

Managing Addiction as a Chronic Condition



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Agenda



Part 1. Chronic Nature of Addiction and the Correlates of Recovery

Part 2. Managing Addiction over time through Continuing Care, Drug Courts and Checkups

Part 3. A Fearless Appraisal of the Current System and What it Will Take to Move Towards a More Evidence Based System



**Part 1. Chronic Nature of Addiction
and the Correlates of Recovery**



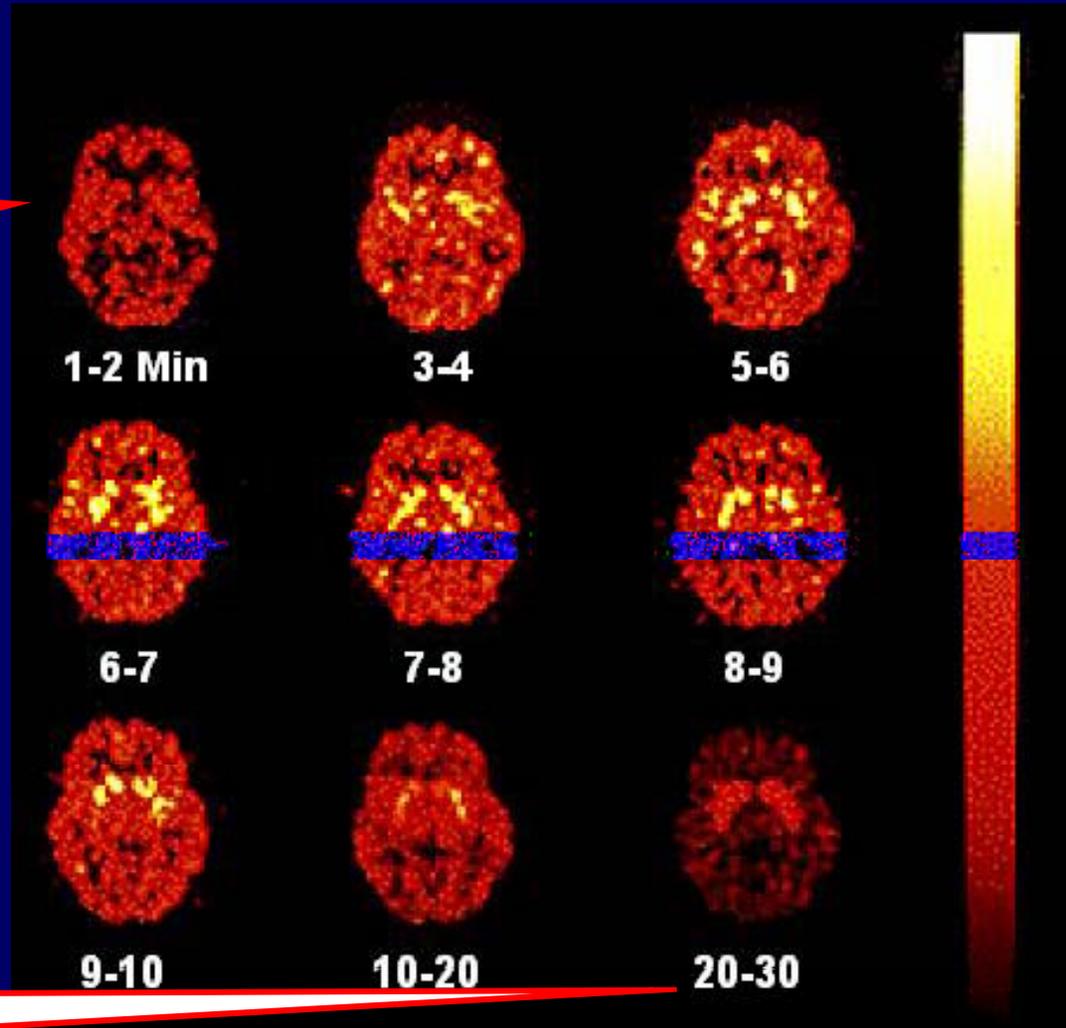
Learning Objectives



- Understand that Addiction is a Chronic Condition
- Identify the major predictors of positive treatment outcomes
- Understand that Recovery is broader than just abstinence and takes time

Substance Impacts the Brain in a Short Term Cycle (PET Scan Minutes After Using Cocaine)

Rapid rise in brain activity after taking cocaine



Actually ends up lower than they started

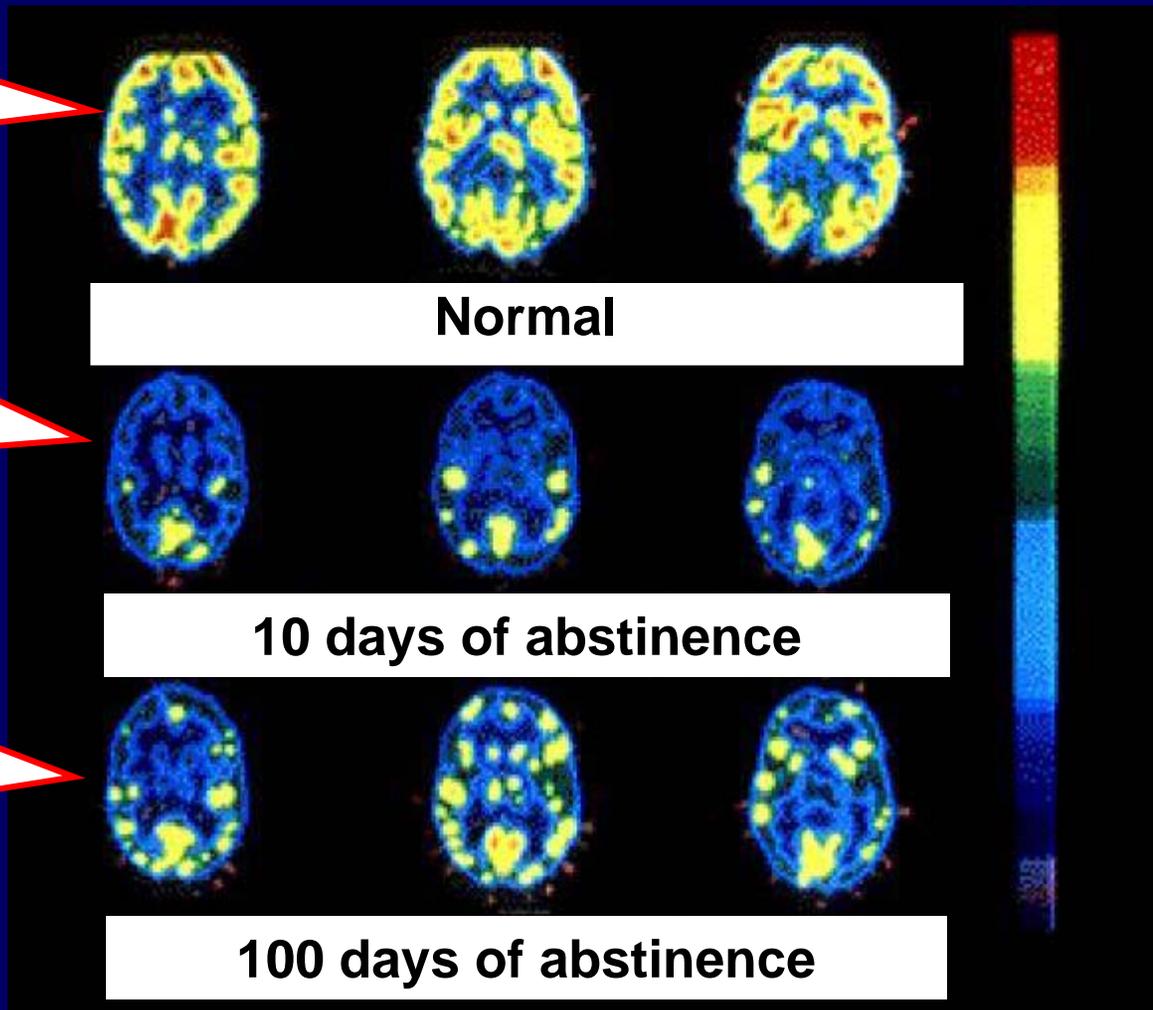
Photo courtesy of Nora Volkow, Ph.D. Mapping cocaine binding sites in human and baboon brain in vivo. Fowler JS, Volkow ND, Wolf AP, Dewey SL, Schlyer DJ, Macgregor RIR, Hitzemann R, Logan J, Bendreim B, Gatley ST. et al. *Synapse* 1989;4(4):371-377.

Prolonged Substance Use Injures The Brain: Healing Takes Time

Normal levels of brain activity in PET scans show up in yellow to red

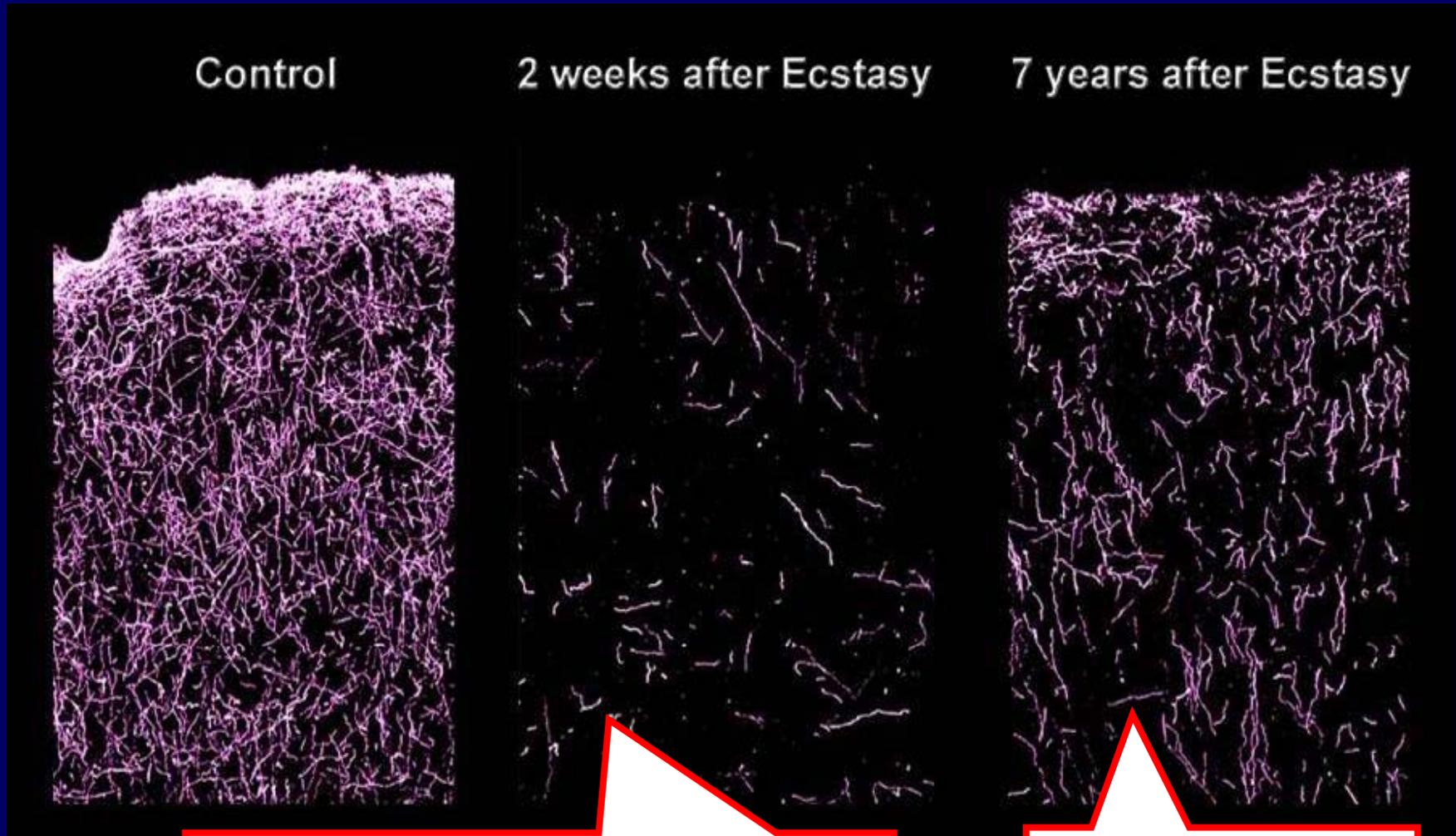
Reduced brain activity after regular use can be seen even after 10 days of abstinence

After 100 days of abstinence, we can see brain activity “starting” to recover



Source: Volkow ND, Hitzemann R, Wang C-I, Fowler JS, Wolf AP, Dewey SL. Long-term frontal brain metabolic changes in cocaine abusers. *Synapse* 11:184-190, 1992; Volkow ND, Fowler JS, Wang G-J, Hitzemann R, Logan J, Schlyer D, Dewey S, Wolf AP. Decreased dopamine D2 receptor availability is associated with reduced frontal metabolism in cocaine abusers. *Synapse* 14:169-177, 1993.

The effects on the brain can be long lasting (Serotonin Present in Cerebral Cortex Neurons)



Reduced in response to excessive use

Still not back to normal after 7 years

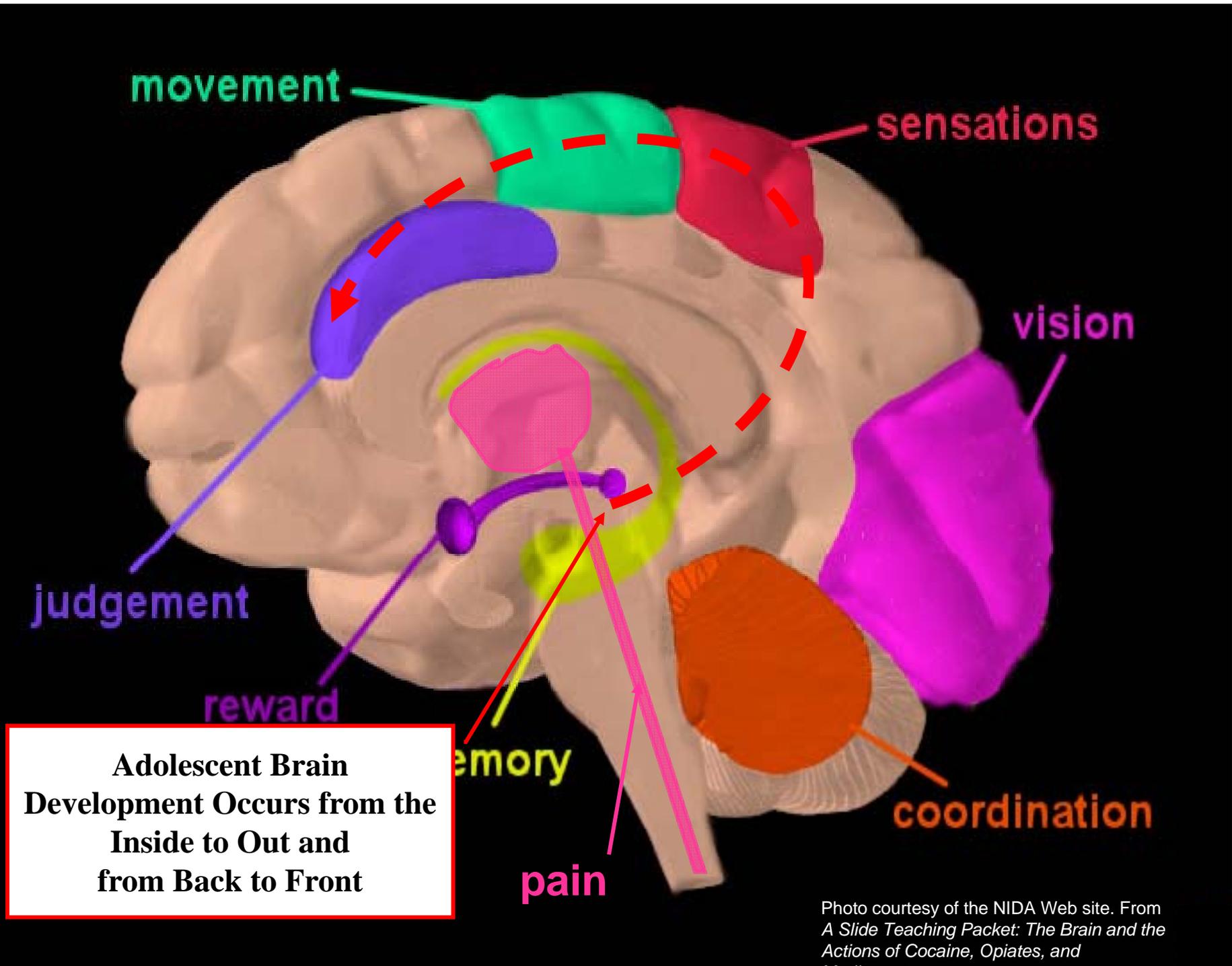
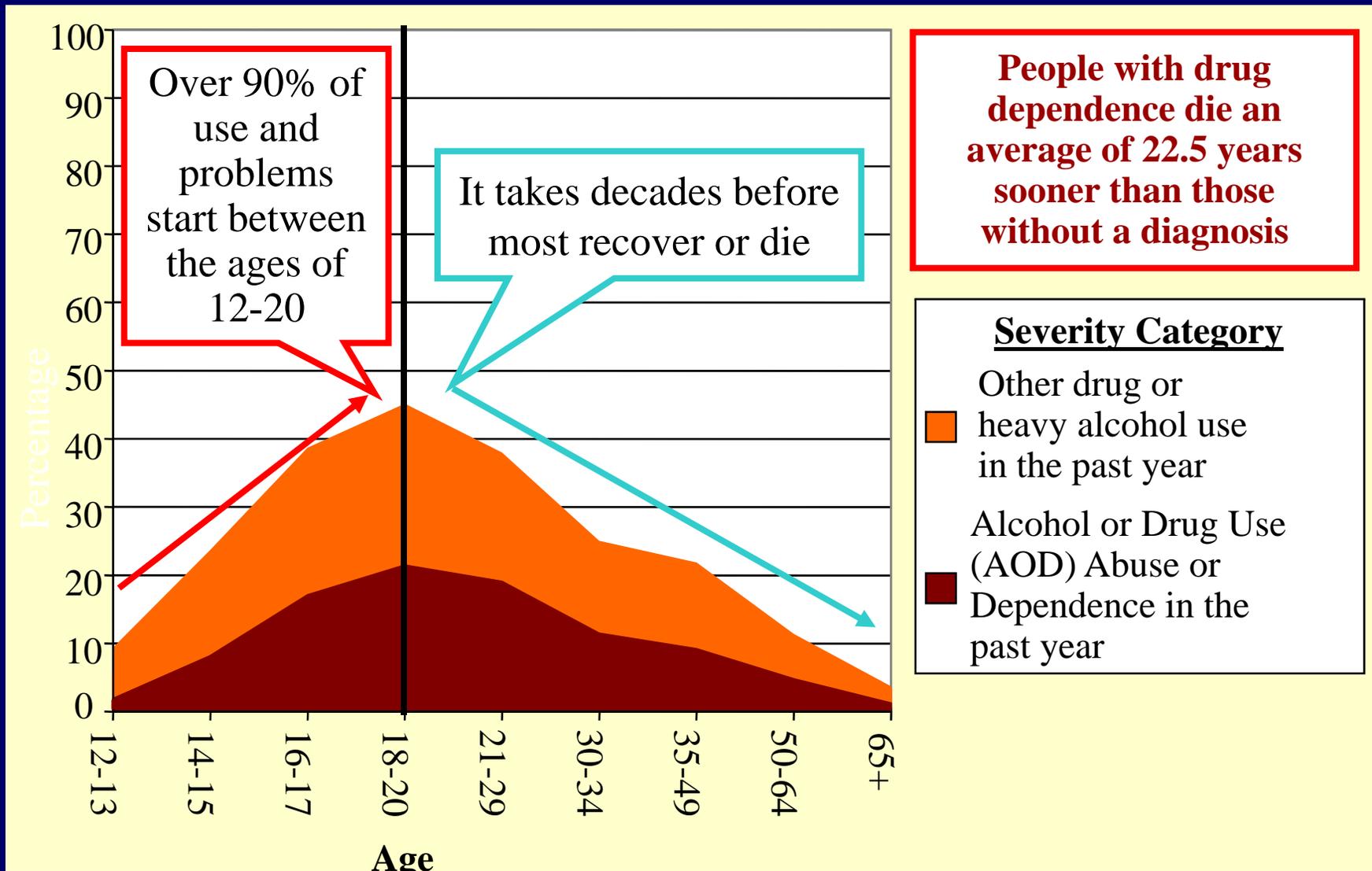


