

Pilot study of an electronic decision support system for SMI smokers

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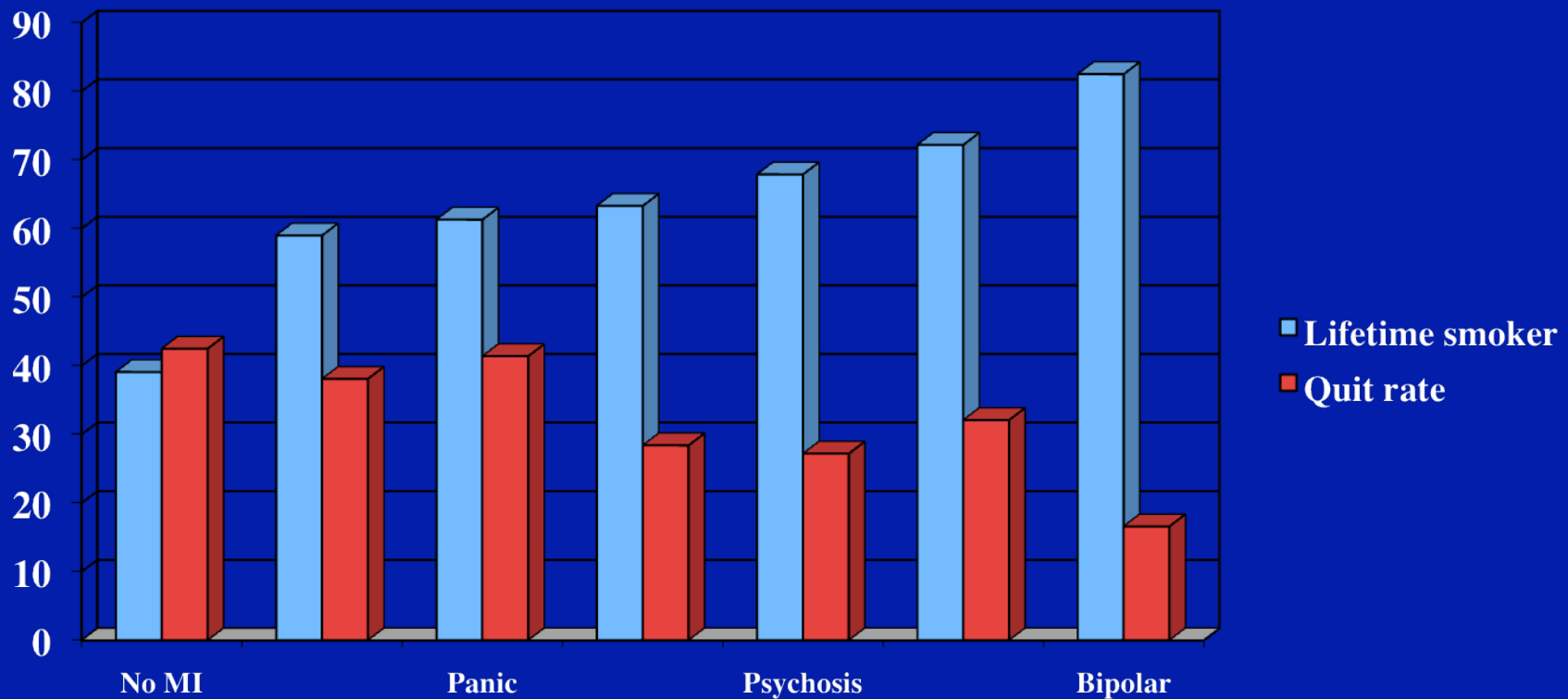
Background

Prevalence of smoking

- 50-90% of people with severe mental illness (SMI) smoke
- 20% of general population smoke
- Smoking initiation rates are higher and quitting rates are lower in SMI
- Smoking causes diabetes, heart disease (hypertention, heart attack), vascular disease (stroke) and cancers

