wires-in” pathways associating cues with the reward, leading to craving when you re-experience the cue.
The reward system *loves* novel hedonic experiences

The Chemistry of the Reward System

- The primary brain chemical involved in reward is *dopamine*.
- All addicting substances (or behaviors) release dopamine.
- The dopamine release produces the euphoria, power, focus, etc. Much more effectively than any behavior.
Chemistry continued...

• After repeated drug use, the reward center cannot respond to normally pleasurable experiences.
• Only the drug produces a sense of well being.

Drugs and the reward system

• The reward system adapts quickly.
• The rewarding effect of drugs depends on the amount and rate of dopamine release.
  – IV and inhalation are the best way to get a drug to the brain rapidly, and thus are the most rewarding
• The drugs that release the most dopamine fastest are the most likely to cause rapid addiction
Dependence vs. addiction

• Addiction is the brain making connections with the reward systems to produce long-lasting cravings
• Dependence is the brain and the rest of the body adapting to the presence of the drug and then “missing” it upon withdrawal.

Understand drug effects
What is the user getting?

• Sedative--alcohol
  – Anxiolytic
  – Disinhibition
• Stimulant--cocaine
  – Focus
  – Antidepressant
• Hallucinogen--ecstasy
  – Insight
  – Social disinhibition
So why is it so hard to reverse addiction?

- How easy is it for you to forget.....
  - The best food you ever had
  - A great sexual experience
  - Winning the lottery
- Reversing addiction is like reversing a memory. It’s hard...the best you can do is take conscious control of it.

Time: getting in and getting out

- Routes of entry
  - Oral = slow
  - I-V and inhalation = fast
- Exit routes
  - Diffusion
  - Metabolism
  - Excretion
The drug is almost always present longer than the buzz

- Alcohol is rapidly absorbed and eliminated only at ½-1 drink/hour
- Cocaine is rapidly metabolized into inactive compounds
- It takes 8 days to get 90% of the active ingredients in marijuana out of the body

Where the news will be

- Kids
- Kids
- Kids
• The adolescent brain is different
  – Different chemistry
  – Different wiring
  – More liable for addiction
  – Different responses to drugs
• An unexplored frontier