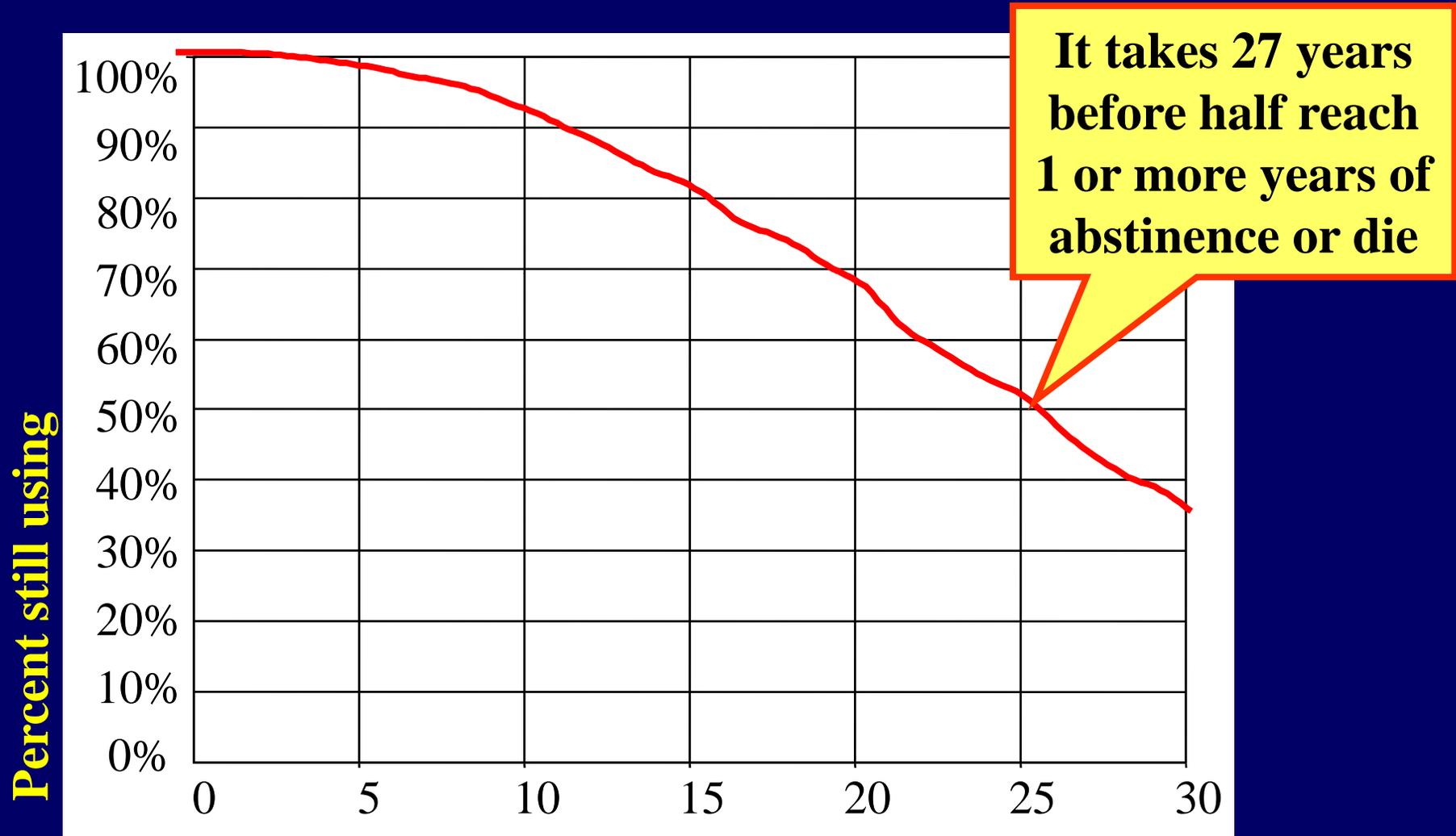
Photo courtesy of the NIDA Web site. From *A Slide Teaching Packet: The Brain and the Actions of Cocaine, Opiates, and*

Alcohol and Other Drug Abuse, Dependence and Problem Use Peaks at Age 20



Source: 2002 NSDUH and Dennis & Scott, 2007, Neumark et al., 2000

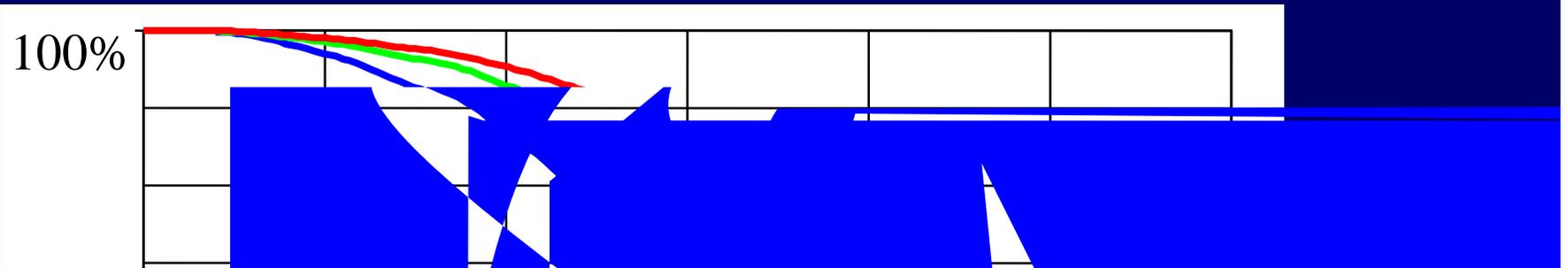
People Entering Publicly Funded Treatment Generally Use For Decades



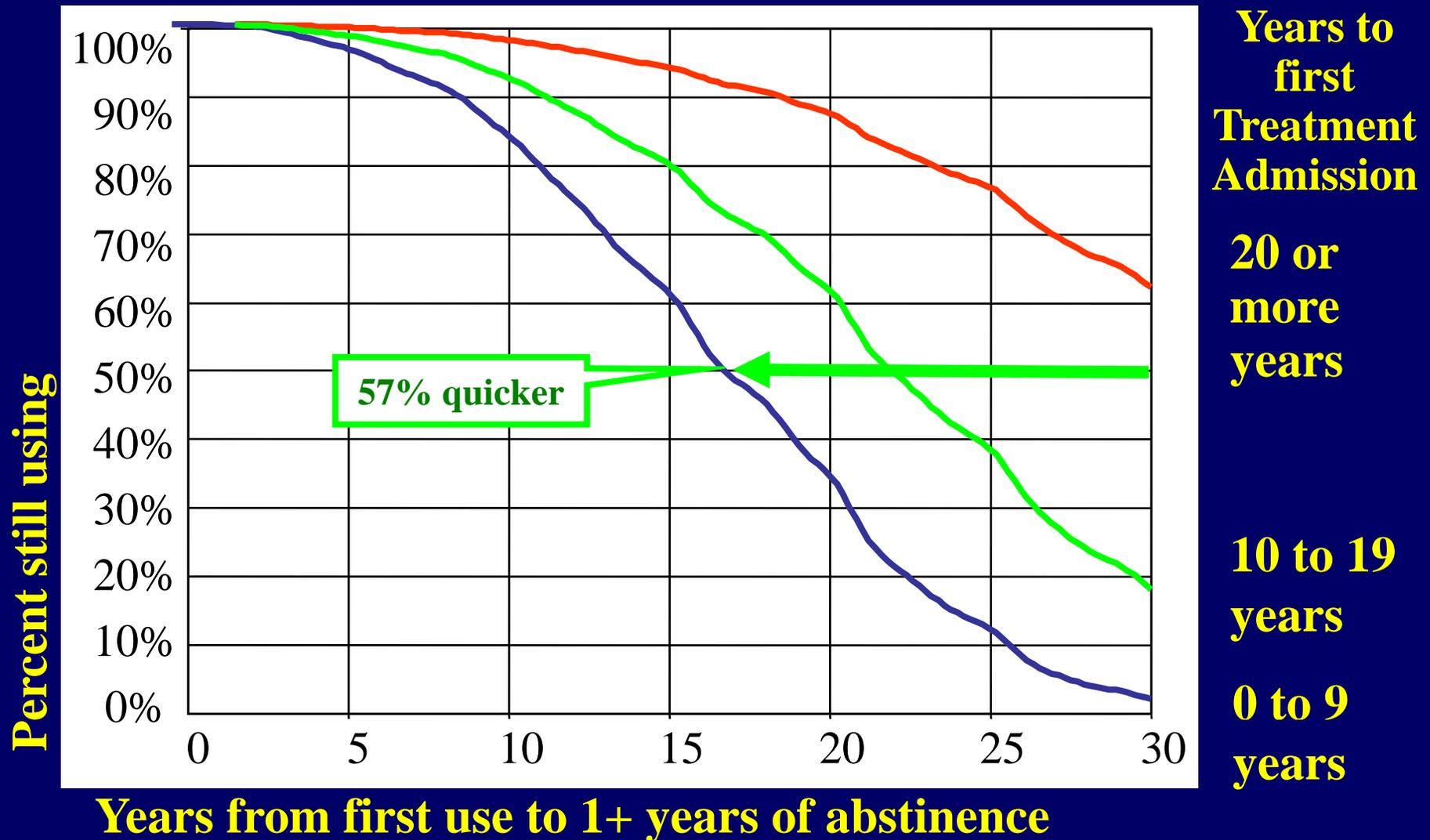
Years from first use to 1+ years of abstinence

Source: Dennis et al., 2005

The Younger They Start, The Longer They Use



The Sooner They Get The Treatment, The Quicker They Get To Abstinence



Source: Dennis et al., 2005

After Initial Treatment...

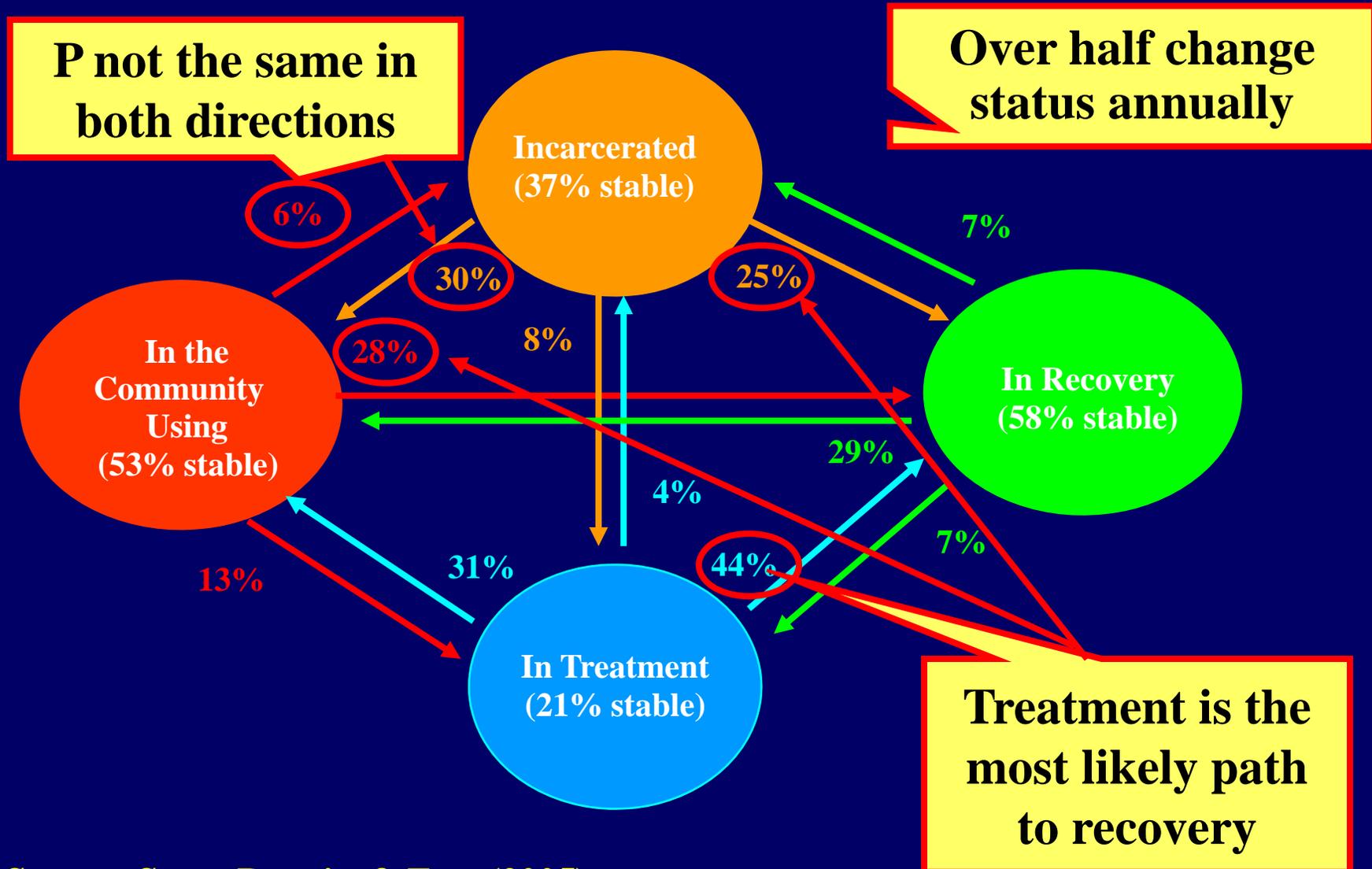


- Relapse is common, particularly for those who:
 - Are Younger
 - Have already been to treatment multiple times
 - Have more mental health issues or pain
- It takes an average of 3 to 4 treatment admissions over 9 years before half reach a year of abstinence
- Yet over 2/3rds do eventually abstain
- Treatment predicts who starts abstinence
- Self help engagement predicts who stays abstinent

Overlap with Crime and Civil Issues

- **Committing property crime, drug related crimes, gang related crimes, prostitution, and gambling to trade or get the money for alcohol or other drugs**
- **Committing more impulsive and/or violent acts while under the influence of alcohol and other drugs**
- **Crime levels peak between ages of 15-20 (periods of increased stimulation and low impulse control in the brain)**
- **Adolescent crime is still the main predictor of adult crime**
- **Parent substance use is intertwined with child maltreatment and neglect – which in turn is associated with more use, mental health problems and perpetration of violence on others**

The Cyclical Course of Relapse, Incarceration, Treatment and Recovery (Adults)