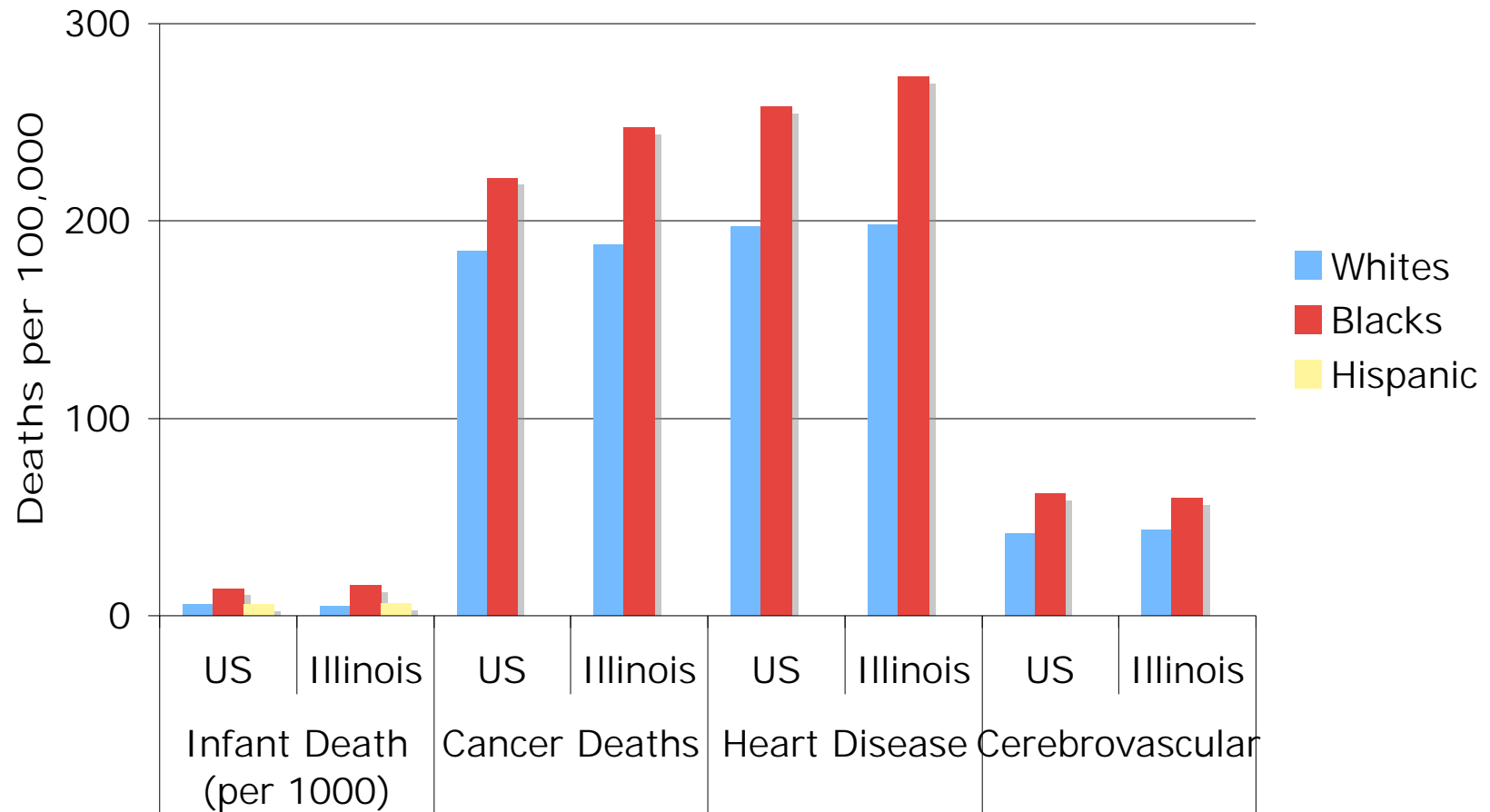
Smoking and mental illness 1992

(Lasser et al, 2000)



