

Understanding and Managing Addiction as a Chronic Condition

Michael L. Dennis, Ph.D. and
Christy K Scott, Ph.D.

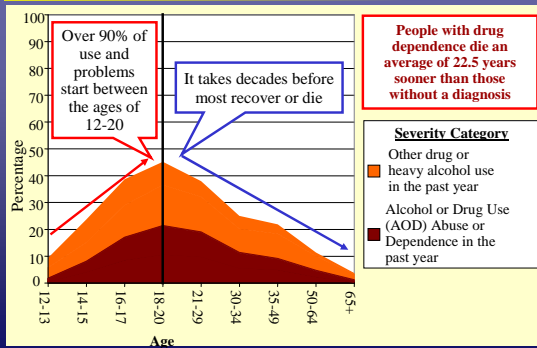
Chestnut Health Systems
Normal and Chicago, IL

Presentation Mid-Atlantic Regional Dissemination Workshop: Cutting edge treatment. A CTN Regional Dissemination Conference, Baltimore, MD, on June 3-4, 2010. This presentation was supported by funds from and data from NIDA grants no. R01 DA15523, R37-DA11323, R01 DA021174, and CSAT contract no. 270-07-0191. It is available electronically at www.chestnut.org/posters. The opinions are those of the authors do not reflect official positions of the government. We would like to thank Belinda Willis, Rodney Funk, and Lilia Hristova, Lisa Nicholson, for their assistance in preparing this presentation. Please address comments or questions to the author at mdennis@chestnut.org or 309-451-7801.

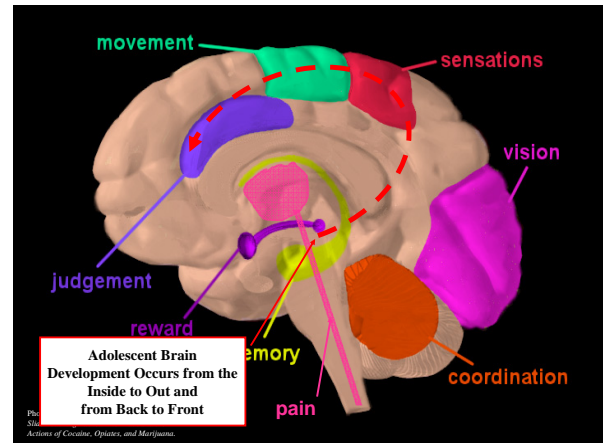
The Goals of this Presentation are to:

1. Illustrate both the chronic nature of substance use disorders and the reality that sustained recovery is attainable
2. Describe the cyclical nature of addiction and how it relates to our broader understanding of recovery
3. Discuss the ways in which recovery extends beyond simple abstinence to include other key life areas.
4. Demonstrate the feasibility of managing addiction via regular checkups to improve long term outcomes
5. Examine the feasibility of extending the model to target other populations and impact a broader range of outcomes.

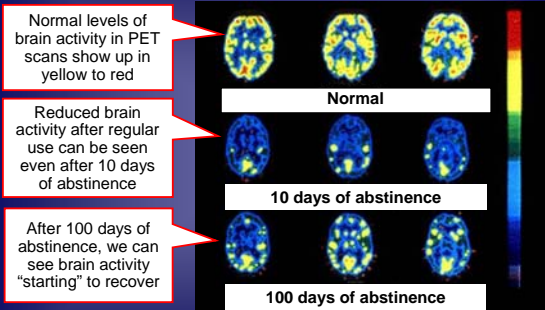
Alcohol and Other Drug Abuse, Dependence and Problem Use Peaks at Age 20