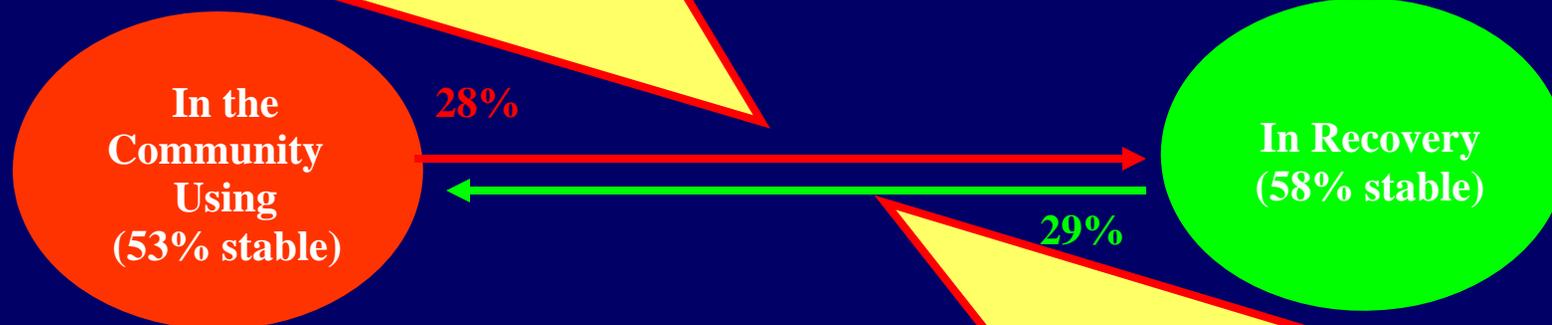


Source: Scott, Dennis, & Foss (2005)

Predictors of Change Also Vary by Direction

Probability of Transitioning from Using to Abstinence

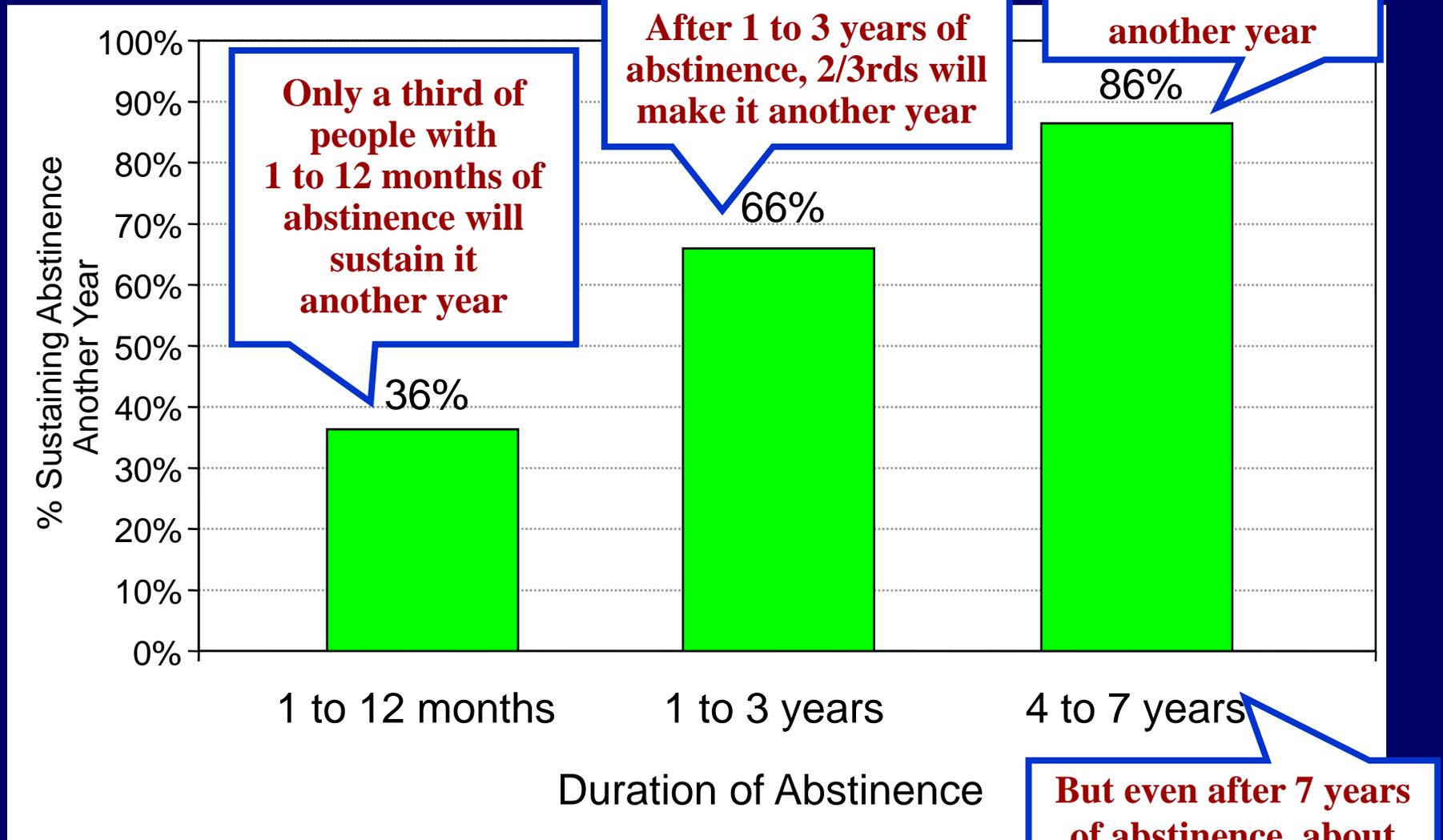
- mental distress (0.88)
- ASI legal composite (0.84)
- + older at first use (1.12)
- + homelessness (1.27)
- + # of sober friend (1.23)
- + per 8 weeks in treatment (1.14)



Probability of Sustaining Abstinence

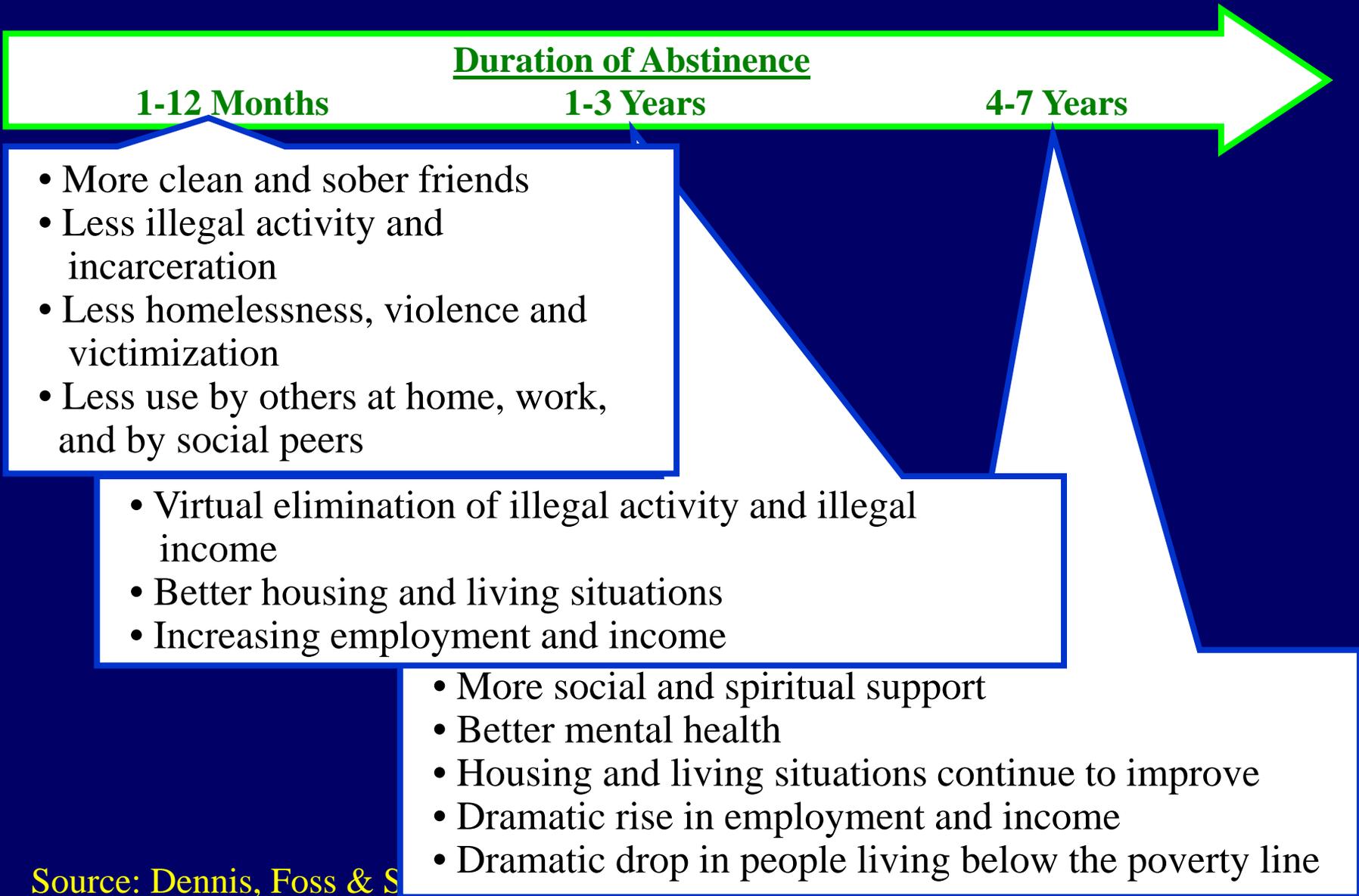
- times in treatment (0.83)
- homelessness (0.61)
- number of arrests (0.89)
- + Female (1.72)
- + ASI legal composite (1.19)
- + # of sober friend (1.22)
- + per 77 self help sessions (1.82)

The Likelihood of Sustaining Abstinence Another Year Grows Over Time



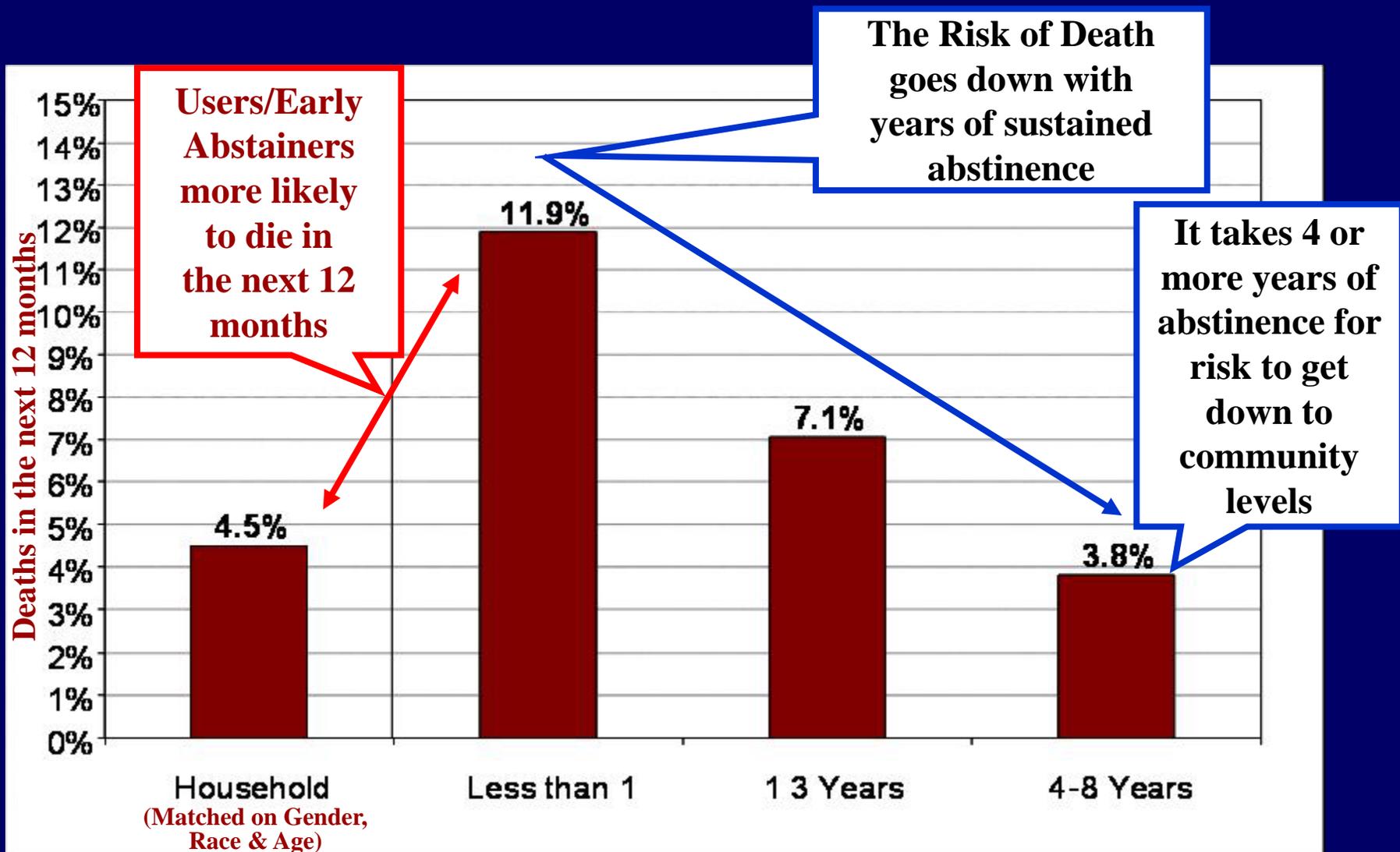
Source: Dennis, Foss & Scott (2007)

What does recovery look like on average?



Source: Dennis, Foss & S

Sustained Abstinence Also Reduces The Risk of Death



Source: Scott, Dennis, Simeone & Funk (forthcoming)

Other factors related to death rates



- Death is more likely for those who
 - Are older
 - Are engaged in illegal activity
 - Have chronic health conditions
 - Spend a lot of time in hospitals
 - Spend a lot of time in and out of substance abuse treatment
- Death is less common for those who
 - Have a greater percent of time abstinent
 - Have longer periods of continuous abstinence
 - Get back to treatment sooner after relapse

Summary of Key Points



- Addiction is a brain disorder with the highest risk being during the period of adolescent to young adult brain development
- Addiction is chronic in the sense that it often lasts for years, the risk of relapse is high, and multiple interventions are likely to be needed
- Yet over two thirds of the people with addiction do achieve recovery
- Treatment increases the likelihood of transitioning from use to recovery
- Self help, peers and recovery environment help predict who stays there
- Recovery is broader than just abstinence