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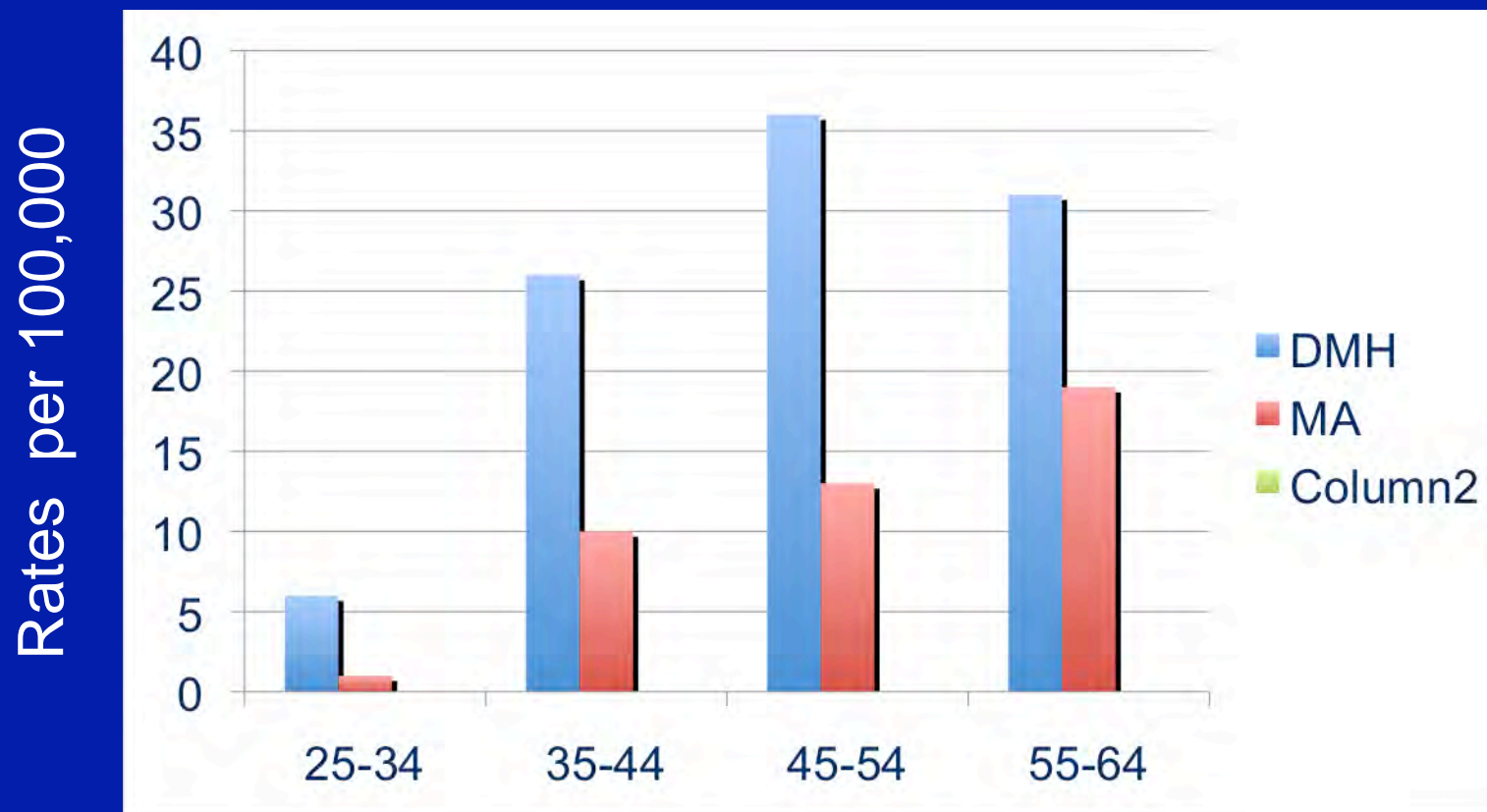
Death Rates per 100,000 for Smoking Related Illnesses



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Kaiser State Health Facts (2008)

Deaths from heart disease are greater in people with SMI



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Mauer 06, Brown 2000

Health effects continued

- Smoking confers three times more risk for cardiovascular disease than obesity
- Quitting improves health and extends life

