

Facing Addiction:

Surgeon General's Report
on Reducing Misuse and Addiction

A. Thomas McLellan

Senior Editor

Key Terms

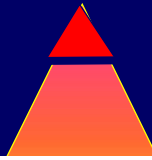
Use – Any use of any substance.
Driven by market forces

Misuse – Use that can harm self
or others. Driven by consequences.

Addiction – Compulsive use.
Driven by progressive brain changes.

Substance Use Among US Adults

Serious
Use



In Treatment ~ 4,100,000

Addiction ~ 21,400,000

Misuse is Important

1. Major Cause of Harms
2. Leads to Addiction

Little/No
Use

Use

Who Cares?

Substance Misuse is related to:

28% of college rape and IPV

44% of injuries among 12-25

63% of disabilities among 12-25

74% of all deaths among 12-25

Figures even higher for minorities

Not Worth It?

Annual Costs of Substance Misuse:

\$440 Billion

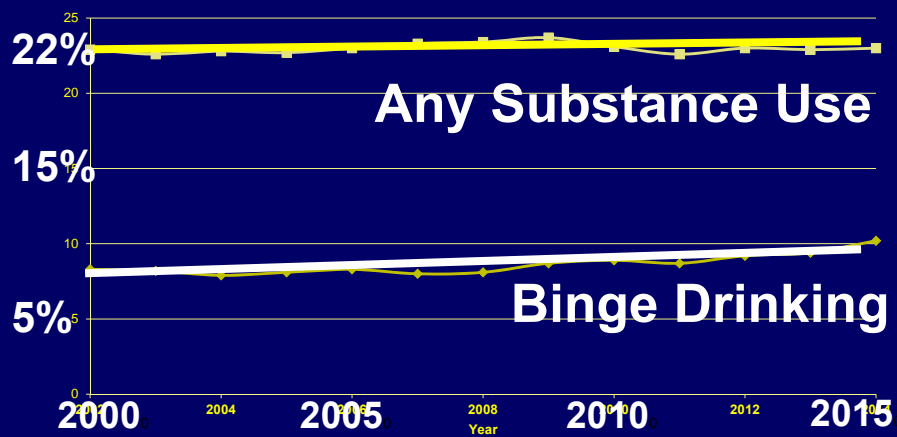
**Annual Costs of
Iraq and Afghan Wars
\$180 – \$250 Billion**

But Really....

What Can You Do?

Aren't These Problems Intractable?

Past month substance use in youth: 2002 - 2014

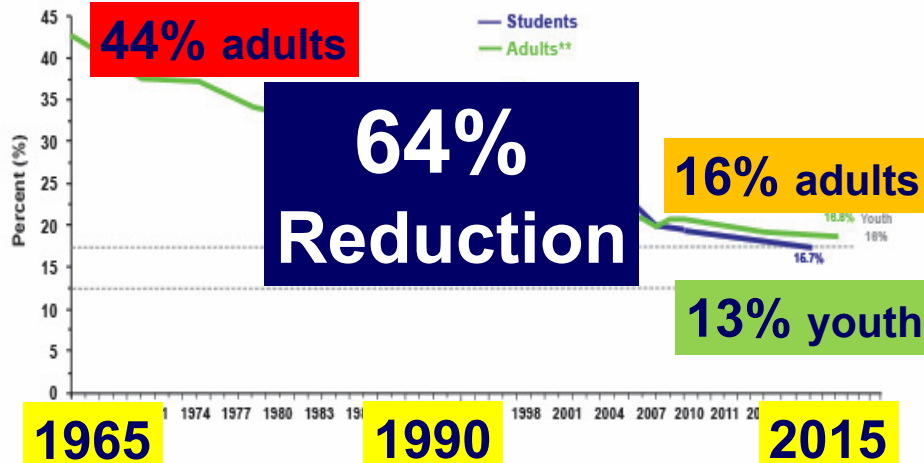


Premise of the SG Report

1. We have misunderstood addiction and institutionalized inappropriate solutions
2. But now we know enough to get it right, we have the right tools - and
3. We've done it before.

Smoking

Past Month Cigarette Smoking: 1965 - 2015



*Percentage of high school students who smoked cigarettes on 1 or more of the 30 days preceding the survey (Youth Risk Behavior Survey, 1991-2013).
**Percentage of adults who are current cigarette smokers (National Health Interview Survey, 1965-2014).