**Part 2. Managing Addiction over time
through Continuing Care,
Drug Courts and Checkups**

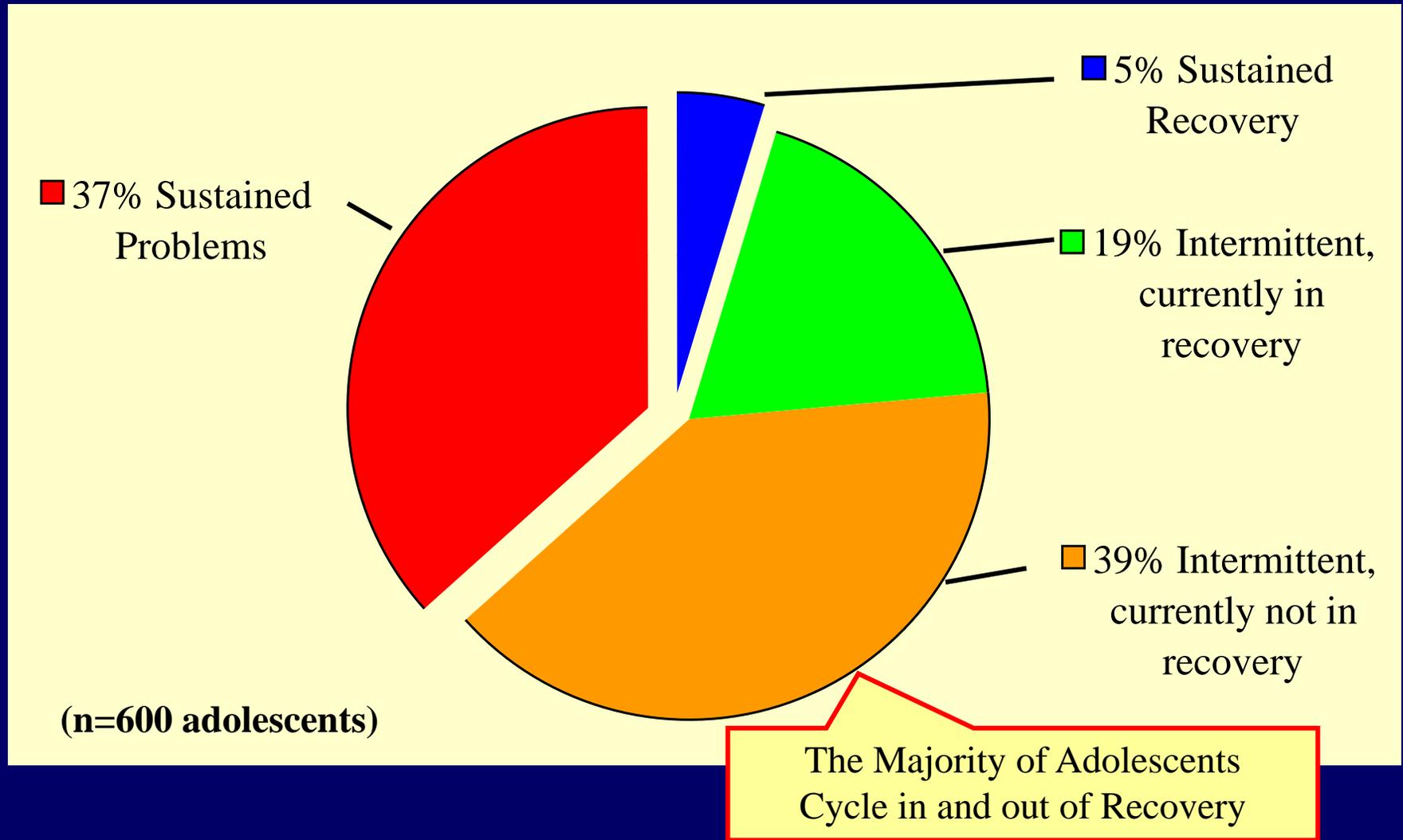


Learning Objectives



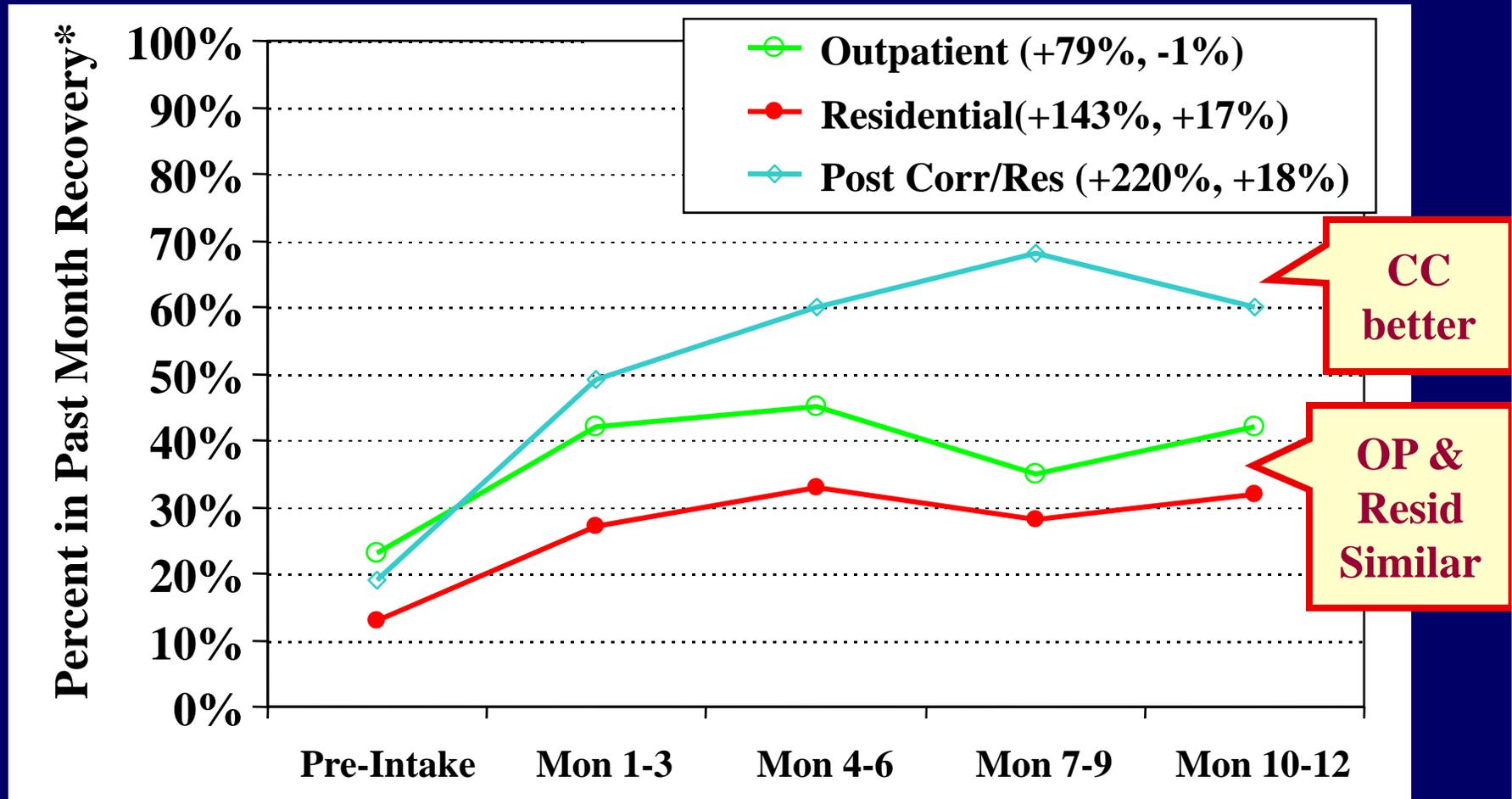
- Understand the role continuing care in sustaining positive treatment outcomes
- Reviewing the evidence on the effectiveness of treatment drug courts
- Illustrating the ability of recovery management checkups to improve treatment outcomes

Cumulative Recovery Pattern 30 Months After Intake



Source: Godley et al 2004

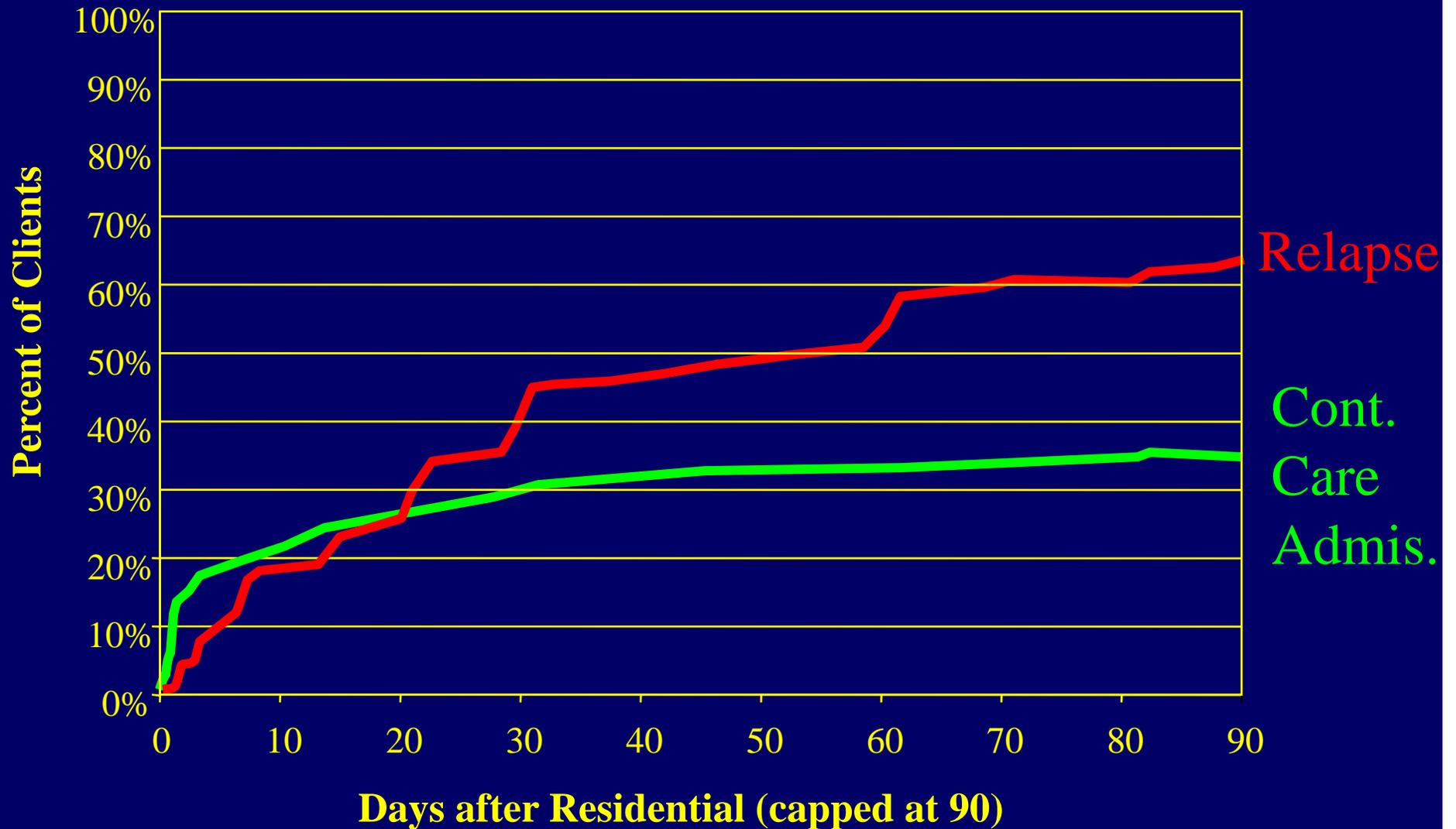
Recovery* by Level of Care



* Recovery defined as no past month use, abuse, or dependence symptoms while living in the community. Percentages in parentheses are the treatment outcome (intake to 12 month change) and the stability of the outcomes (3months to 12 month change)

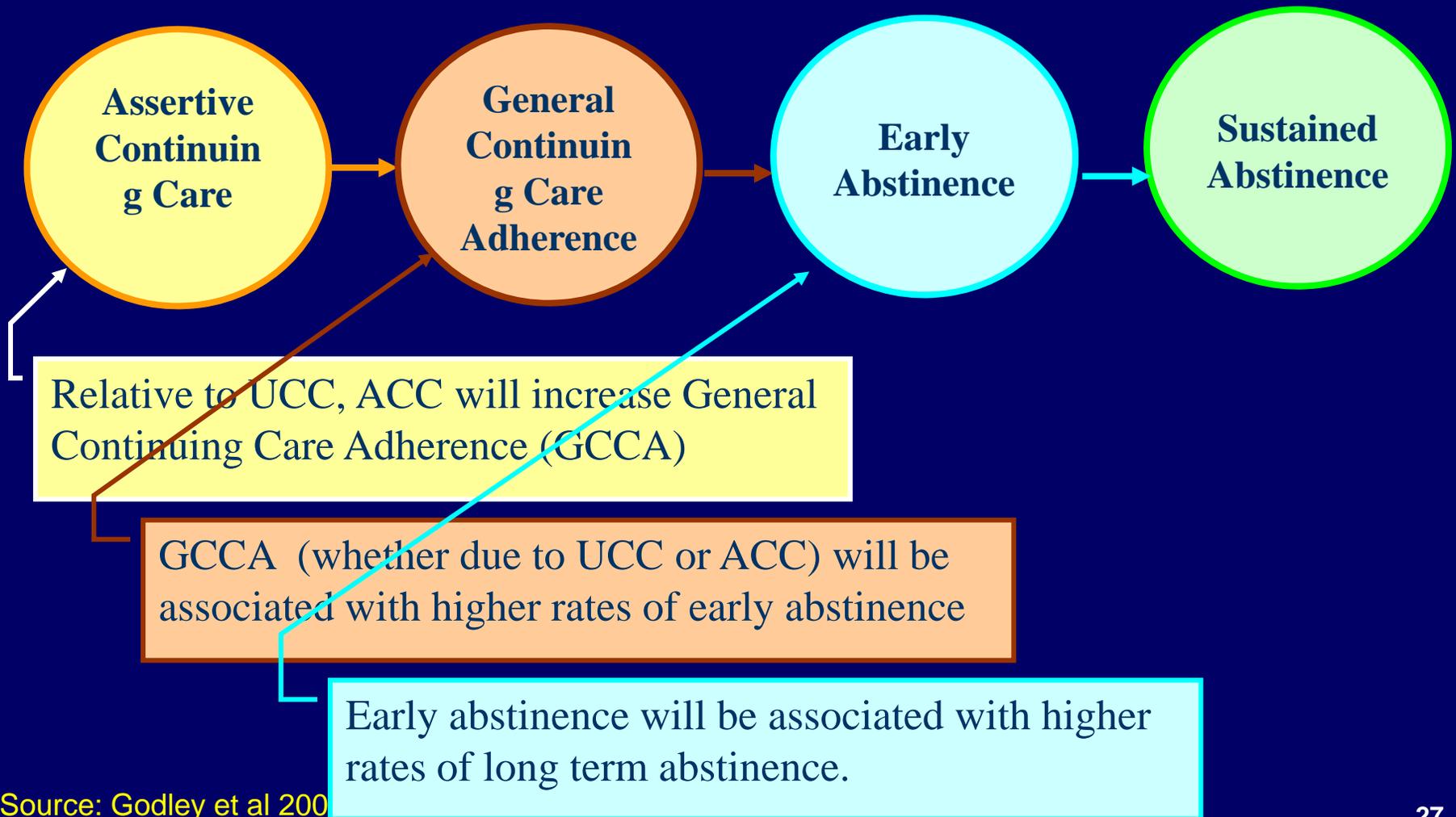
Source: CSAT Adolescent Treatment Outcome Data Set (n-9,276)

Time to Enter Continuing Care and Relapse after Residential Treatment (Age 12-17)



Source: Godley et al., 2004 for relapse and 2000 Statewide Illinois DARTS data for CC admissions

Assertive Continuing Care (ACC) Experiment (n=183) and Hypotheses

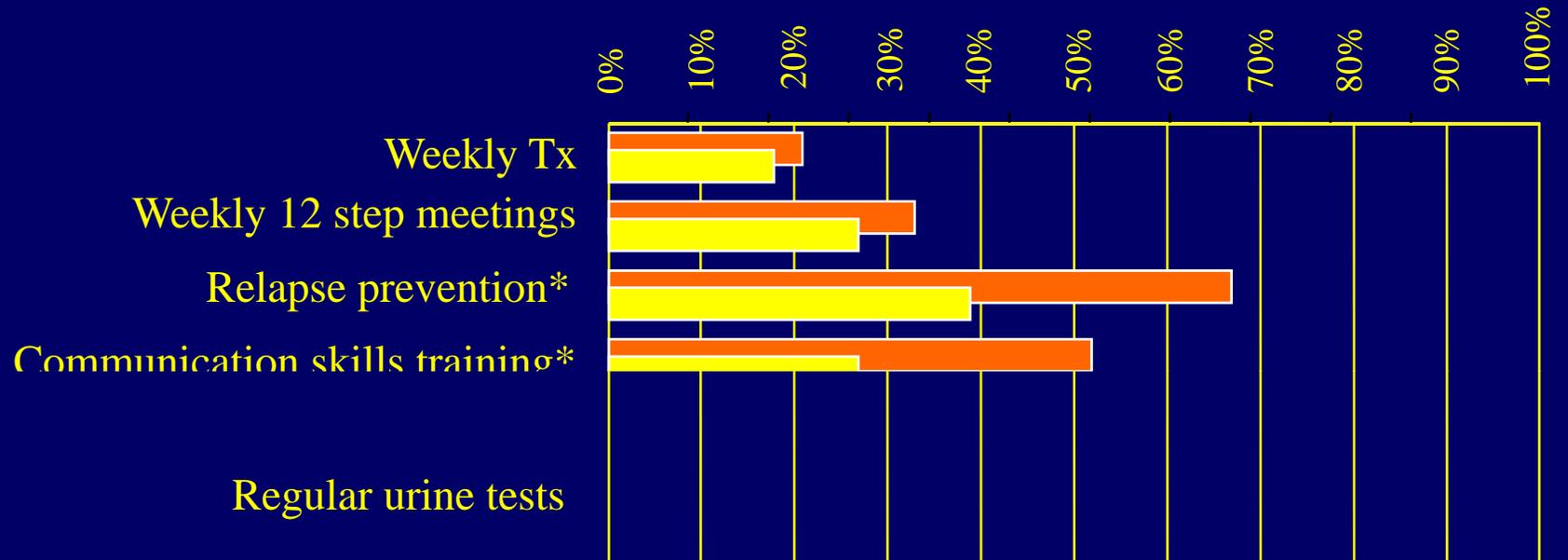


ACC Enhancements

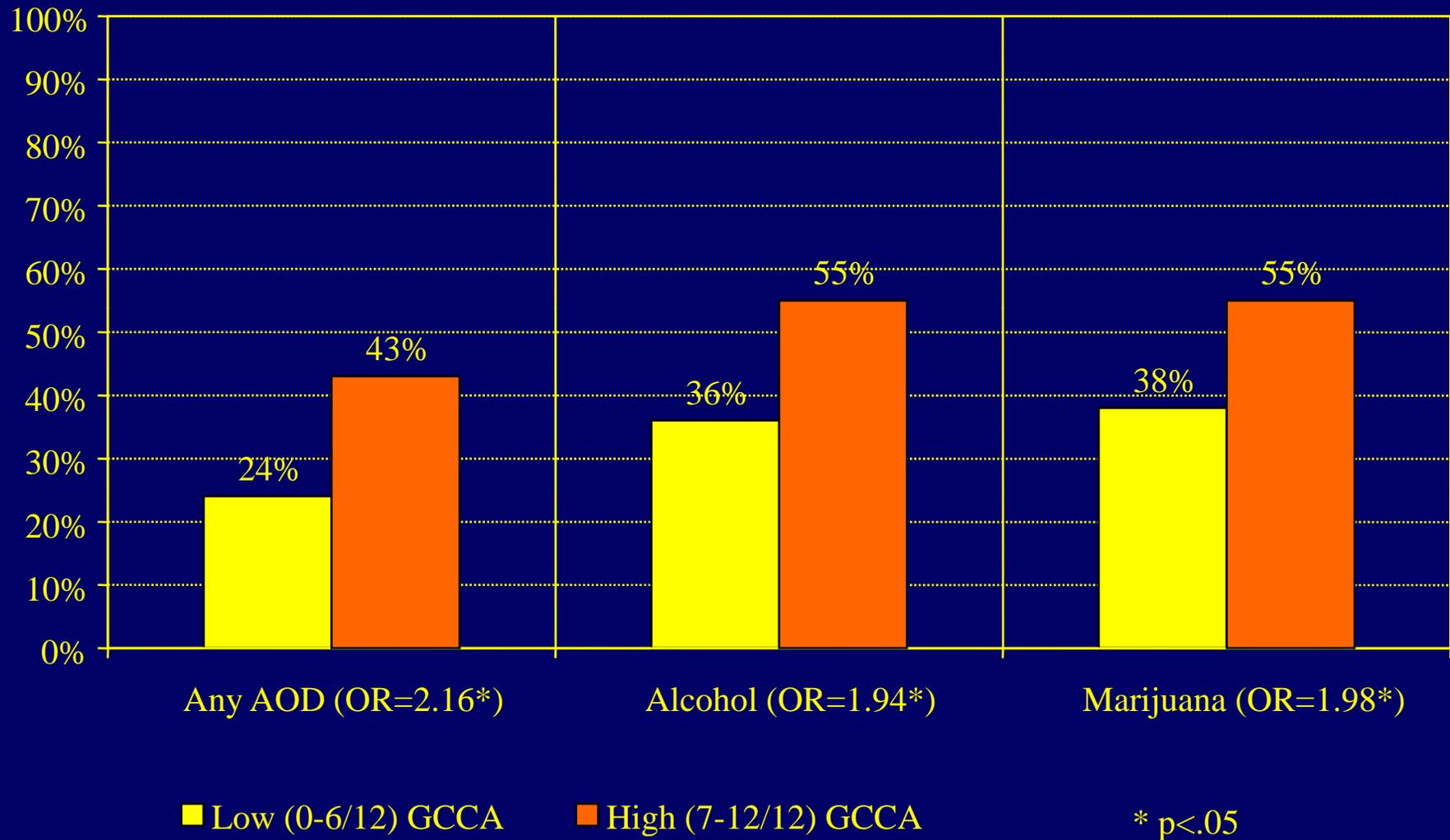


- **Continue to participate in UCC**
- **Home Visits**
- **Sessions for adolescent, parents, and together**
- **Sessions based on ACRA manual (Godley, Meyers et al., 2001)**
- **Case Management based on ACC manual (Godley et al, 2001) to assist with other issues (e.g., job finding, medication evaluation)**