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



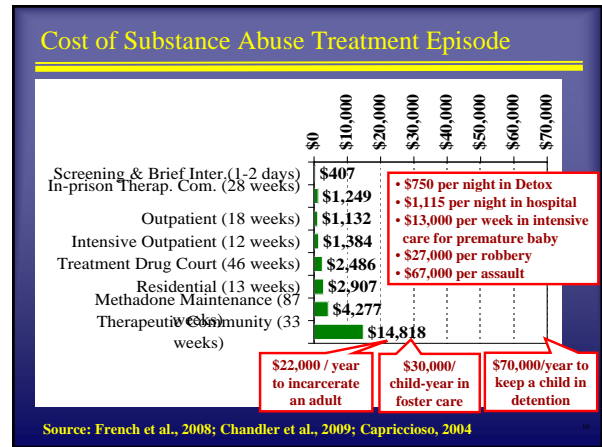
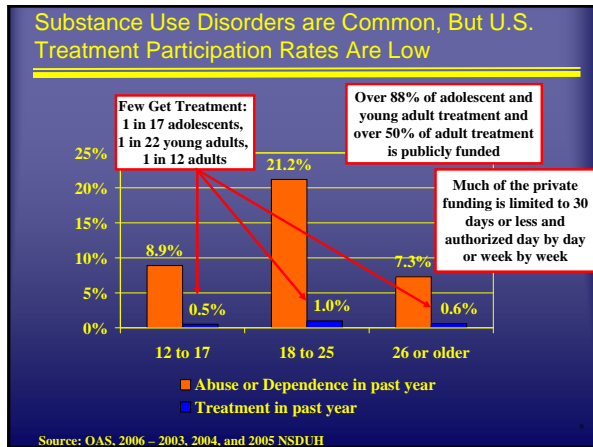
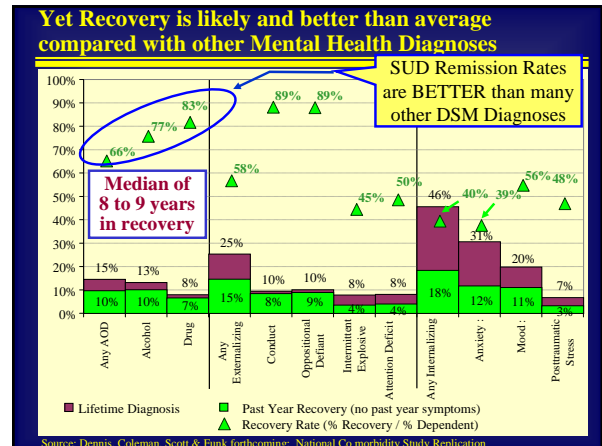
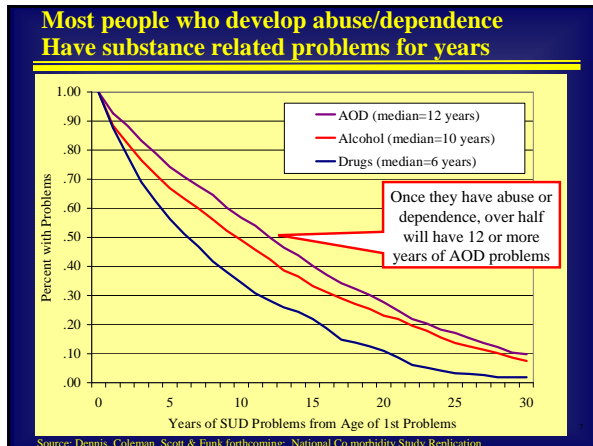
Prolonged Substance Use Injures The Brain: Healing Takes Time



Source: Volkow ND, Hitzemann R, Wang C-L, 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)





Investing in Treatment has a Positive Annual Return on Investment (ROI)²

- Substance abuse treatment has been shown to have a ROI of between \$1.28 to \$7.26 per dollar invested
- Even the long term and more intensive Treatment Drug Courts programs have an average ROI of \$2.14 to \$2.71 per dollar invested

This also means that for every dollar treatment is cut, we lose more money than we saved.

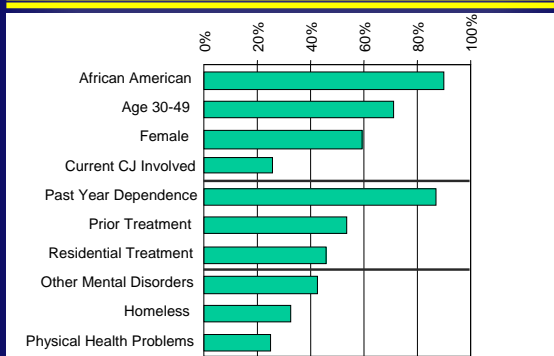
Source: Bhati et al., (2008); Ettner et al., (2006)

Pathways to Recovery (CSAT # T100664, 270977011; NIDA DA15523)

N	1037
Design	9 year longitudinal (annual)
Dates	1995 to 2008
Follow-up Rate	90-95% per wave
Target Population	Treatment Intake
Experimental Interventions	None
Target Outcomes	Cycles between using, treatment, incarceration, and recovery

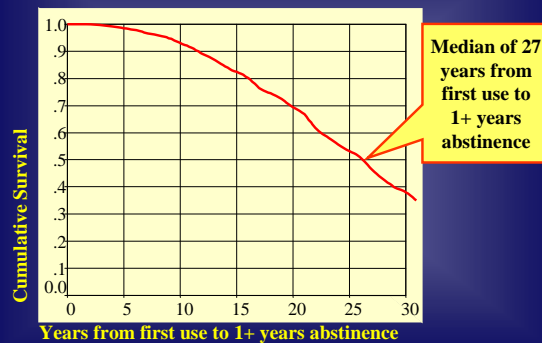
Source: Dennis et al., 2005; Scott et al 2005

9- Year Pathways to Recovery Sample (N=1326)



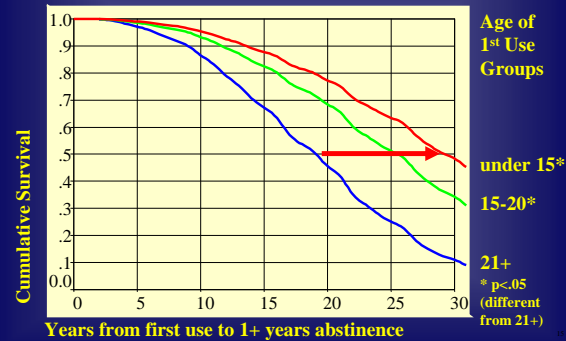
Source: Dennis et al., 2005; Scott et al 2005