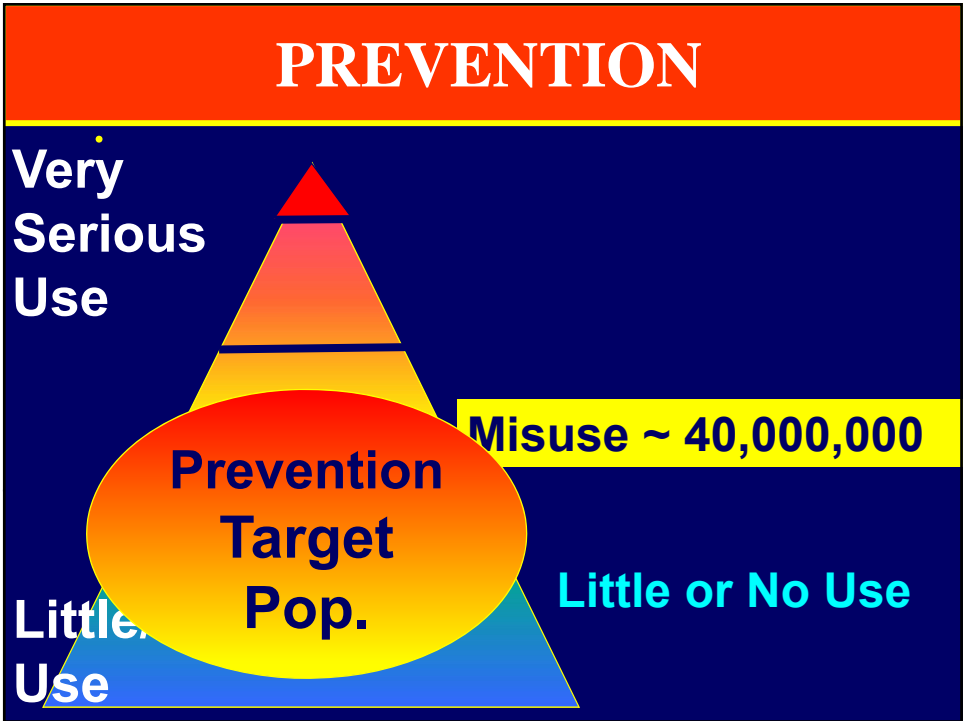
Reducing Substance Misuse & Substance Use Disorders

Specialty Treatment Programs
Continuing Care Model

Mainstream Healthcare
Screening, Brief Interv, Disease
Mgmt & Monitoring (e.g. diabetes)

Families & Communities
Prevention Policies & Programs

Prevention



How to Prevent?

1. Reduce Risk Factors
2. Enhance Protective Factors

The critical “at risk” period
for addiction is

Adolescence

94% initiate between 12 - 25

Risk Factors

1. ***NO*** Single factor is determinative
2. ***Same Factors Predict MANY Different Harms*** - drop out, pregnancy, bullying, drug use, suicide
3. ***Risk Factors can be Modified*** with research tested programs

Effective Prevention Policies...

- Reduce availability of alcohol
- Reduce underage drinking & DWI
- Reduce availability of prescription drugs

