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## **Substance Use Trends: History and Principles**

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*Maybe if we listened, history wouldn't keep repeating itself.* Lily Tomlin

As two (or too-) long-tenured addiction specialists with interests in history and psychopharmacology, we are frequently asked to talk about the history and future of substance use. The opening of a new century seemed a fitting time for us to articulate a few of the principles that underlie the seemingly inexplicable pendulum swings and cycles that pervade the history of drug use in America. Our hope is that this discussion will help addiction professionals understand and anticipate such trends within their local communities.

### **Specification Principles**

Perhaps a beginning point is to acknowledge what have been called specification principles. All drug-person interactions are potentially idiosyncratic. The potential effects and risks of a drug cannot be generalized without first specifying the characteristics of the drug (e.g., purity, dosage, method of administration), the characteristics of the potential drug consumer (e.g., age, gender, medical condition, motivations and expectations), and the physical and social environment in which the drug-person interaction will take place. The most significant drug trends of the past two centuries have involved shifts in these areas of specification: new drugs, new forms of old drugs, heightened drug potency, more efficient methods of drug administration, use of multiple drugs in high risk combinations and sequences, lowered age of onset of regular drug use, and use of drugs in high risk contexts that threaten public safety. The lesson we can take from this is a simple one: any change in a drug, the characteristics of drug consumers, or the context of a drug's use may require a radical re-evaluation of what we know about the drug and its potential harm.

### **Dormancy, Hibernation and Generational Learning**

A drug can lie dormant within a culture for generations before it breaks into the open as a favored intoxicant. Opium, cannabis, cocaine, amphetamines, barbiturates, and LSD are among the drugs that had a long dormancy period before being widely misused. This principle suggests that many of the drugs whose misuse will capture our future attention are already here, but we do not see them. Once a drug emerges, it may move through a stage of popularity, decline and extended hibernation, only to re-emerge again, usually in a more virulent form. This hibernation process creates the cyclical re-appearance of certain drugs.

Some drug epidemics are inherently self-limiting, meaning that the prospects of collective experimentation progressively decrease via the accumulation of drug-related consequences, diminishing rewards, and boredom with the experience. Such patterns burn themselves out through a process of intragenerational learning. However, there is no historical evidence of intergenerational learning. Drug trends cycle, in part, because each generation is replaced by a new generation who arrives with no collective memory of drug casualties but a deep belief in their own unique invulnerability. Historically, we are forced to conclude that each generation must accumulate its own sacrifices and learn its own lessons on the pyres of drug experimentation. As a result, some drug trends in America's past can be expected to resurface again among future generations.

## **Drug Sequencing**

Most drug epidemics don't simply disappear: they transform themselves into something else. For example, periods of excessive stimulant use are often followed by periods of rising alcohol, sedative and opiate use. There are drug-facilitated cycles of stimulation, introspection, intoxication, and emotional anesthesia. Repeated episodes of each drug experience generate the appetite for the next experience/drug in the sequence. In the second half of the twentieth century, we have seen two repetitions of the following cycle: short acting stimulant use (cocaine) followed by longer acting stimulant use (methamphetamine) followed by a rise in depressant use (alcohol/sedatives/heroin). While this cyclical pattern of stimulation, over-stimulation, self-sedation is evident in individuals, it is equally evident in the evolving drug tastes of the larger society. The implication is that a community plagued by rampant methamphetamine dependence must respond not only to this pattern, but to the rising problems of alcohol, sedative and narcotic dependence that are likely to follow it.

## **Drug-Culture Fit**

Some drugs, such as alcohol and nicotine, have penetrated nearly every culture. This suggests that the pharmacology of certain drugs can serve different functions for different people, serve different functions for the same people at different times in their lives, and serve evolving functions within cultures as a whole. The celebration and suppression of drugs can also reflect continuities and discontinuities between the pharmacological effects of various drugs and the evolving temperament and values of a culture. This helps explain why the same drug can be revered in one culture and abhorred in another. A shift in a culture's drug choices often reflects a shift in cultural values. Aggregate drug appetites reflect a communal hunger for certain kinds of experiences—a physical, psychological and cultural fit between a drug and its consumers. The “fit” tells us something about the drug, the temperament of a people, and the evolving culture. One could easily make the case that marihuana use in the 1960s and cocaine use in the 1980s marked a perfect fit between cultural temperament and pharmacological effects.

While the rising popularity of some drugs taps deep needs within a large portion of the culture, other drugs meet those needs for only a distinct subpopulation. Understanding such niched drug use is only possible through an understanding of the experience and world view of those drawn to the drug.

## **Technology and Drug Trends**

Technological innovation can increase or decrease drug use and its consequences. Technologies that have increased drug consumption and its consequences include a long list of processes (e.g., distillation, isolation of plant alkaloids, drug synthesis) and products (e.g., the pipe, the safety match, machine-rolled cigarettes). Technologies that have lowered drug use and its consequences include alternatives to such substance, such as safe and socially acceptable non-alcoholic beverages that followed water purification, pasteurization, and refrigeration and chemical processes that created non-narcotic painkillers and non-barbiturate sedatives.