Substance Use Careers Last for Decades



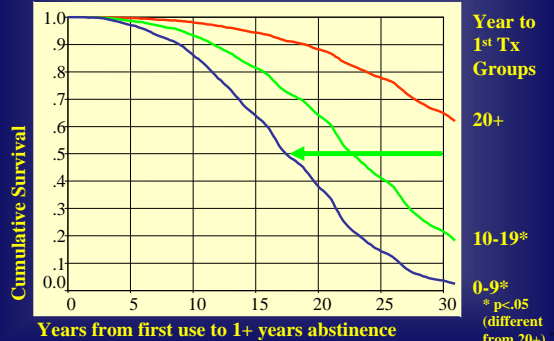
Source: Dennis et al., 2005

Substance Use Careers are Longer the Younger the Age of First Use



Source: Dennis et al., 2005

Substance Use Careers are Shorter the Quicker People Access Treatment



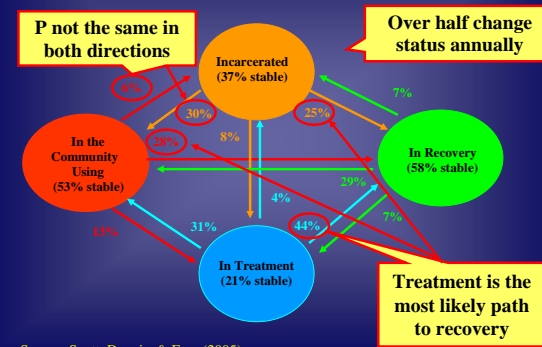
Source: Dennis et al., 2005

After Initial Treatment...

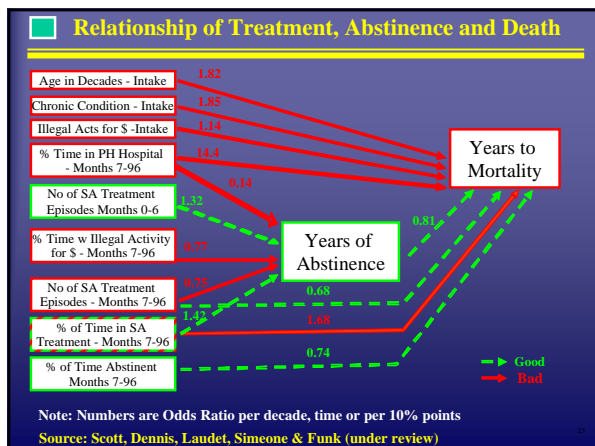
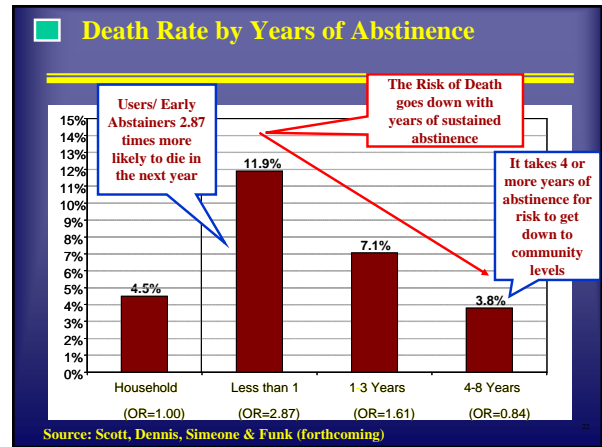
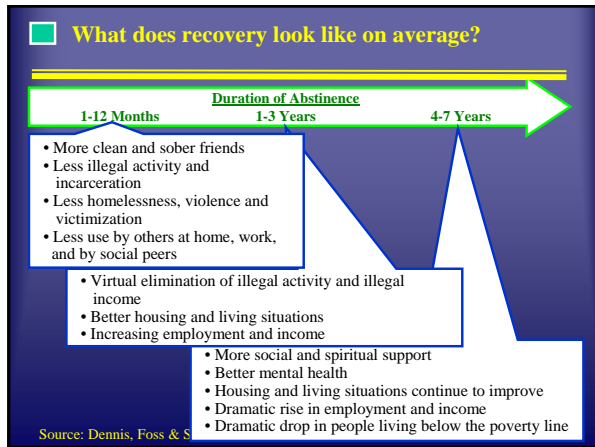
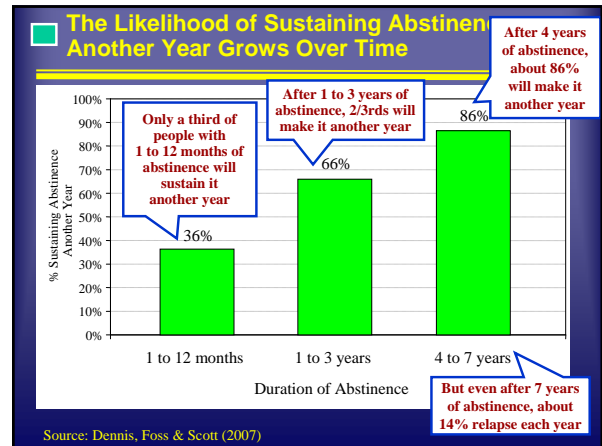
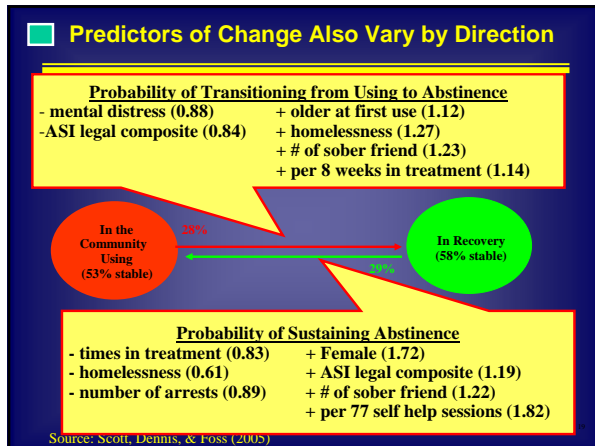
- Relapse is common, particularly for those who:
 - Are Younger
 - Have already been to treatment multiple times
 - Have more mental health issues or pain
- It takes an average of 3 to 4 treatment admissions over 9 years before half reach a year of abstinence
- Yet over 2/3rds do eventually abstain