⋮

Price of Alcohol

Finding: Higher prices or taxes reduce drinking rates & problems

30%

Evidence: 112 separate studies; over 1,000 examples

⋮

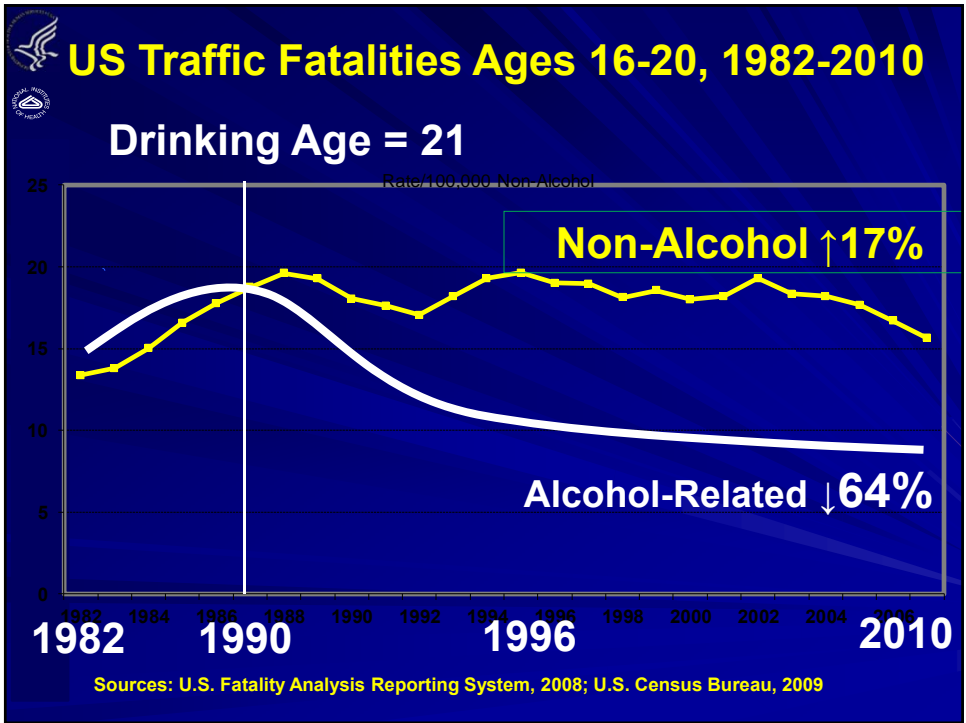
Availability of Alcohol

Finding: Policies to reduce alcohol outlets reduce drinking & problems

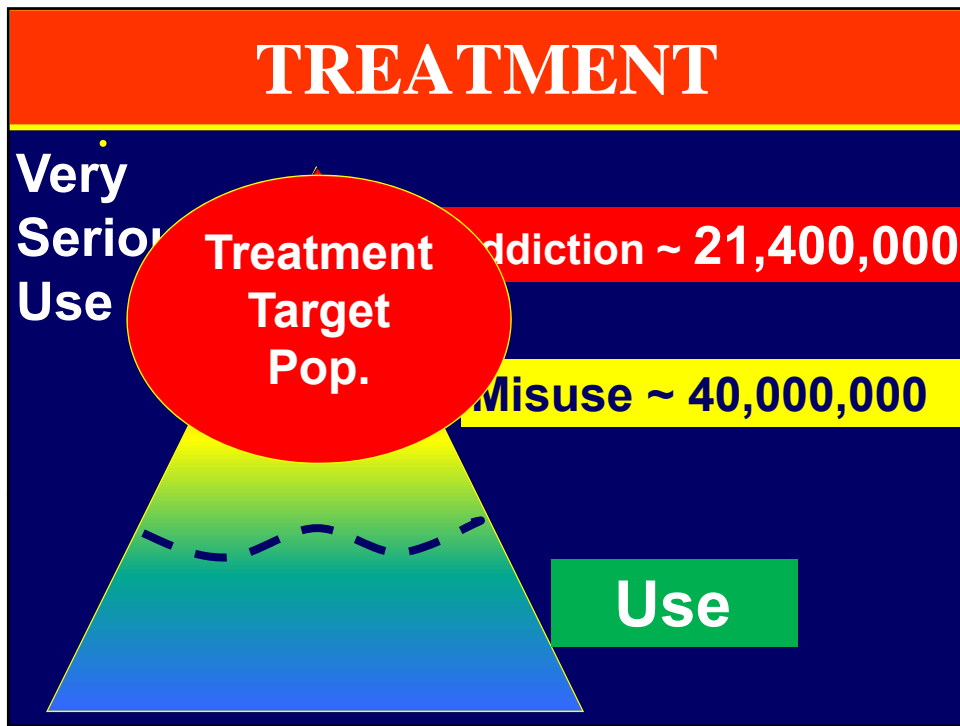
20%

NOTE Privatizing **INCREASES** sales 40%

Evidence: 21 longitudinal studies; over 100 case examples



Addiction Treatment



- ## *Historical Definitions*
1. **Addiction = character disorder**
 - a) “Addicts” need tough love, must learn to follow rules – “get with the program”
 2. **Addiction = physical dependence**
 - a) Only “hard drugs” produce addiction
 3. **Addiction = bad choices; deviant lifestyle**
 - a) Treatment should come only from recovering people who can break through this lifestyle

So....Not Surprisingly

1. **Addiction has not been part of healthcare**
 - a) **Less than 10% of med or nursing schools teach it**
 - b) **Virtually no primary care involvement**
2. **Addiction care has not been reimbursed through health insurance**
 - a) **Eliminated or “carved out”**
3. **Addiction is stigmatized – families shamed**

New Science

1. **Diagnosis**
2. **Brain Imaging**
3. **Genetics**

Diagnostic Criteria for Substance Use Disorders

- Using in larger amounts or for longer than intended
- Wanting to cut down/stop using, but not managing to

In Summary:

Diminished Control of Use

- Continuing to use, even when physical or psychological problems may be made worse by use
- Increasing tolerance
- Withdrawal symptoms

What Could Cause Diminished Control?

Incremental, Substance-induced changes in:

- **Gene Expression**
- **Stress response systems**
- **Brain circuits controlling motivation, inhibition & reward sensitivity**

The changes endure long after drug cessation

What is the affected organ?