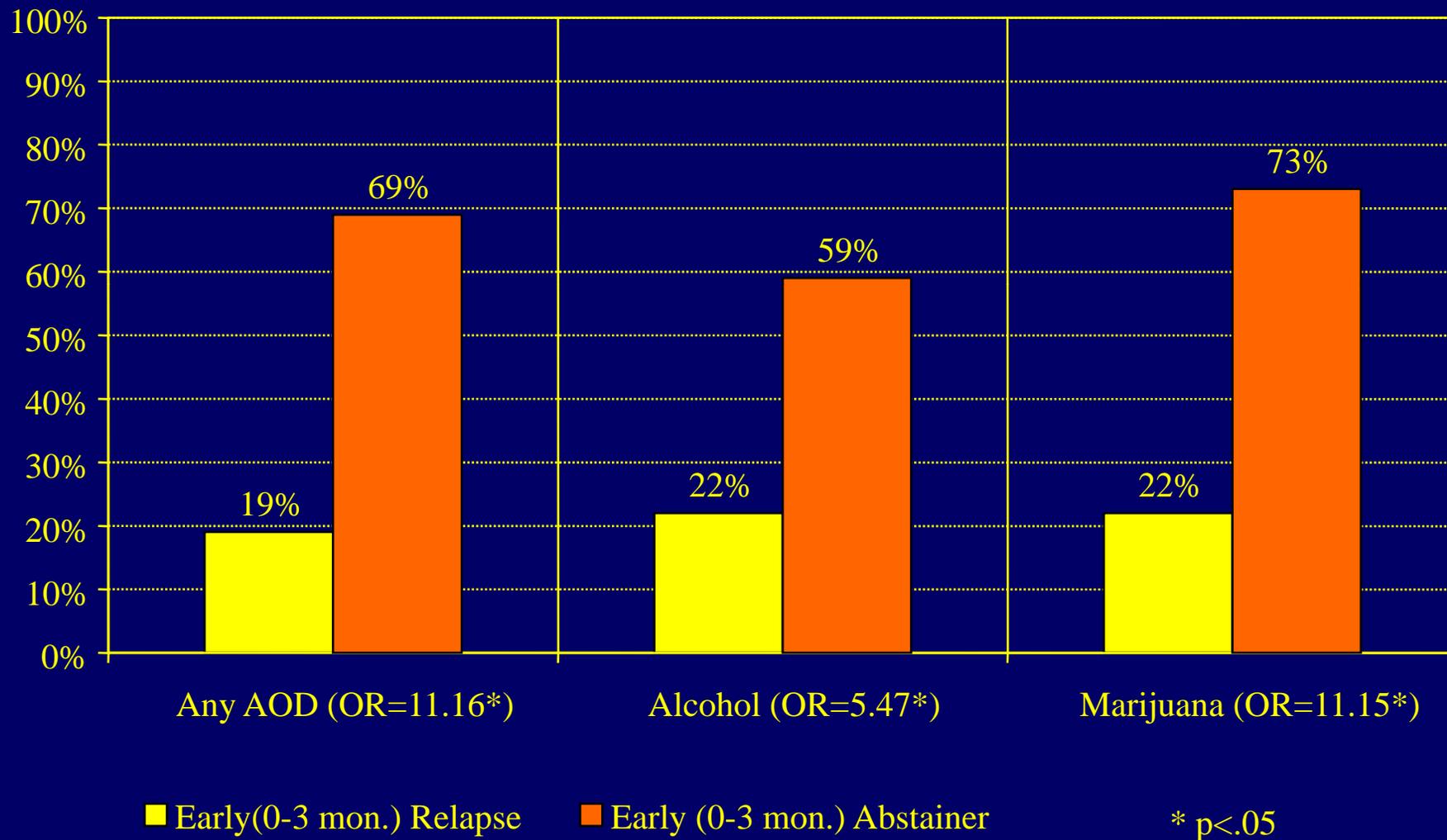
General Continuing Care Adherence (GCCA)



Adherence Improved Early (0-3 mon.) Abstinence

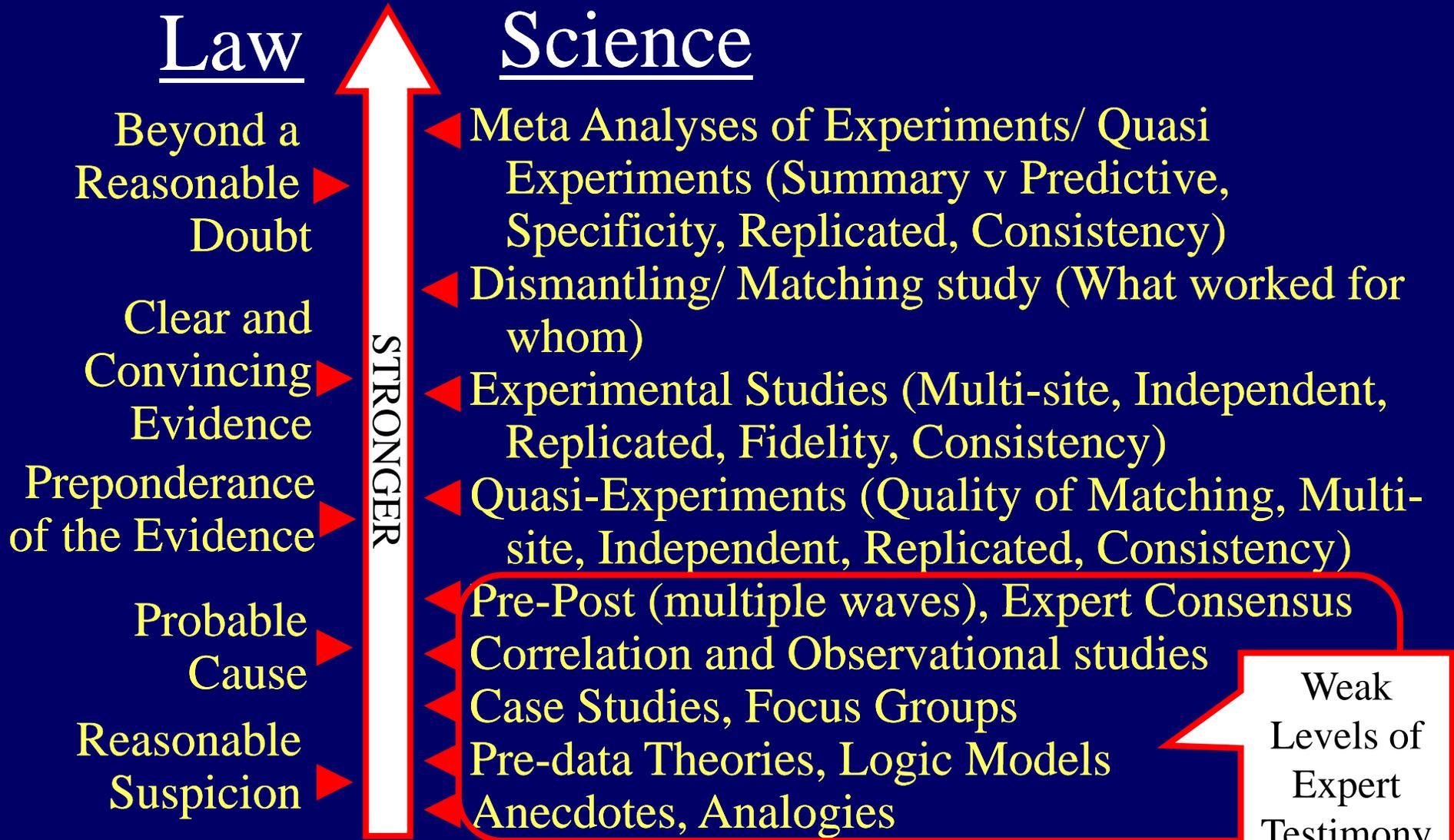


Early (0-3 mon.) Abstinence Improved Sustained (4-9 mon.) Abstinence



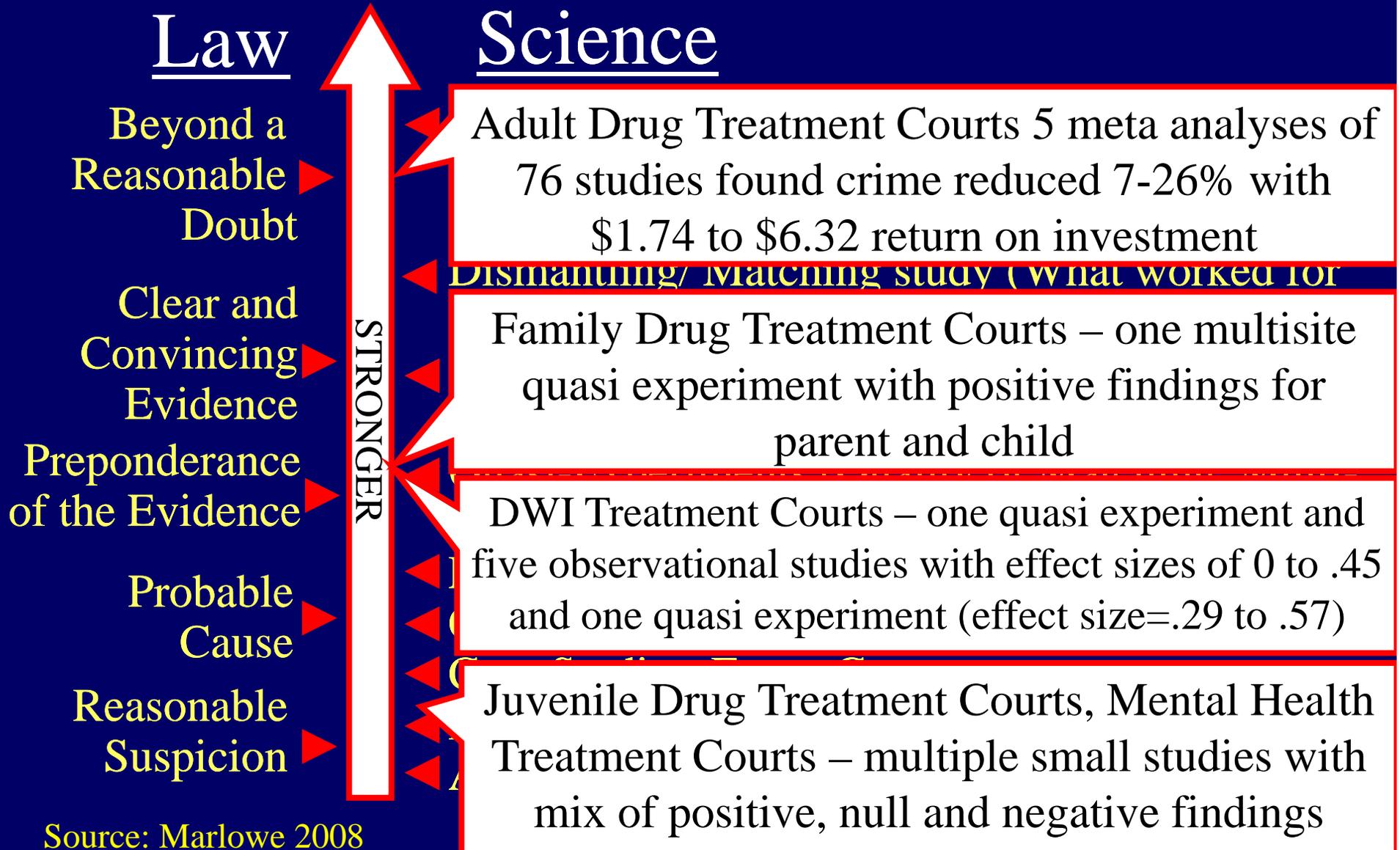
Source: Godley et al 2002, 2007

Relating Standards of Proof to Science



Source: Marlowe 2008

Relating Standards of Proof to Science



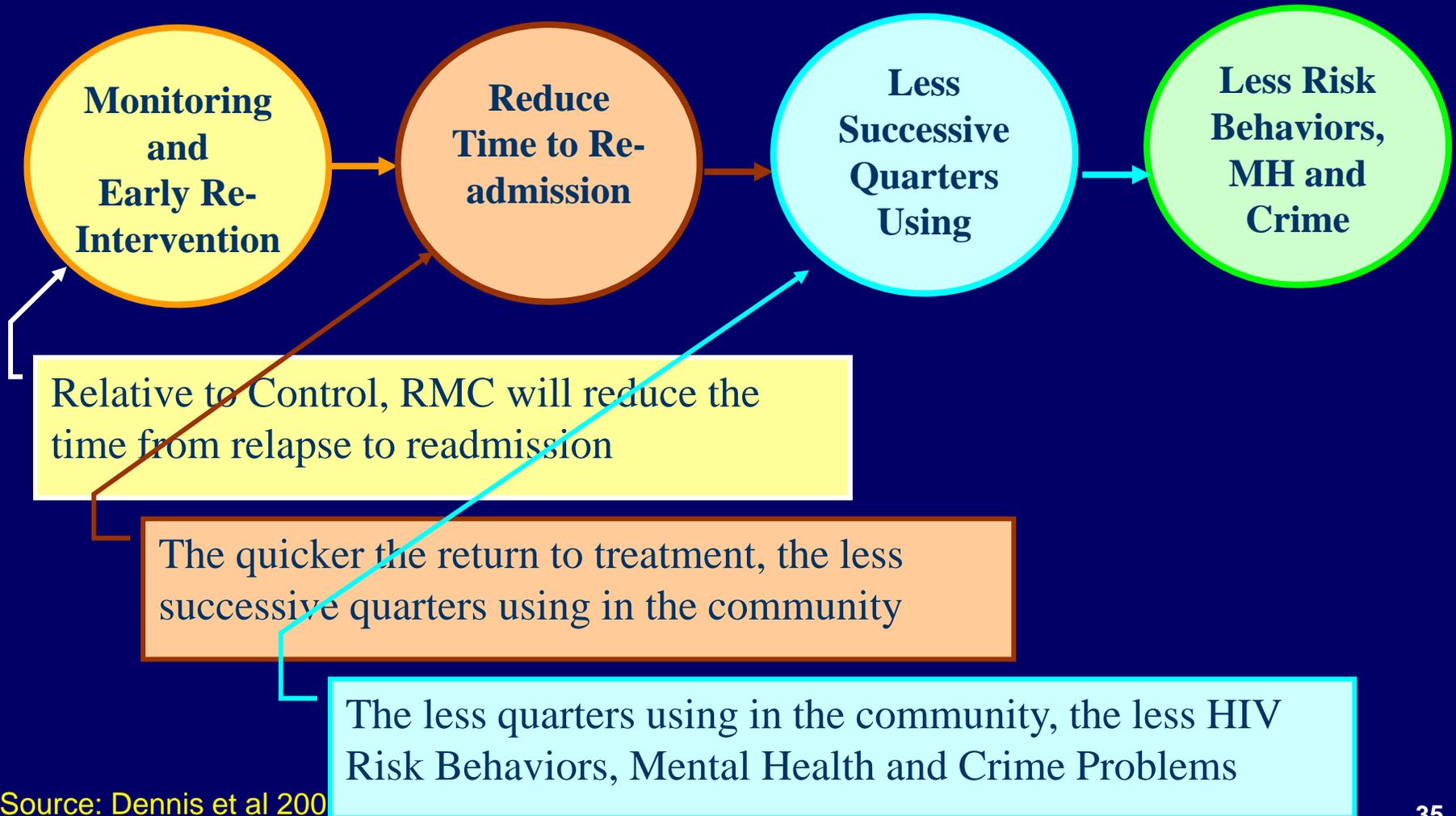
Source: Marlowe 2008

Potential Cost Savings of Expanding Diversion to Treatment Programs in Justice Settings

- Currently treating about 55,000 people in these courts at a cost of \$515 million with an average return on investment (ROI) of \$2.14 per dollar
- The ROI is higher (2.71) for those with more crime
- It is estimated that there are at least twice as many people in need of drug court as getting it
- Investing the \$1 billion to treat them would likely produce a ROI of \$2.17 billion to society

Source: Bhati et al (2008) To Treat or Not To Treat: Evidence on the Prospects of Expanding Treatment to Drug-Involved Offenders. Washington, DC: Urban Institute.