Source: Dennis et al., 2005; Scott et al 2005

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



Source: Scott, Dennis, & Foss (2005)



Early Re-Intervention Experiment 1 (ERI-1) (ERI1; DA11323)

N	448
Design	2 year experiment (quarterly)
Dates	2000 to 2002
Follow-up Rate	95-98% follow-up
Target Population	Central Intake
Experimental Interventions	Recovery Management Checkups (RMC)
Target Outcomes	Increase Treatment access and reduce successive quarters using in community

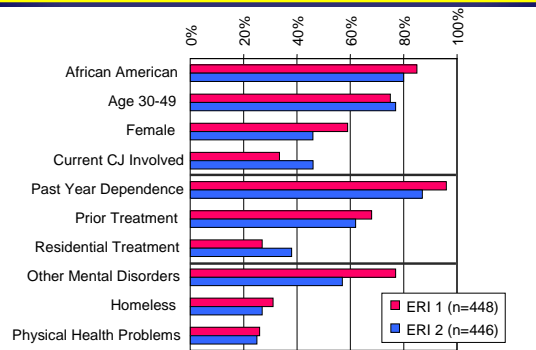
Source: Dennis et al., 2003; Scott et al 2005

Early Re-Intervention Experiment 2 (ERI-2) (ERI1; DA11323)

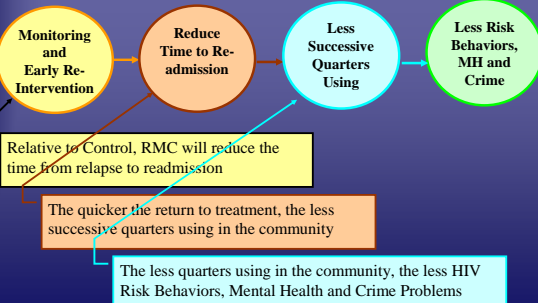
N	446
Design	4 year experiment (quarterly)
Dates	1997 to 2007
Follow-up Rate	94-97% follow-up
Target Population	Central Intake
Experimental Interventions	Recovery Management Checkups (RMC)
Target Outcomes	Increase Treatment access and reduce successive quarters using in community

Source: Scott et al 2009, in press

Sample Characteristics of ERI-1 & -2 Experiments



Early Re-Intervention (ERI) Experiment and Hypotheses

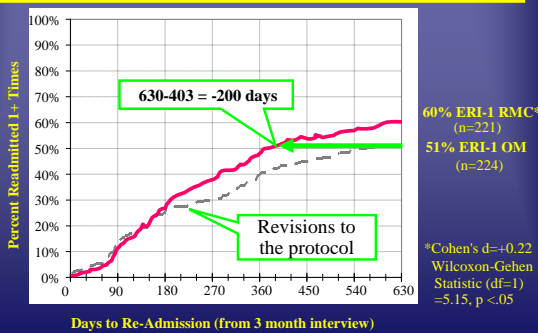


Source: Dennis et al 2003, 2007; Scott et al 2005, in press

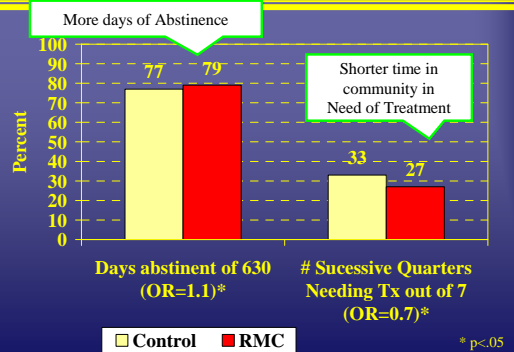
Recovery Management Checkups (RMC)

