Effects of Alcohol and Marijuana on Teen Brain Development



Lindsay M. Squeglia, Ph.D. Medical University of South Carolina September 19, 2017 NCPA, Myrtle Beach, SC



















Current Adolescent Substance Use Treatments

- Most do not receive evidence-based care
- 1 FDA-approved medication for adolescents: Buprenorphine (approved down to age 16)=Opioid Use Disorder
- Majority of evidence-based interventions are psychosocial
- Effect sizes = small to modest
- Up to <u>86%</u> of youth return to alcohol or drug use within 12 months of treatment

Brown et al, 1996; Winters et al, 2000; Jensen et al., 2011; Tripodi et al., 2010; Tanner-Smith et al., 2012; Waldron & Turner, 2008; Sussman et al., 2006













Important Predictors of Drinking by age 18 **Demographics:** Male High parent income/education Conduct disorder sxs Motion during fMRI **Behaviors:** Dating +Alcohol social **Expectancies:** +Alcohol expectancies facilitation expectancies Neuropsych scores: More impulsive Poorer cognitive responding control Gray Matter: Thinner gray matter Brain activation to Less brain working memory: activation Squeglia, Ball, et al., 2016, American Journal of Psychiatry 18



















Distress Tolerance: PASAT-D																	
- Frustration						⁴⁰ Irritability						Happiness					
Difference Scores	60 50 40 30 20 10 0 Week:	1	Con HEE	trols	Difference Scores	35 30 25 20 15 10 5 0	1		3	Controls HED		Saugge anualatin -10 -15 -20 -25 -30 -35 -40	1		3		5 Controls HED
Winward, et al., 2014, <i>ACER</i>														28			























Teen Alcohol Use is an Important Public Health Issue!

Excessive drinking leads to:

- ↑ mortality (shortened lives by ~30 years)
- \$224 billion in costs (\$1.90 per drink)
- Earlier sexual activity, risk for STDs
- Violent behaviors
- Academic difficulties, school drop out

Alcoholism is a developmental disorder

Centers for Disease Control, http://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

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