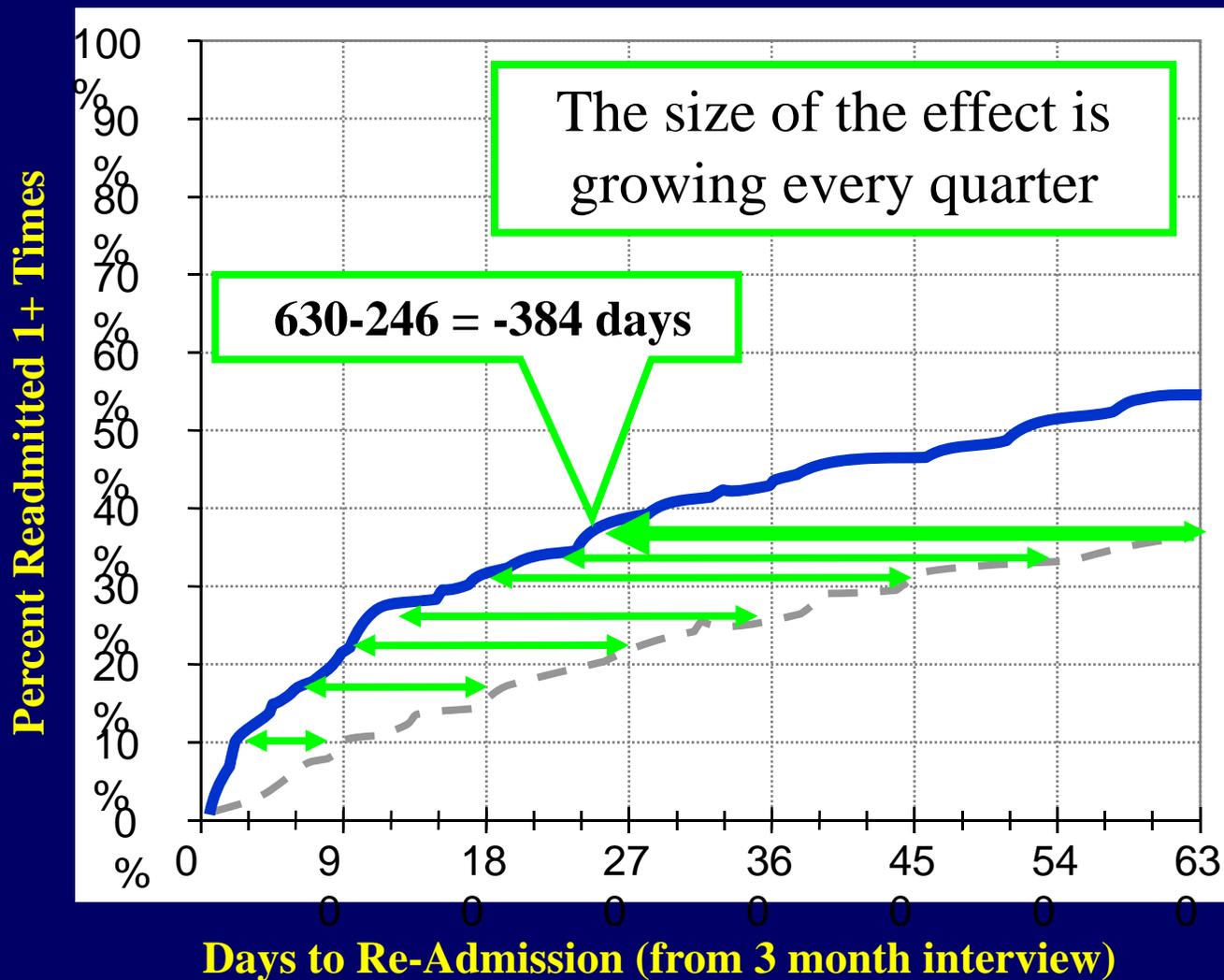
Early Re-Intervention (ERI) Experiment (n=446) and Hypotheses



Recovery Management Checkup (RMC)

- Quarterly Screening to determining “Eligibility” and “Need”
- Linkage meeting/motivational interviewing to:
 - provide personalized feedback to participants about their substance use and related problems,
 - help the participant recognize the problem and consider returning to treatment,
 - address existing barriers to treatment, and
 - schedule an assessment.
- Linkage assistance
 - reminder calls and rescheduling
 - Transportation and being escorted as needed
- Treatment Engagement Specialist

ERI-2 Time to Treatment Re-Entry



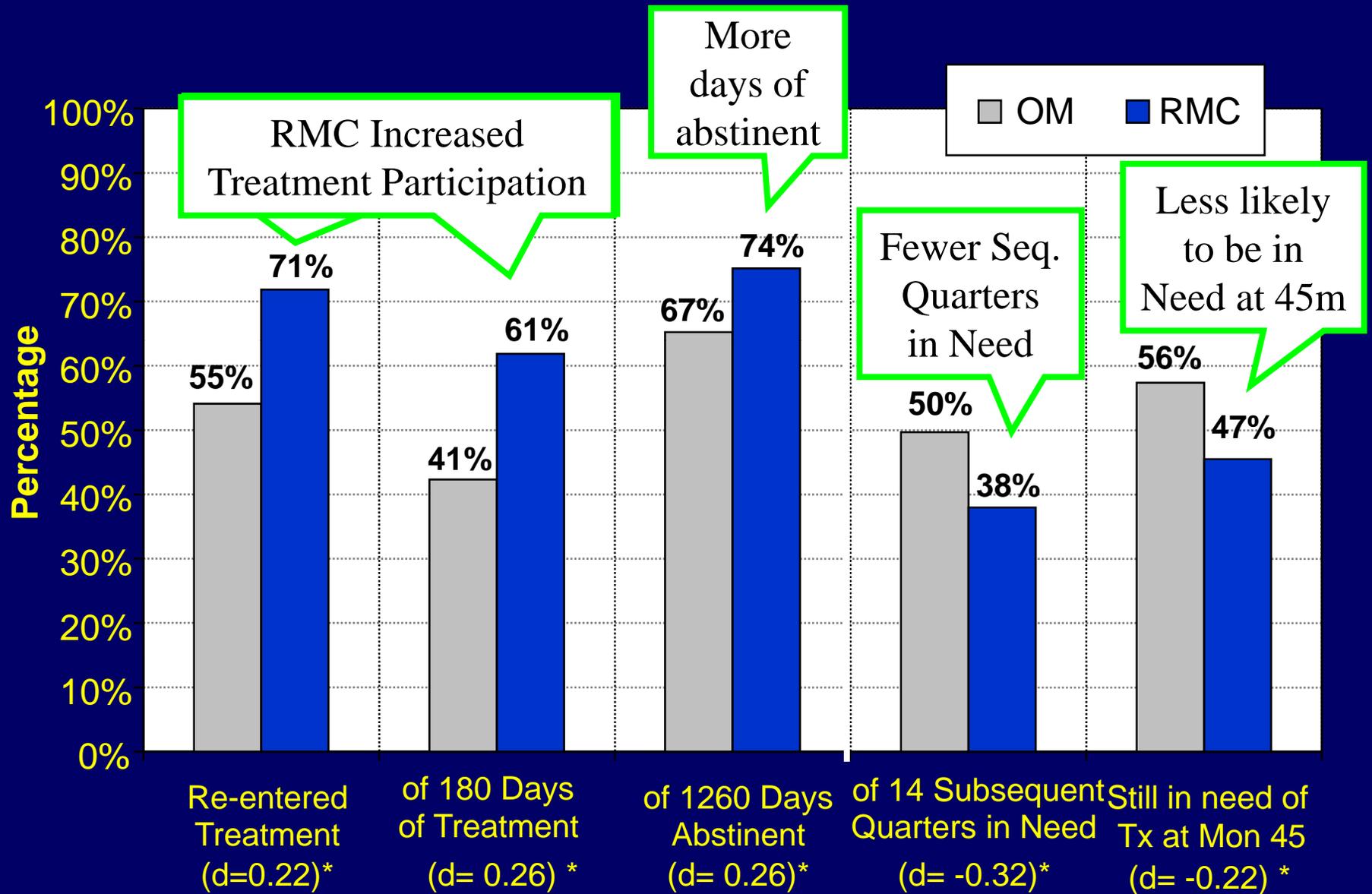
RMC increases the odds of transitioning from using to treatment within a quarter by 2.1

55% ERI-2 RMC* (n=221)

37% ERI-2 OM (n=224)

*Cohen's d=+0.41
Wilcoxon-Gehan Statistic (df=1) =16.56, p <.0001

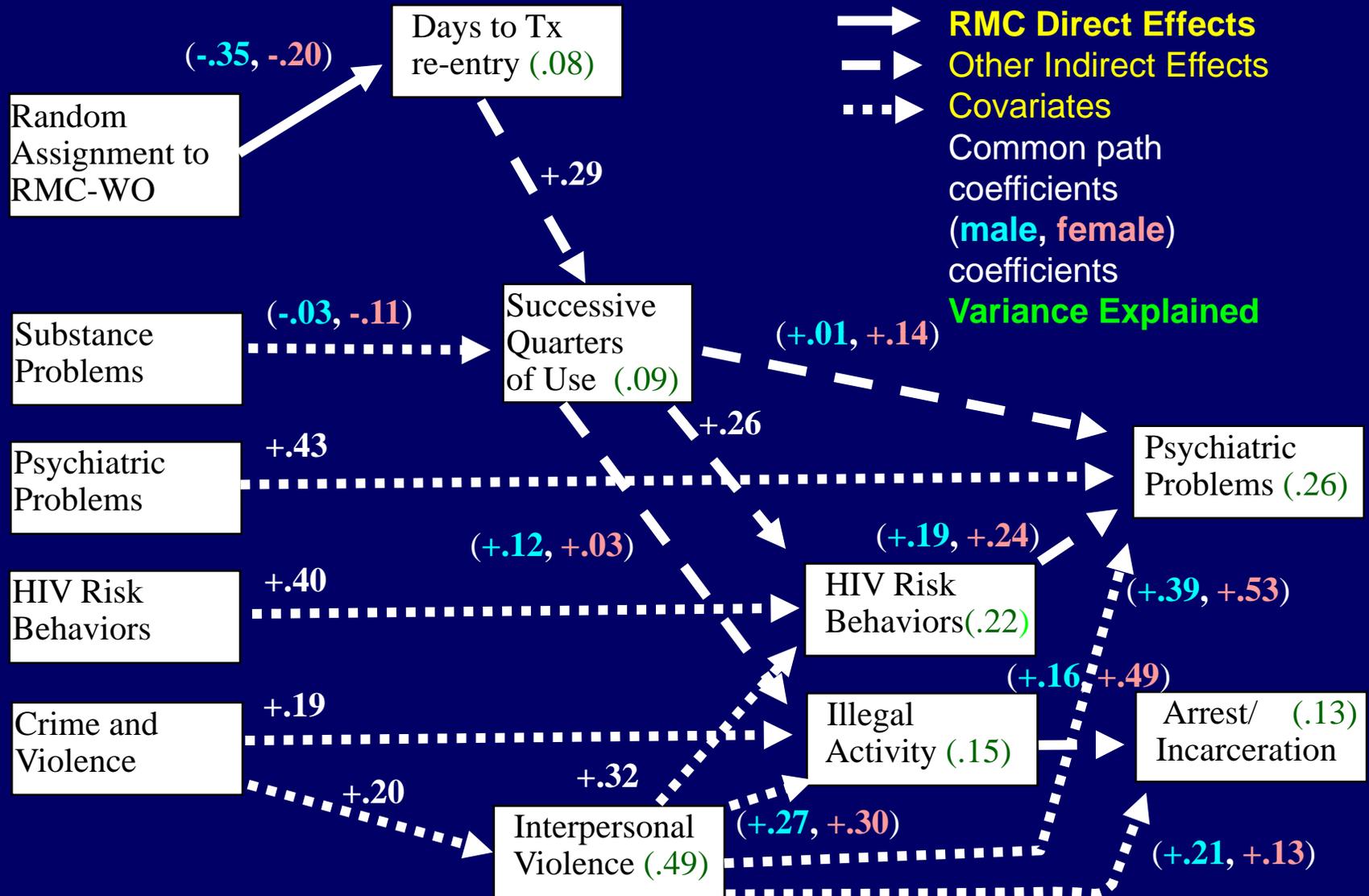
ERI-2: Impact on Outcomes at 45 Months



Source: Scott & Dennis (in press)

* p<.05 38

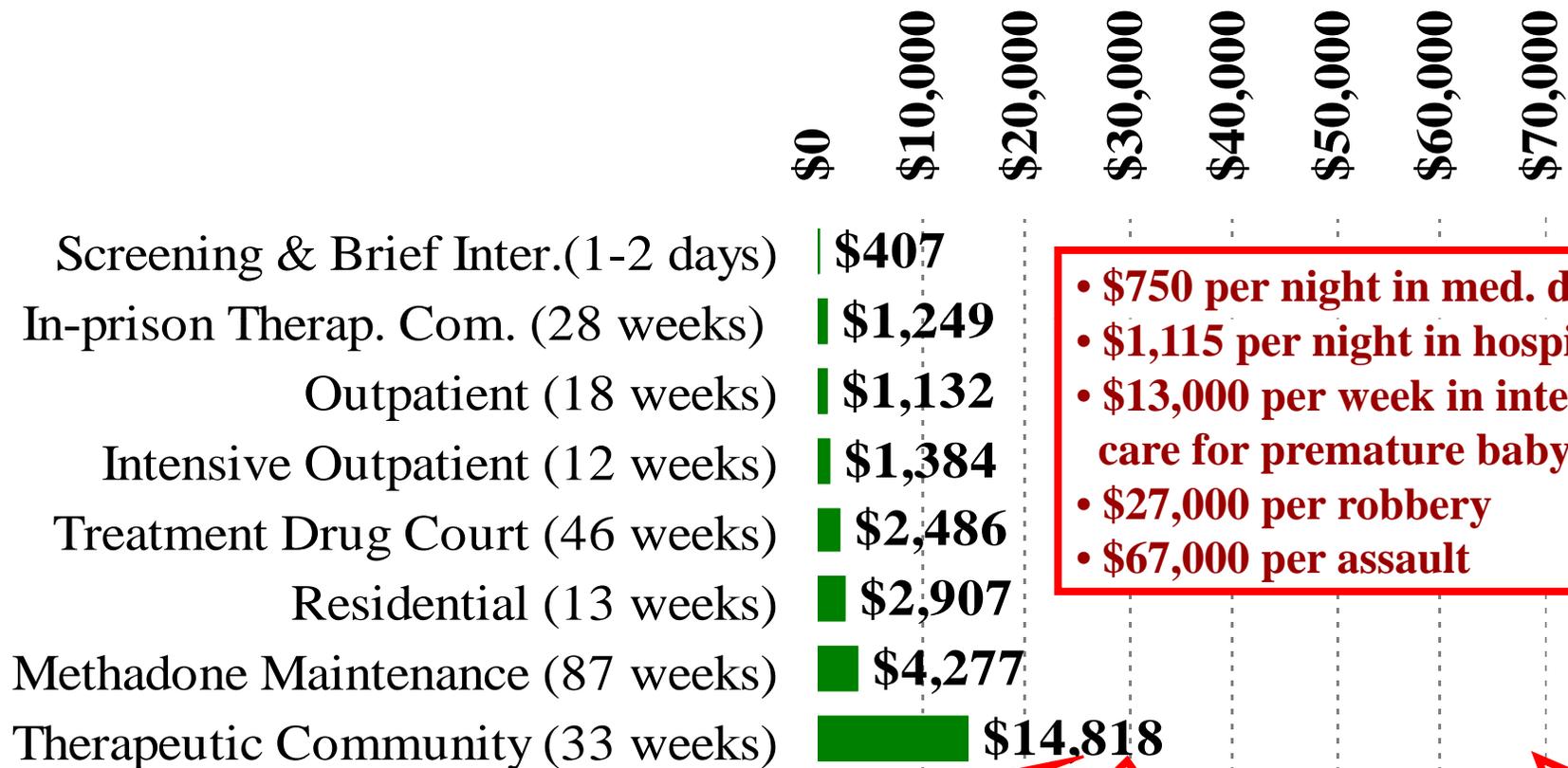
ERI-2: Indirect Effects of RMC on Other Outcomes



With out Gender: CFI=.95, RMSEA=.048

With Gender Differences: CFI=.95, RMSEA=.028

Cost of Substance Abuse Treatment Episode



- \$750 per night in med. detox
- \$1,115 per night in hospital
- \$13,000 per week in intensive care for premature baby
- \$27,000 per robbery
- \$67,000 per assault

\$22,000 / year to incarcerate an adult

\$30,000/ child-year in foster care

\$70,000/year to keep a child in detention

Source: French et al., 2008; Chandler et al., 2009; Capriccioso, 2004

Investing in Treatment has a Positive Annual Return on Investment (ROI)



- Substance abuse treatment has been shown to have a ROI of between \$1.28 to \$7.26 per dollar invested
- Treatment drug courts have an average ROI of \$2.14 to \$2.71 per dollar invested

This also means that for every dollar treatment is cut, society loses more money than it saves.