- In other diseases technology allows you to “see” the **progression and severity of an illness**
 - Magnetic Resonance Imaging (MRI)
 - Positron Emission Tomography (PET)



FACING ADDICTION IN AMERICA: *The Surgeon General's Report on Alcohol, Drugs, and Health*



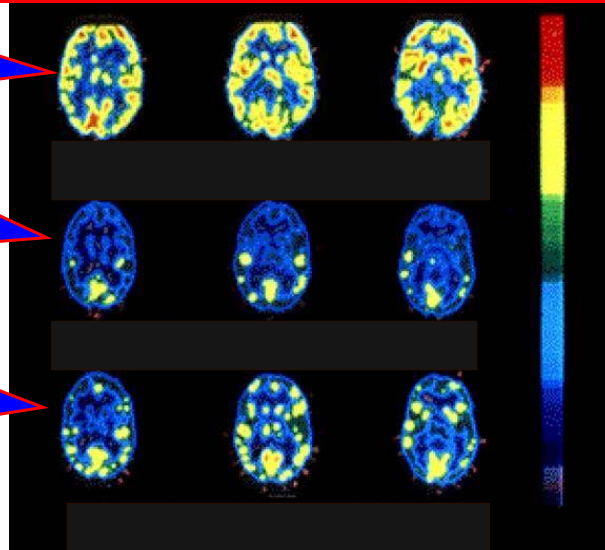
27

Now We Can See **Brain Changes** in Addiction

Normal levels of brain activity in PET scans show in yellow & red

Reduced brain activity after regular use is still seen **after 10 days** of abstinence

After 100 days abstinence, brain activity recovering



Source: Volkow ND, et al. Long-term frontal brain metabolic changes in cocaine abusers. *Synapse* 11:184-190, 1992; Volkow et al. Decreased dopamine D₂ receptor availability is associated with reduced frontal metabolism in cocaine abusers. *Synapse* 14:169-177, 1993.

Heritability Estimates Twin Studies

Eye Color	1.00
ASTHMA (adult only)	.35 - .70
DIABETES (insulin dep)	.70 - .95 (males)
HYPERTENSION	.25 - .50 (males)
<hr/>	
ALCOHOL addiction	.55 - .65 (males)
OPIOID addiction	.45 - .58 (males)
COCAINE addiction	.40 - .60 (males)
CANNABIS addiction	.35 - .55 (M & F).

Summary of Findings

1. Addiction can result from ALL substance misuse
2. Anyone can become addicted, but ~50% of risk is genetic and adolescence is THE major risk period.
3. The defining feature of addiction is loss of control
4. Progressive misuse may impair three specific brain circuits/regions
 - Reward (basal ganglia)
 - Stress/Anxiety (amygdala)
 - Executive function (prefrontal cortex)
5. Brain changes endure after drug use stops

Therefore:

- 1. Addiction is different from misuse –**
enduring brain changes mean enduring vulnerability – especially to emotional and situational cues that signal craving
- 2. These enduring changes are best managed as a chronic illness**
requires a continuing care approach with regular monitoring

Also:

- 3. Treatment goals are the same as for other chronic illnesses**
 - 1. Reduce symptoms to non-problem levels*
 - 2. Improve health and function*
 - 3. Teach/Train self management*
- 4. Treatment Methods are the same**
 - 1. Personalized care plan – NOT program*
 - 2. Evidenced based medications, behavioral therapies, social supports*
 - 3. Clinical monitoring to guide care*

**Is there a model of
more appropriate care?**

YES!

**Treatment of Addicted Physicians
Physician Health Programs**

Evaluation and Contracting

- **Phase 1 - Evaluation**
 - Evaluate/diagnose/ Explain PHP
 - Result is **3 – 5 year** contract
 - Monitoring reports to Board – **4 yrs**

Treatment and Monitoring

- **Phase 2 – ~1 yr**
 - Residential treatment **30 – 90 days**
 - IOP or OP ~ **6 months**
 - **Return to practice** ~ month 3
 - Aftercare program ~ **3-6 months**
- **Phase 3 – 4 yrs**
 - AA / Caduceus Society meetings
 - Family Therapy
 - Urine Drug Screenings - random
 - Worksite visits

Results Through Five Years

No Positive Urine Over
5 Years

78%

Results Through Five Years

Second Positive Urine
After One Slip

26%

Conclusions

1. Substance **Misuse** is a public health problem: It is hurting & killing our young
 - a) Prevention Policies and Programs CAN reduce risk and enhance protective factors – IF delivered throughout “at risk” period (ages 12 – 25)

Conclusions

2. **Misuse & Substance Use Disorders** are prevalent in all healthcare settings – but ignored
 - a) They reduce the quality, effectiveness and safety of ALL healthcare delivery
 - b) SUD Education must be required in Medical, Nursing and Pharmacy Schools

Conclusions

3. Addiction is an acquired brain disease
 - a) Continued misuse damages brain circuits – leads to loss of control
 - b) Those with family histories of SUD or MH are most vulnerable
 - c) Adolescence is a critical “at risk” period
 - d) CAN be effectively treated with continuing care & monitoring

Reducing Substance Misuse & Substance Use Disorders

Specialty Treatment Programs
Continuing Care Model

Mainstream Healthcare
Screening, Brief Interv, Disease
Mgmt & Monitoring (e.g. diabetes)

Families & Communities
Prevention Policies & Programs

- The End -