- 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

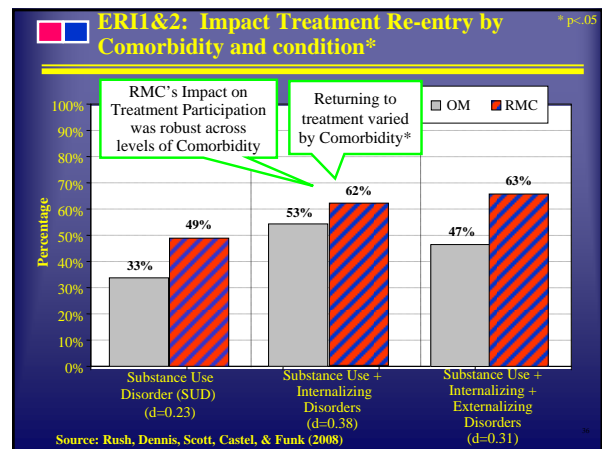
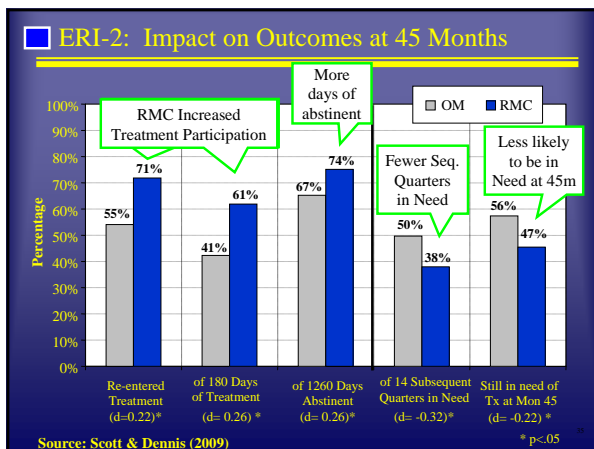
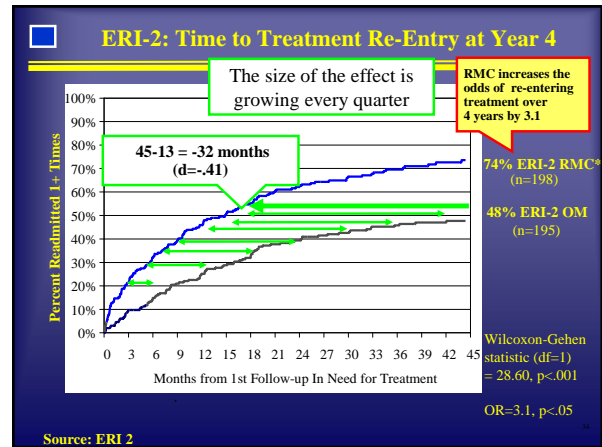
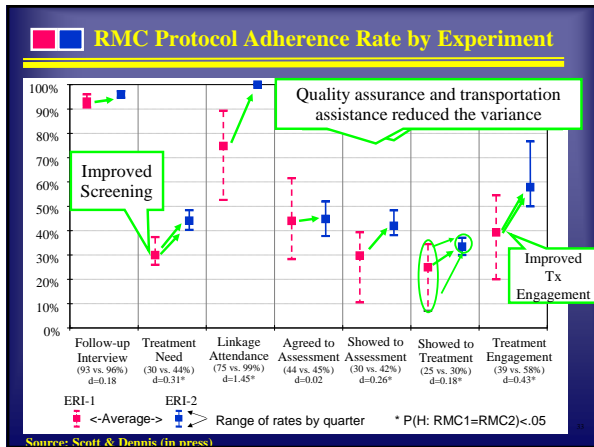
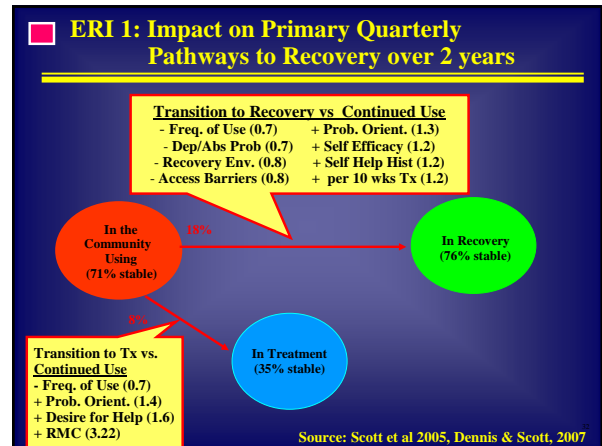
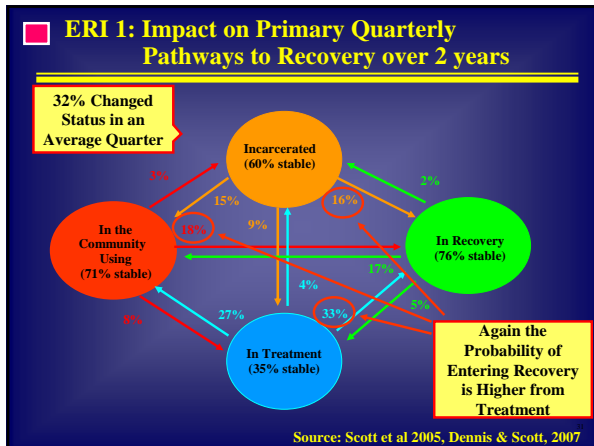
ERI-1 Time to Treatment Re-Entry