Source: Bhati et al., (2008); Ettner et al., (2006)

Summary of Key Points



- More assertive continuing care can increase adherence with continuing care expectations
- A growing range of drug treatment courts are being found effective and cost effective
- Recovery management checkups can identify people who have relapsed and get them back to treatment faster
- That doing each improves short and long term outcomes
- Treatment is a cost effective investment



**Part 3. A Fearless Appraisal of the
Current System and What it
Will Take to Move Towards a
More Evidence Based System**



Science Learning Objectives



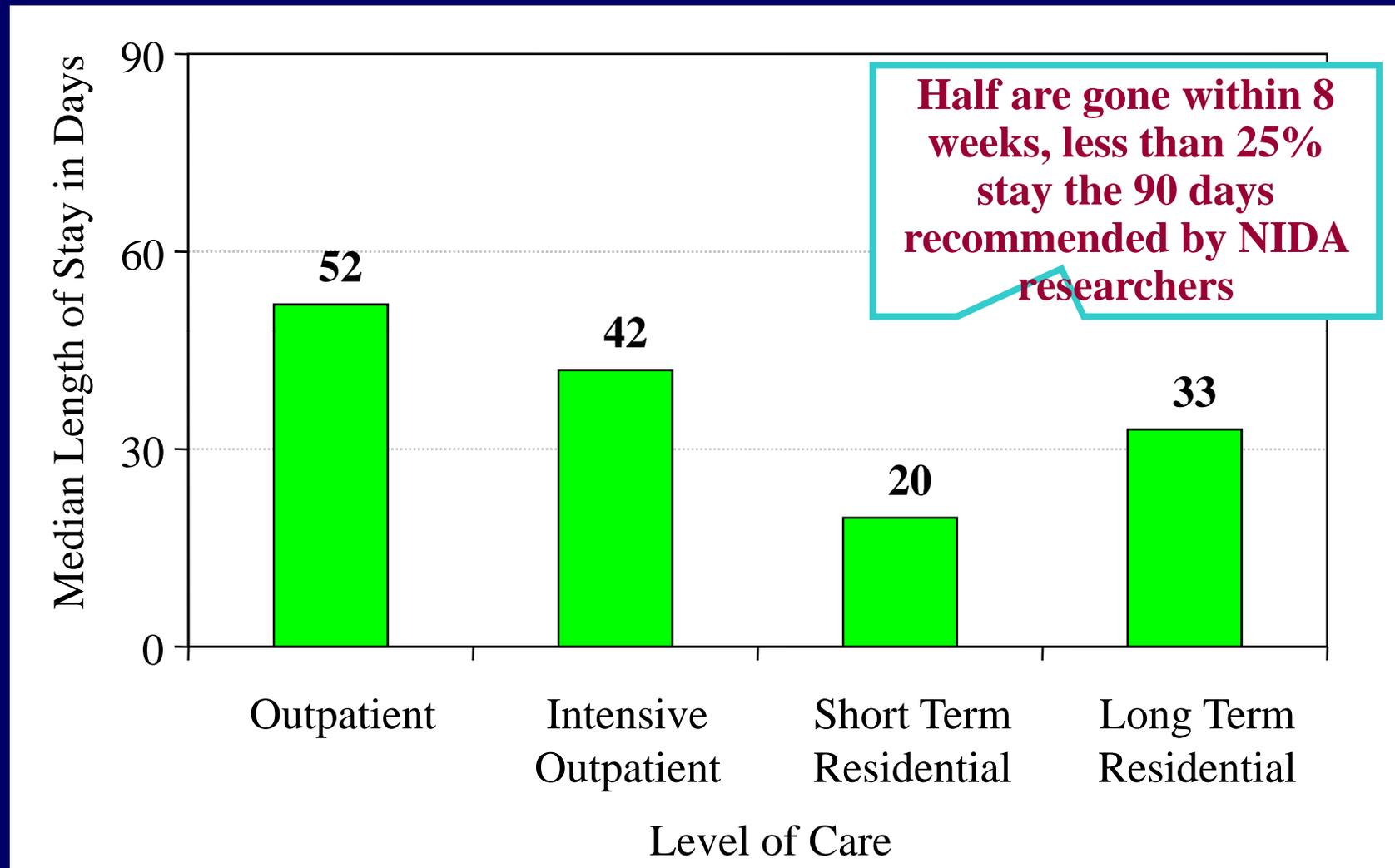
- Understand the major gaps in the current treatment systems
- Examine what it means to make the treatment system more evidenced based
- Illustrate how more accurate assessment can be used to predict response to treatment and improve clinical decision making

Substance Use Disorders are Common, But Treatment Participation Rates Are Low

25%

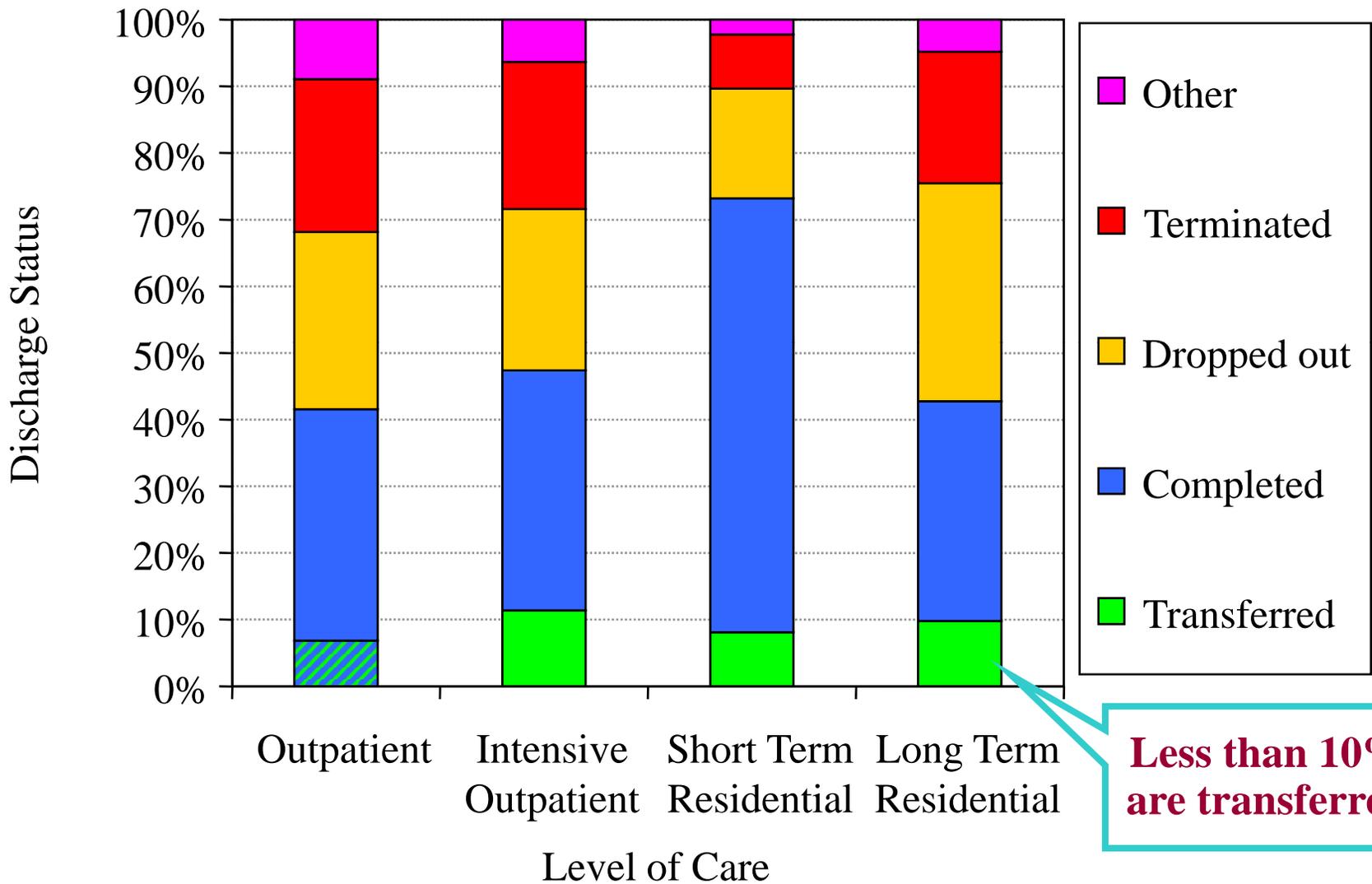
21.2%

The Majority Stay in Treatment Less than 90 days



Source: Data received through August 4, 2004 from 23 States (CA, CO, GA, HI, IA, IL, KS, MA, MD, ME, MI, MN, MO, MT, NE, NJ, OH, OK, RI, SC, TX, UT, WY) as reported in Office of Applied Studies (OAS; 2005). Treatment Episode Data Set (TEDS): 2002. Discharges from Substance Abuse Treatment Services, DASIS Series: S-25, DHHS Publication No. (SMA) 04-3967, Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from http://www.dasis.samhsa.gov/teds02/2002_teds_rpt_d.pdf.

Less Than Half Are Positively Discharged



Source: Data received through August 4, 2004 from 23 States (CA, CO, GA, HI, IA, IL, KS, MA, MD, ME, MI, MN, MO, MT, NE, NJ, OH, OK, RI, SC, TX, UT, WY) as reported in Office of Applied Studies (OAS; 2005). Treatment Episode Data Set (TEDS): 2002. Discharges from Substance Abuse Treatment Services, DASIS Series: S-25, DHHS Publication No. (SMA) 04-3967, Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from http://www.dasis.samhsa.gov/teds02/2002_teds_rpt_d.pdf.

Programs often LACK Standardized Assessment for...



- **Substance use disorders (e.g., abuse, dependence, withdrawal), readiness for change, relapse potential and recovery environment**
- **Common mental health disorders (e.g., conduct, attention deficit-hyperactivity, depression, anxiety, trauma, self-mutilation and suicidality)**
- **Crime and violence (e.g., inter-personal violence, drug related crime, property crime, violent crime)**
- **HIV risk behaviors (needle use, sexual risk, victimization)**
- **Child maltreatment (physical, sexual, emotional)**
- **Recovery environment and peer risk**

No or Inconsistent Use of Placement Criteria (even with ASAM)

- difficulty synthesizing multiple pieces of information
- inconsistencies between competing rules
- the lack of the full continuum of care or specific services to refer people to
- having to negotiate with the participant, families and funders over what they will do or pay for
- there is virtually no actual data on the expected outcomes by level of care to inform decision making related to placement
- In practice, programs primarily refer people to the limited range of services they have readily available.
- Knowing nothing about the person other than what door they walked through we can correctly predict 75% ($\kappa=.51$) of the adolescent level of care placements

Other Challenges in Substance Abuse Treatment Workforce and Organizations

- High turnover workforce with variable education background related to diagnosis, placement and treatment planning.
- Heterogeneous needs and severity characterized by multiple problems, chronic relapse, and multiple episodes of care
- Lack of access to or use of data at the program level to guide immediate clinical decisions, billing and program planning
- Missing or misrepresented data that needs to be minimized and incorporated into interpretations

So what does it mean to move the field towards Evidence Based Practice (EBP)?

- Introducing explicit interventions that have worked well on average and have explicit implementation/ quality assurance protocols at the program and individual level
- Collecting practice based evidence to evaluate performance and outcomes for the program, protocol or staff over time, or relative to other interventions
- Introducing reliable and valid assessment that can be used immediately to guide clinical judgments about diagnosis/severity, placement, treatment planning, implementation and the response to treatment
- Pooling the above to drive needs assessment, performance monitoring and long term program evaluation and planning

What is Treatment?

- Motivational Interviewing and other protocols to help them understand how their problems are related to their substance use and that they are solvable
- Residential, IOP and other types of structured environments to reduce short term risk of relapse
- Detoxification and medication to reduce pain/risk of withdrawal and relapse, including tobacco cessation
- Evaluation of antecedents and consequences of use
- Community Reinforcement Approaches (CRA)
- Relapse Prevention Planning
- Cognitive Behavioral Therapy (CBT)
- Proactive urine monitoring
- Motivational Incentives / Contingency Management
- Access to communities of recovery for long term support, including 12-step, recovery coaches, recovery schools, recovery housing, workplace programs
- Continuing care, phases for multiple admission

Other Specific Services that are Screened for and Needed by People in Treatment:

- Tobacco cessation
- HIV Intervention to reduce high risk pattern of behavior (sexual, violence, & needle use)
- Anger Management
- Psychiatric services related to depression, anxiety, ADHD/Impulse control, conduct disorder/ ASPD/ BPD, Gambling
- Trauma, suicide ideation, and para-suicidal behavior
- Child maltreatment and domestic violence interventions (not just reporting protocols)
- Family, school and work problems
- Case management and work across multiple systems of care and time

Major Predictors of Bigger Effects



- 1. A strong intervention protocol based on prior evidence**
- 2. Quality assurance to ensure protocol adherence and project implementation**
- 3. Proactive case supervision of individual**
- 4. Triage to focus on the highest severity subgroup**

Impact of the numbers of these Favorable features on Recidivism in 509 Juvenile Justice Studies in Lipsey Meta Analysis

Number of favorable features	Distribution of programs	Percentage reduction in recidivism
0	7%	+12
1	50%	-2
2	27%	-10
3	15%	-20
4	2%	-24

Average Practice

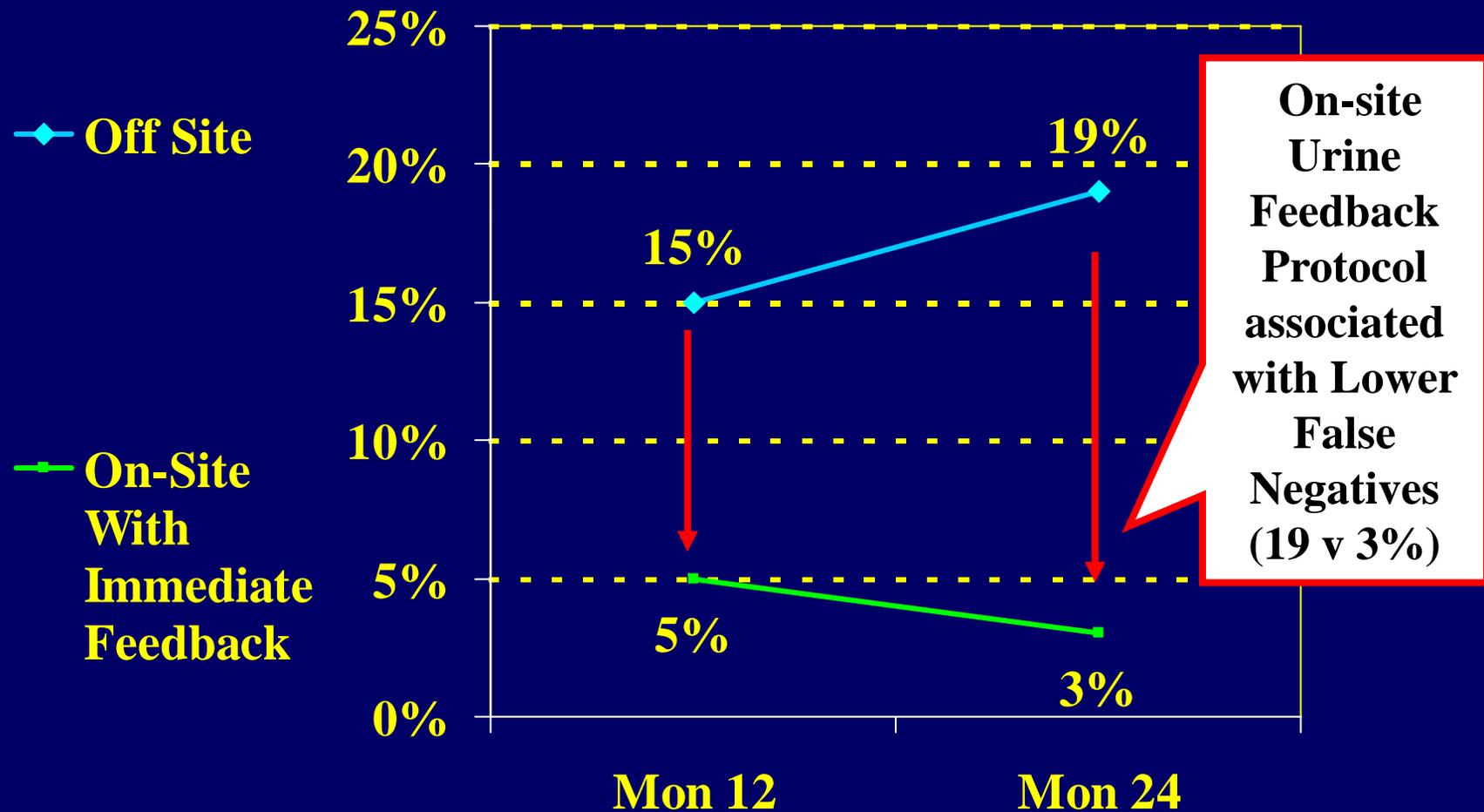
The more features, the lower the recidivism

Cognitive Behavioral Therapy (CBT) Interventions that Typically do Better than Usual Practice in Reducing Juvenile Recidivism (29% vs. 40%)

- Aggression Replacement Training
- Reasoning & Rehabilitation
- Moral Reconciliation Therapy
- Thinking for a Change
- Interpersonal Social Problem Solving
- MET/CBT combinations and Other manualized CBT
- Multisystemic Therapy (MST)
- Functional Family Therapy (FFT)
- Multidimensional Family Therapy (MDFT)
- Adolescent Community Reinforcement Approach (ACRA)
- Assertive Continuing Care