The hypodermic syringe offers an interesting case study. This new instrument arrived with the promise to reduce morphine addiction by requiring smaller amounts of morphine via injection compared to oral use. But this new technological innovation turned out to be a Trojan horse. In a similar manner, nearly every substance today recognized as a “drug of abuse” began its career as a medical remedy, including a remedy for addiction. A history in which opium,

morphine, heroin, chloral hydrate, barbiturates, cocaine, amphetamines, tranquilizers, LSD, and cannabis have all been used in the treatment of addiction. The use of these drugs begs for caution, skepticism and sustained monitoring of every new psychoactive drug introduced into medicine.

### **Principle of Initial Vulnerability**

Those individuals closest to the discovery or application of a psychoactive drug are particularly vulnerable to untoward consequences resulting from its use. Those close to such discoveries often become victims of the new technology before its full power is understood. A few 19<sup>th</sup> century examples illustrate this principle: the overdose death of the wife of Dr. Alexander Wood, inventor of the hypodermic syringe; the cocaine addiction of Sigmund Freud's colleague, Dr. Ernst von Fleischl; the addiction of Dr. Horace Wells to chloroform following his introduction of nitrous oxide into dentistry; and Dr. William Halstead's (the father of American surgery) addiction to cocaine and morphine. More recent examples include the addiction of anesthesiologists and nurse anesthetists to fentanyl following its introduction as a narcotic anesthetic.

### **Risk Perception**

Many things can influence the relative popularity of a particular drug: its degree of availability, its price, its cultural status, its pharmacological effect, and its perceived risks. Drug experimentation decisions are often influenced by the ratio between the perceived benefits of the drug in relationship to its perceived risks. Drugs can be consumed because of their perceived low-moderate risks, in spite of their high risks, or because of their high risks. Changes in behavior are often preceded by changes in perceptions and beliefs regarding risks and benefits.

### **The Red Herring**

The use of exotic and illicit drugs that garner great public attention may mask fundamental changes that are occurring in the use of socially approved drugs.

When the history of the 1960s and early 1970s is fully understood, the issue of illicit drug use will pale in comparison to radical changes that were occurring in the use of alcohol, tobacco and other licit psychoactive drugs. Illicit drug use stood as a red herring that hid the lowering of the legal drinking age; an unprecedented promotion of alcohol and tobacco to young people, women and people of color;

and the promotion of prescription psychoactive drugs to a mainstream America concerned about the growing “drug problem.”

## **Manufactured “Epidemics”**

Rhetorical amplification of slight shifts in drug use into claimed “epidemics” are often fueled by personal and institutional self-interest. Multiple parties reap rewards in the face of a perceived drug epidemic: self-proclaimed experts and stakeholders (law enforcement and criminal justice institutions, treatment institutions, prevention agencies) whose resources increase in the face of such perceived threats. The propensity to stir alarm is virtually unconscious for those who are seeking, or who have been given, institutional ownership of the drug problem arena. A significant advancement of the late 20<sup>th</sup> century was the establishment of baseline data (annual household and school surveys) that provide a scientific foundation to verify or refute such stakeholder claims.

## **Epidemics and Disinformation**

During the alarm phase of a perceived drug epidemic, initial reports of drug effects are notoriously unreliable and generate their own harmful effects. The evolving portrayal of the effects of pre-natal cocaine exposure is illustrative. Anecdotal reports of the mid-1980s triggered a media frenzy about “crack babies” that in turn led to the removal of a large number of infants from mostly poor women of color. The children were branded as a “biological underclass,” and dire warnings were issued about the massive resources schools would require to meet their special educational needs. Later reports, based on rigorous scientific research, provided a very different conclusion: pre-natal cocaine exposure produces subtle effects in some infants that can be either reversed by the brain itself or through environmental support. In retrospect, these infants may have been harmed more by the label “crack baby” than prenatal drug exposure.

## **Drugs and War**

Wartime conditions often spawn increased psychoactive drug consumption by bringing large numbers of young people into intimate social contact, suspending family- and community-of-origin norms governing drug-taking behavior, introducing new drugs for which there are no pre-existing prohibitions or ground rules for use, and by providing a medium for the self-medication of fear and

boredom. This principle is an enduring theme in American history, from concern over excessive drinking in the Continental Army to concern about heroin addiction among soldiers in Vietnam. The closer the wartime environment is to the civilian environment of origin, the greater the likelihood of later transfer of drug use from military to civilian life.

## **Principles of Addition and Subtraction**

Personal vulnerability to the powers of psychoactive drugs increase under two circumstances: 1) when it is discovered that the drug can add something (pleasure, energy, confidence, tranquility, people) to one's life that is missing, and 2) when it is discovered that the drug can hide or remove something (pain, boredom, shyness) that is undesirable. The interaction between humans and drugs is at its most basic level a process of addition and subtraction.

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