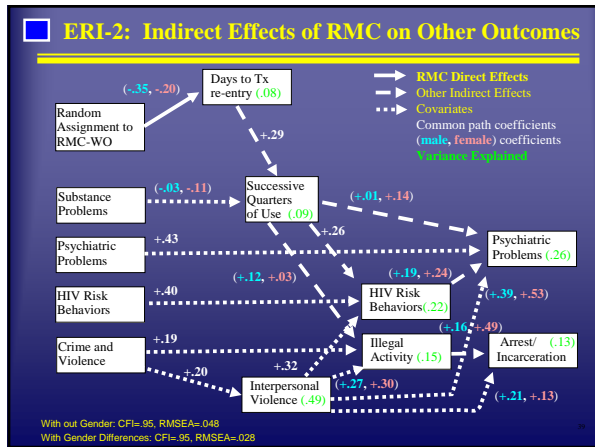
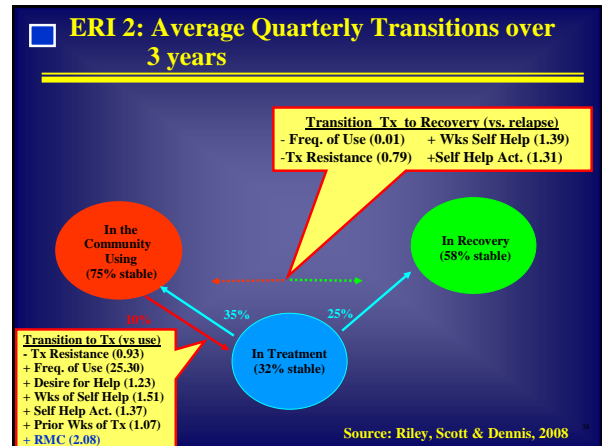
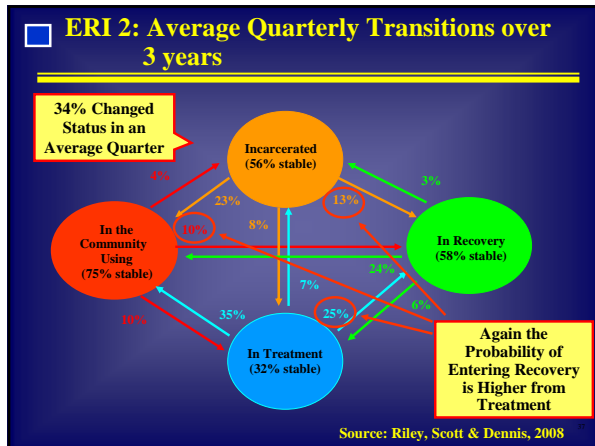


ERI-1: Impact on Outcomes*



Source: Dennis, Scott & Funk (2003)

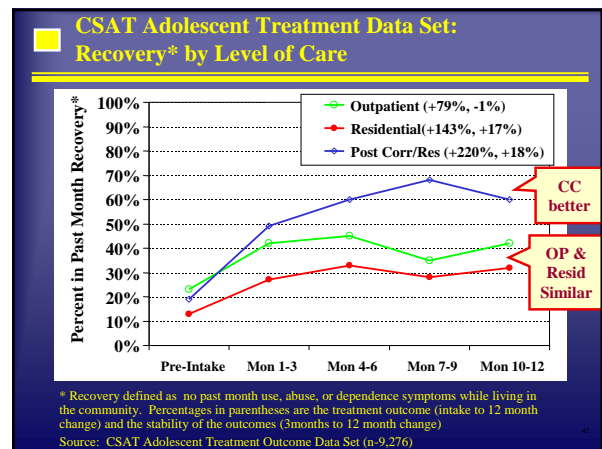
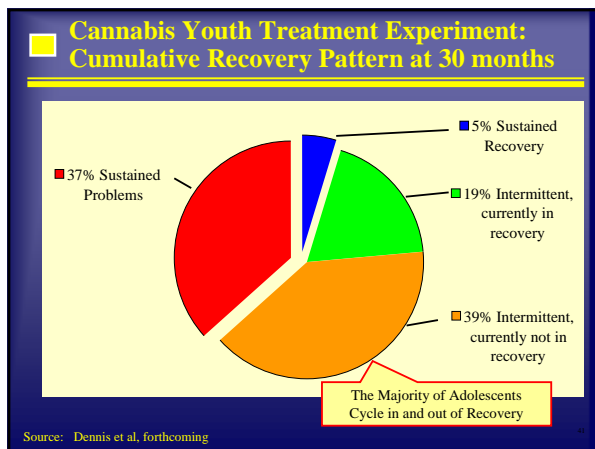


