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

<table>
<thead>
<tr>
<th>Use</th>
<th>Addiction ~ 21,400,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Use</td>
<td>In Treatment ~ 4,100,000</td>
</tr>
</tbody>
</table>

**Misuse is Important**

1. Major Cause of Harms
2. Leads to Addiction

<table>
<thead>
<tr>
<th>Use</th>
<th>Little/No Use</th>
</tr>
</thead>
</table>

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
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.
Past Month Cigarette Smoking: 1965 - 2015

44% adults
64% Reduction
16% adults
13% youth

*Percentage of high school students who smoked cigarettes on 1 or more of the 30 days preceding the survey (Youth Risk Behavior Survey, 1997-2014).
**Percentage of adults who are current cigarette smokers (National Health Interview Survey, 1995-2014).

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

PREVENTION

Very Serious Use

Little Use

Prevention Target Pop.

Misuse ~ 40,000,000

Little or No Use
1. Reduce Risk Factors
2. Enhance Protective Factors

The critical “at risk” period for addiction is

**Adolescence**

94% initiate between 12 - 25
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

**Evidence:** 112 separate studies; over 1,000 examples

Availability of Alcohol

**Finding:** Policies to reduce alcohol outlets reduce drinking & problems

**Evidence:** 21 longitudinal studies; over 100 case examples

**Note:** Privatizing increases sales 40%
US Traffic Fatalities Ages 16-20, 1982-2010

Drinking Age = 21

Non-Alcohol ↑17%

Alcohol-Related ↓64%

Sources: U.S. Fatality Analysis Reporting System, 2008; U.S. Census Bureau, 2009

Addiction Treatment
TREATMENT

Very Serious Use

Treatment Target Pop.

Addiction ~ 21,400,000

Misuse ~ 40,000,000

Use

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)

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

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
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

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)
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

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 -