NOTE: There is generally little or no differences in mean effect size between these brand names

Impact of Simple On-site Urine Protocol with Feedback On False Negative Urines



Implementation is Essential

(Reduction in Recidivism from .50 Control Group Rate)

Program Implementation:
Amount of Service, Quality of Delivery

Program Type Grouped by Rank	Low	Medium	High
Group 1 (best)	24%	34%	46%
Group 2	16%	30%	40%
Group 3	6%	20%	32%
Group 4 (poorest)	0%	12%	24%

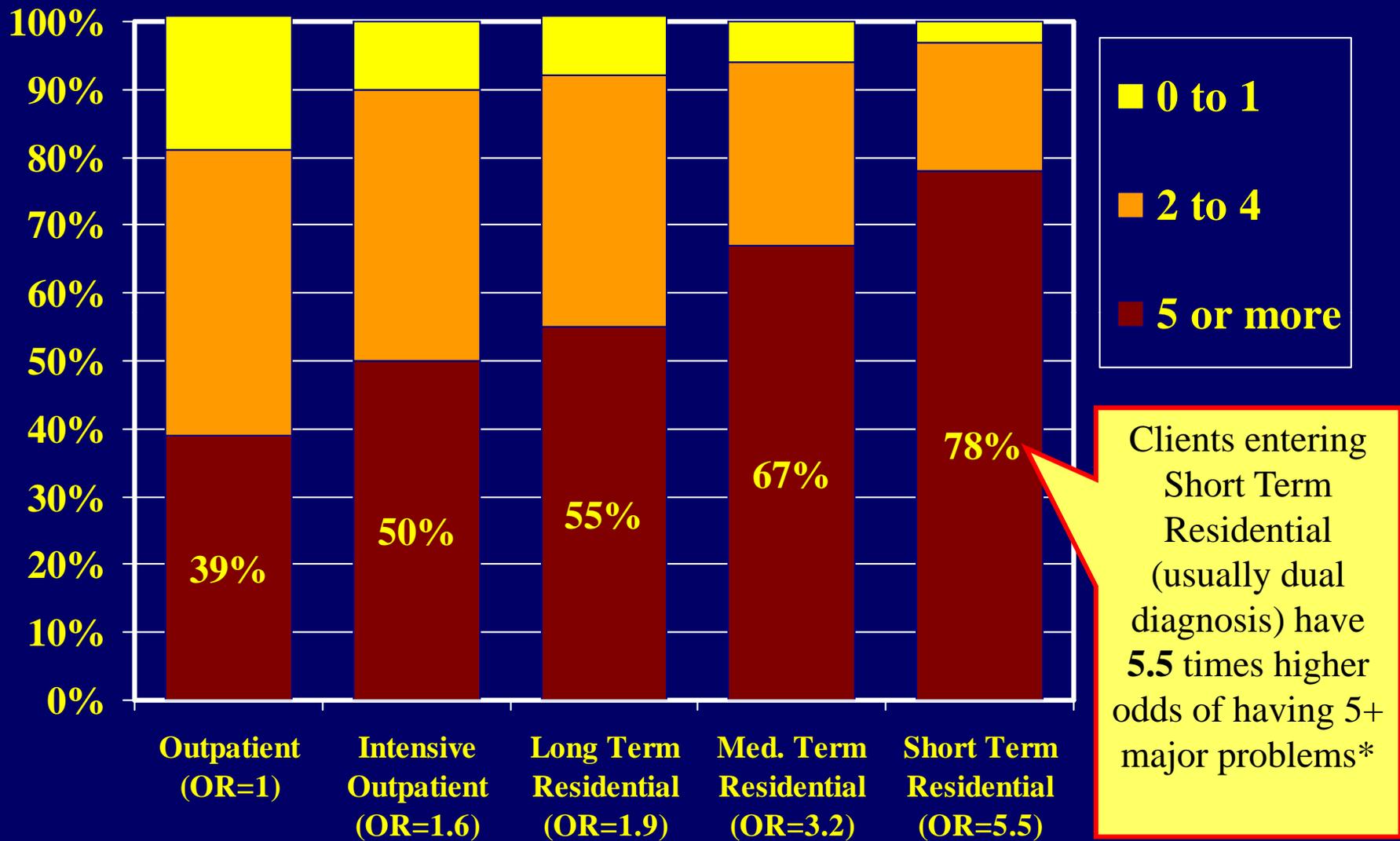
The best is to have a strong program implemented well

Thus one should optimally pick the strongest intervention that one can implement well

The effect of a well implemented weak program is as big as a strong program implemented poorly

Source: Adapted from Lipsey, 1997, 2005

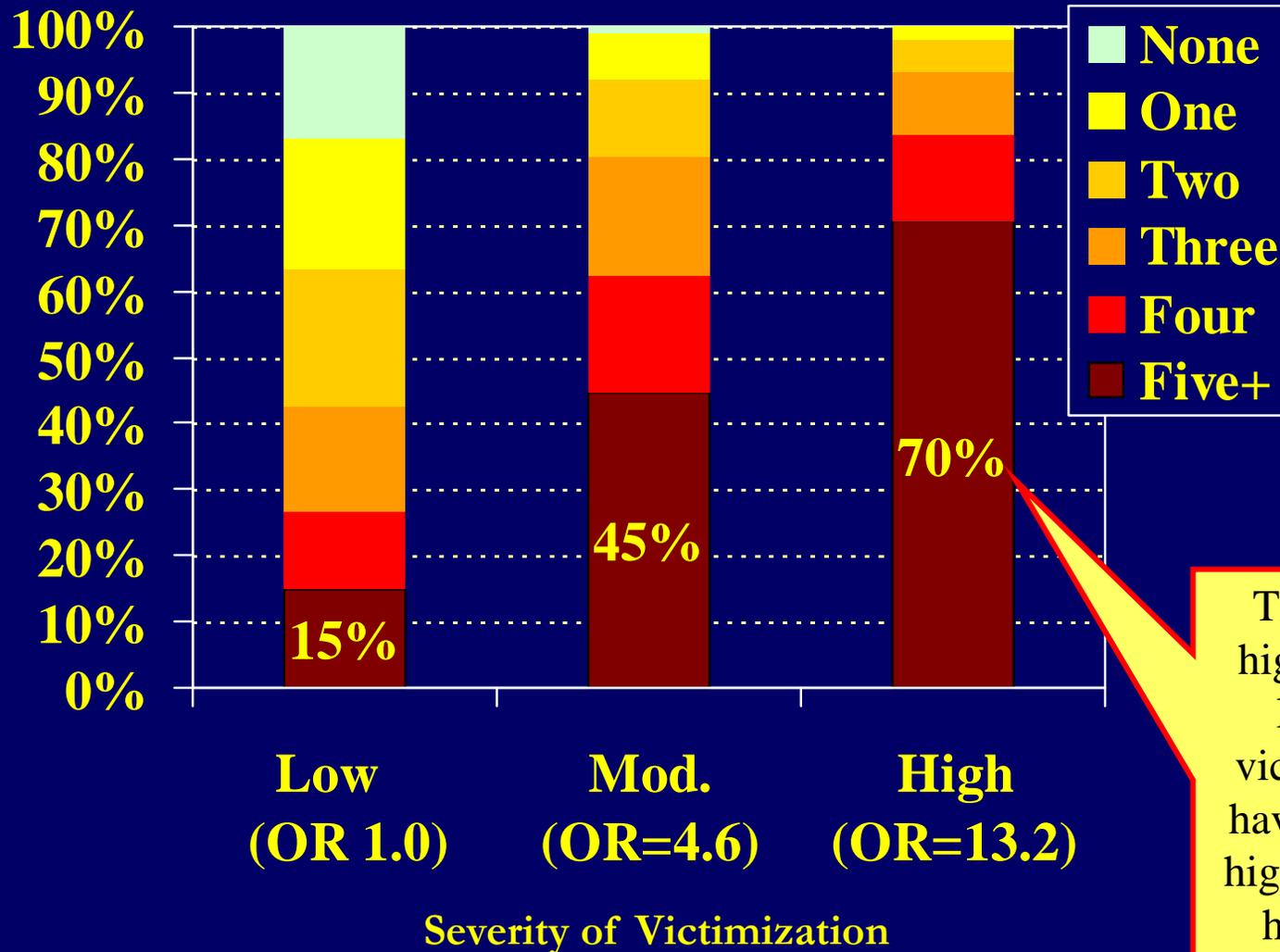
Number of Problems by Level of Care (Triage)



Source: Dennis et al 2009; CSAT 2007 Adolescent Treatment Outcome Data Set (n=12,824)

* (Alcohol, cannabis, or other drug disorder, depression, anxiety, trauma, suicide, ADHD, CD, victimization, violence/ illegal activity)

No. of Problems* by Severity of Victimization

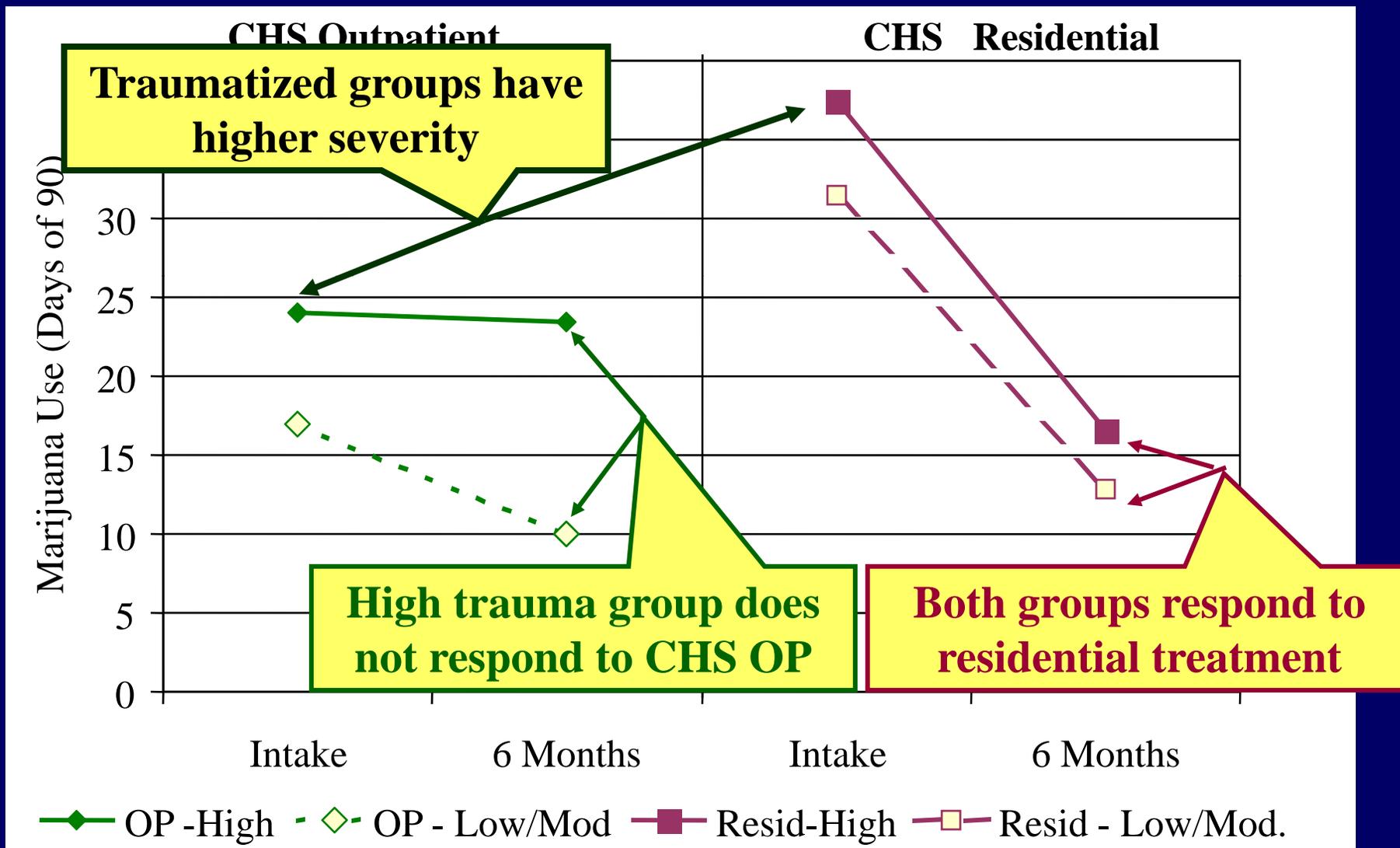


Those with high lifetime levels of victimization have **13 times** higher odds of having 5+ major problems*

Source: Dennis et al 2009; CSAT 2007 Adolescent Treatment Outcome Data Set (n=12,824)

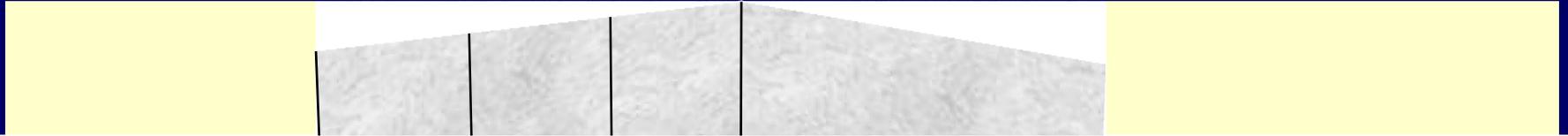
* (Alcohol, cannabis, or other drug use; depression, anxiety, trauma, suicidal thoughts, self-harm, victimization, violence/ illegal activity)

Victimization and Level of Care Interact to Predict Outcomes

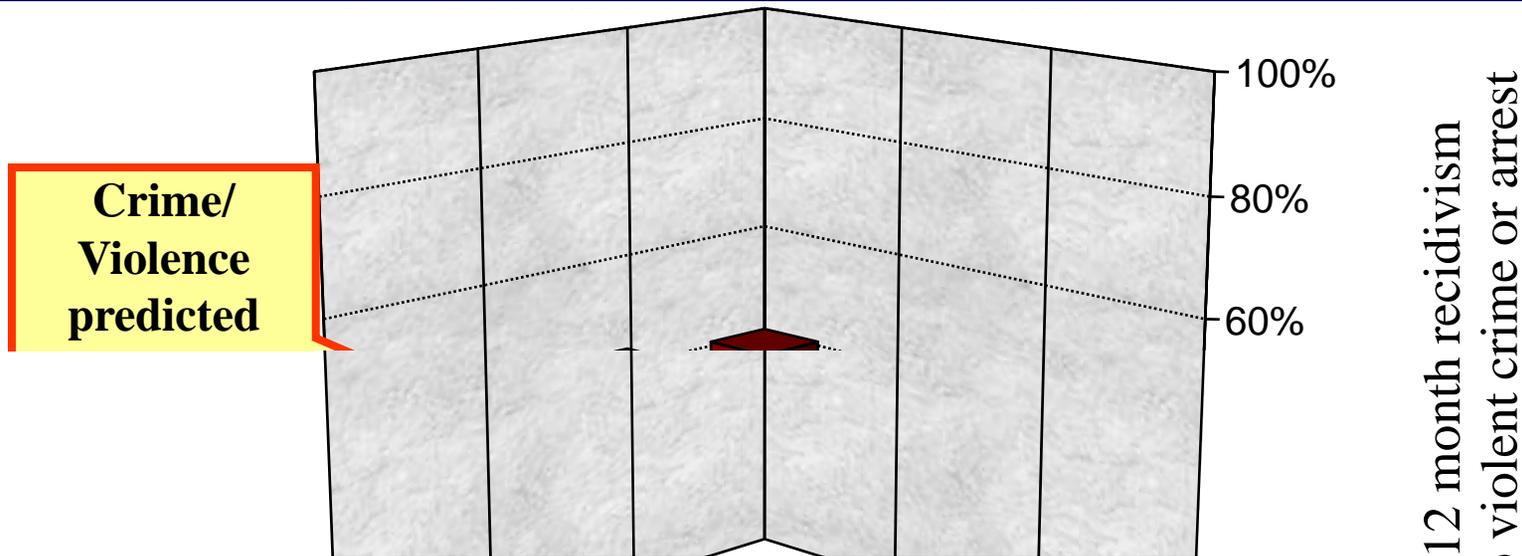


Source: Funk, et al., 2003

Crime/Violence and Substance Problems Interact to Predict Any Recidivism



Crime/Violence and Substance Problems Interact Differently to Predict Recidivism to Violent Crime



Summary of Key Points

- Only 5-10% of those with abuse/dependence are entering treatment
- Less than 75% stay the 90 days recommended by NIDA (half less than 50 days)
- Less than half are positively discharge
- Less than 10% leaving higher levels of care are transferred to outpatient continuing care
- The majority of programs do NOT use standardized assessment, evidenced based treatment, track the clinical fidelity of the treatment they provide or monitor their own performance in terms of client outcomes
- Evidenced based practices can improve outcomes
- We can learn from practice based evidence

Concluding thoughts on the Road Ahead...



- We need to strengthen our focus on prevention and treatment of substance use by adolescents and young adults
- We need to target the latter phases of treatment to impact the post-treatment recovery environment and/or social risk groups that are the main predictors of long term relapse
- We need to move beyond focusing on acute episodes of care to focus on community re-entry, continuing care and a recovery management paradigm
- We need both evidenced based practices, and practice based evidence to improve outcomes
- We need to standardize and improve the quality of assessment, placement and information/tools to help staff use them to guide actual clinical decision making

Sources and Related Work

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