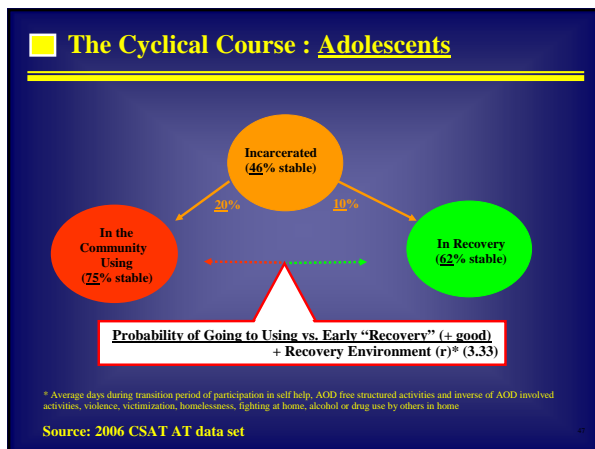
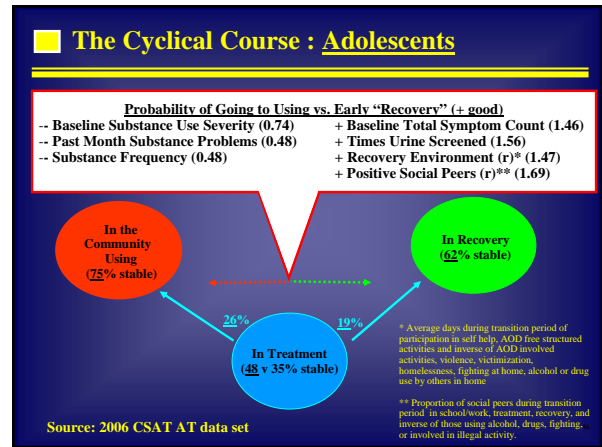
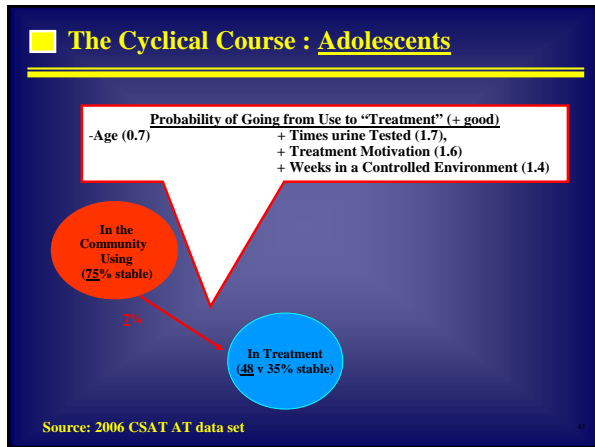
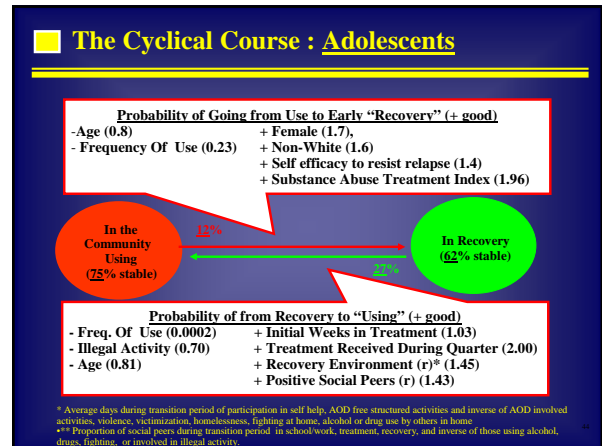
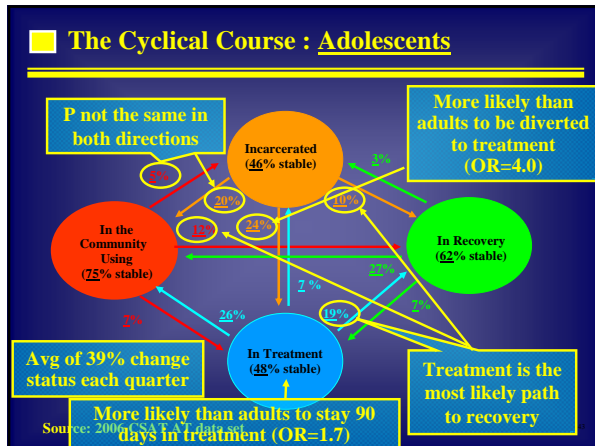


RMC for Adolescents Feasibility Study (DA11323; SAMHSA 270-07-0191)

N	1326
Design	12 month longitudinal (quarterly)
Follow-up Rate	89-92% per wave
Target Population	Treatment Intake
Experimental Interventions	None
Target Outcomes	Cycles between using, treatment, incarceration, and recovery

Source: Dennis et al (forthcoming)





- ### Results from these studies provide converging evidence demonstrating that
- Addiction has immediate and lasting effects on the brain.
 - Addiction is chronic in the sense that the risk of relapse persists many years after Tx participation.
 - Addiction is cyclical in that individuals cycle through periods of abstinence, relapse, treatment, and incarceration before achieving self-sustained recovery.
 - Recovery is more than abstinence, and requires improvements in many key life areas.
 - Recovery is common, predictable, and can be proactively managed – but relapse risk persists
 - Gender and multimorbidity are significant moderators for service needs and recovery resources

Next Steps

- Multiple papers published and/or under review
- Anticipating funding the Pathways funding this fall to continue following the cohort out 18 years post intake as they age into their 50s and 60s.
- Just completed a 5 year follow-up wave for ERI to evaluate the impact of "removing" RMC and to evaluate 5 year HIV sero conversion
- Evaluating the cost, cost-effectiveness and benefit-cost of RMC
- Just finished recruitment for a 3 year randomized trial of RMC with women coming out of cook county jailing using RMC plus new components targeting HIV risk behaviors and criminal activity
- Planning a pilot study of RMC with adolescents

References

- Bhatti et al. (2008) To Treat or Not To Treat: Evidence on the Prospects of Expanding Treatment to Drug-Involved Offenders. Washington, DC: Urban Institute.
- Capriccioso, R. (2004). Foster care: No cure for mental illness. *Connect for Kids*. Accessed on 6/3/09 from <http://www.connectforkids.org/node/571>
- Chandler, R.K., Fletcher, B.W., Volkow, N.D. (2009). Treating drug abuse and addiction in the criminal justice system: Improving public health and safety. *Journal American Medical Association*, 301(2), 183-190
- Dennis, M.L., Coleman, V., Scott, C.K. & Funk, R. (forthcoming). The Prevalence of Remission from Major Mental Health Disorder in the US: Findings from the National Co morbidity Study Replication.
- Dennis, M.L., Foss, M.A., & Scott, C.K. (2007). An eight-year perspective on the relationship between the duration of abstinence and other aspects of recovery. *Evaluation Review*, 31(6), 585-612.
- Dennis, M. L., Scott, C. K. (2007). Managing Addiction as a Chronic Condition. *Addiction Science & Clinical Practice*, 4(1), 45-55.
- Dennis, M. L., Scott, C. K., Funk, R., & Foss, M. A. (2005). The duration and correlates of addiction and treatment careers. *Journal of Substance Abuse Treatment*, 28, S51-S62.
- Dennis, M.L., Scott, C.K., & Funk, R. (2003). An experimental evaluation of recovery management checkups (RMC) for people with chronic substance use disorders. *Evaluation and Program Planning*, 26(3), 339-352.
- Ettner, S.L., Huang, D., Evans, E., Ash, D.R., Hardy, M., Jourachi, M., & Hser, Y.I. (2006). Benefit Cost in the California Treatment Outcome Project: Does Substance Abuse Treatment Pay for itself? *Health Services Research*, 41(1), 192-213.
- French, M.T., Popovici, I., & Tapoll, L. (2008). The economic costs of substance abuse treatment: Updated estimates of cost bands for program assessment and reimbursement. *Journal of Substance Abuse Treatment*, 35, 462-469.
- Neumark, Y.D., Van Etten, M.L., & Anthony, J.C. (2000). Drug dependence and death: Survival analysis of the Baltimore ECA sample from 1981 to 1995. *Substance Use and Misuse*, 35, 313-327.
- Office of Applied Studies (2006). Results from the 2005 National Survey on Drug Use and Health: National Findings Rockville, MD: Substance Abuse and Mental Health Services Administration. <http://www.oas.samhsa.gov/NSDUH/2k5NSDUH/2k5results.htm#7.3.1>
- Riley, B.B., Scott, C.K., & Dennis, M.L. (2008). The effect of recovery management checkups on transitions from substance use to substance abuse treatment and from treatment to recovery. Poster presented at the UCLA Center for Advancing Longitudinal Drug Abuse Research Annual Conference, August 13-15, 2008, Los Angeles, CA. www.cclia.org.
- Rush, B., Dennis, M.L., Scott, C.K., Castel, S., & Funk, R.R. (2008). The Interaction of Co-Occurring Mental Disorders and Recovery Management Checkups on Treatment Participation and Recovery.
- Scott, C. K., & Dennis, M. L. (2009). Results from Two Randomized Clinical Trials evaluating the impact of Quarterly Recovery Management Checkups with Adult Chronic Substance Users. *Addiction*.
- Scott, C. K., Dennis, M. L., & Foss, M. A. (2005). Utilizing recovery management checkups to shorten the cycle of relapse, treatment re-entry, and recovery. *Drug and Alcohol Dependence*, 78, 325-338.
- Scott, C. K., Dennis, M. L., & Funk, R.R. (2008). Predicting the relative risk of death over 9 years based on treatment completion and duration of abstinence. Poster 119 at the College of Problems on Drug Dependence (CPDD) Annual Meeting, San Juan, PR, June 16, 2008. Available at www.chestmt.org/ij/posters.
- Scott, C. K., Foss, M. A., & Dennis, M. L. (2005). Pathways in the relapse, treatment, and recovery cycle over three years. *Journal of Substance Abuse Treatment*, 28, S61-S70.
- Volkow, N.D., Fowler, J.S., Wang, G.J., Hitzemann, R., Logan, J., Schlyer, D., Dewey, S., Wolf, A.P. (1993). Decreased dopamine D2 receptor availability is associated with reduced frontal metabolism in cocaine abusers. *Synapse* 14:169-177.
- Volkow, N.D., Hitzemann, R., Wang, C-I, Fowler, J.S., Wolf, A.P., Dewey, S.L. (1992). Long-term frontal brain metabolic changes in cocaine abusers. *Synapse* 11:184-190.