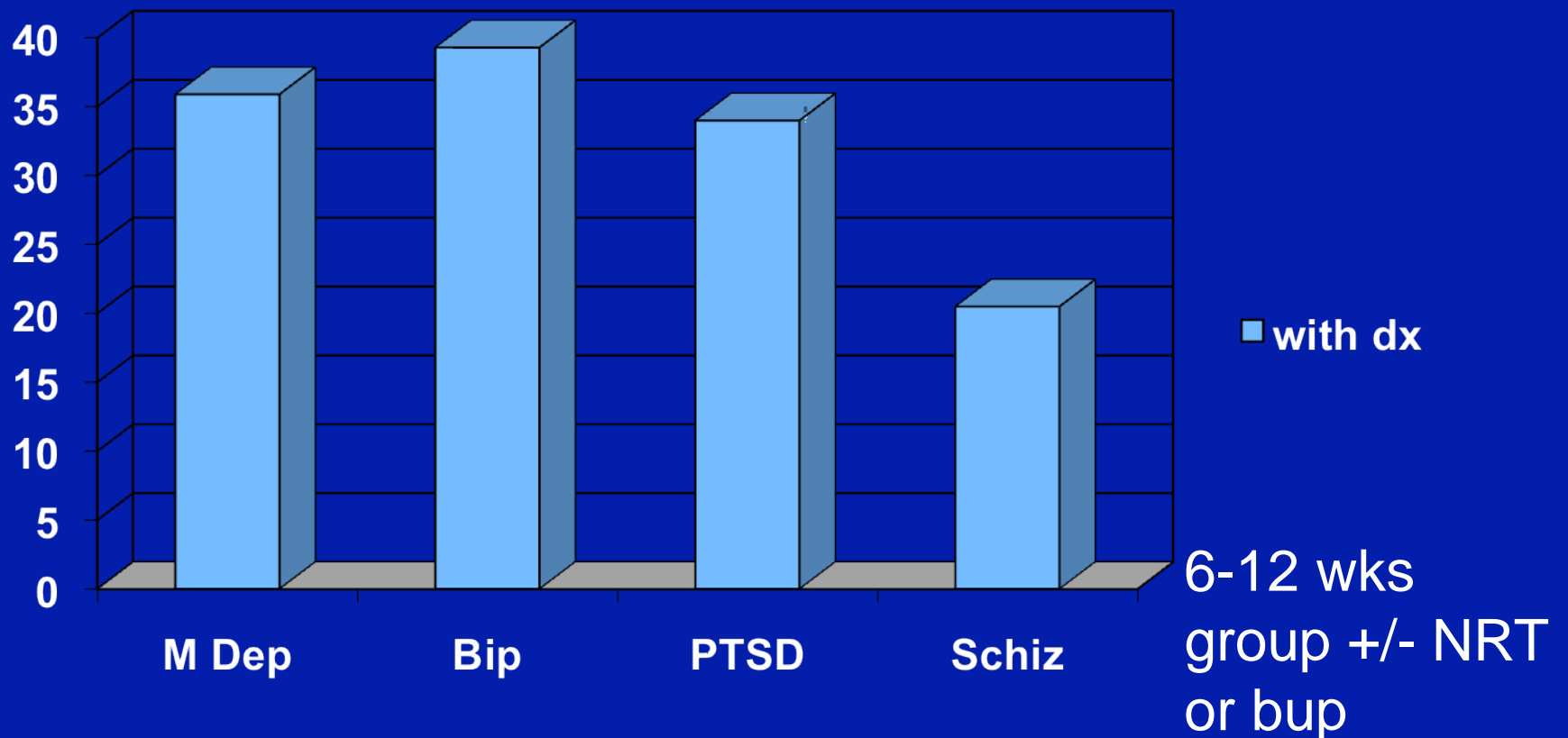
Unique aspects of SMI smokers

- Smoke more cigarettes (de Leon 02)
- Have higher dependence (Etter 04)
- Inhale more nicotine per puff (Tidey 05, Williams 05)

More unique aspects of SMI smokers

- **Biology**
 - Impaired reward circuitry (George '07)
 - Disproportionate reinforcing effect of nicotine on impaired cognition or mood (Barr '08; Spring '08)
- **Social/environmental**
 - Smoking is normative among peers and in treatment settings (Lawn '02; Morris '09)
- **Psychology**
 - Use of smoking to cope with stress and symptoms (Davis '10; Tidey '09)
 - Perception that relief from withdrawal is improvement in mental illness symptoms (Morris 2009)

Cessation treatments improve cessation outcomes in SMI



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But people with SMI aren't interested in treatment

- Many people with SMI want to quit (Baker, 2007)
- Idiosyncratic events motivate cessation (Davis, 2010)
- Around 40% or more try each year, average 1-2 ineffective quit attempts past year (Ferron, In press; Lucksted, 2004)
- People with SMI not interested in tx (Morris, 2010)

Motivational Interventions improve interest in quitting and quit treatment

- Four studies of motivational interventions
 - improved intention to quit
 - quit appointment attendance (Steinberg et al, 2004; Cather 2010)
- But CMHCs find it difficult to deliver motivation counseling for smoking cessation
 - Staff time, training, funding

Computerized motivational tool

- Electronic decision support system (EDSS) for smoking cessation
- Designed to increase motivation and provide decision support in an easy to use, web-based program

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Aims of Dartmouth smoking cessation EDSS

- Easy to use and understand
- Motivate users to quit smoking
- Motivate users to choose evidence-based cessation treatment
- Provide information on cessation treatment options and referral to treatment
- Welcoming to all racial and ethnic groups

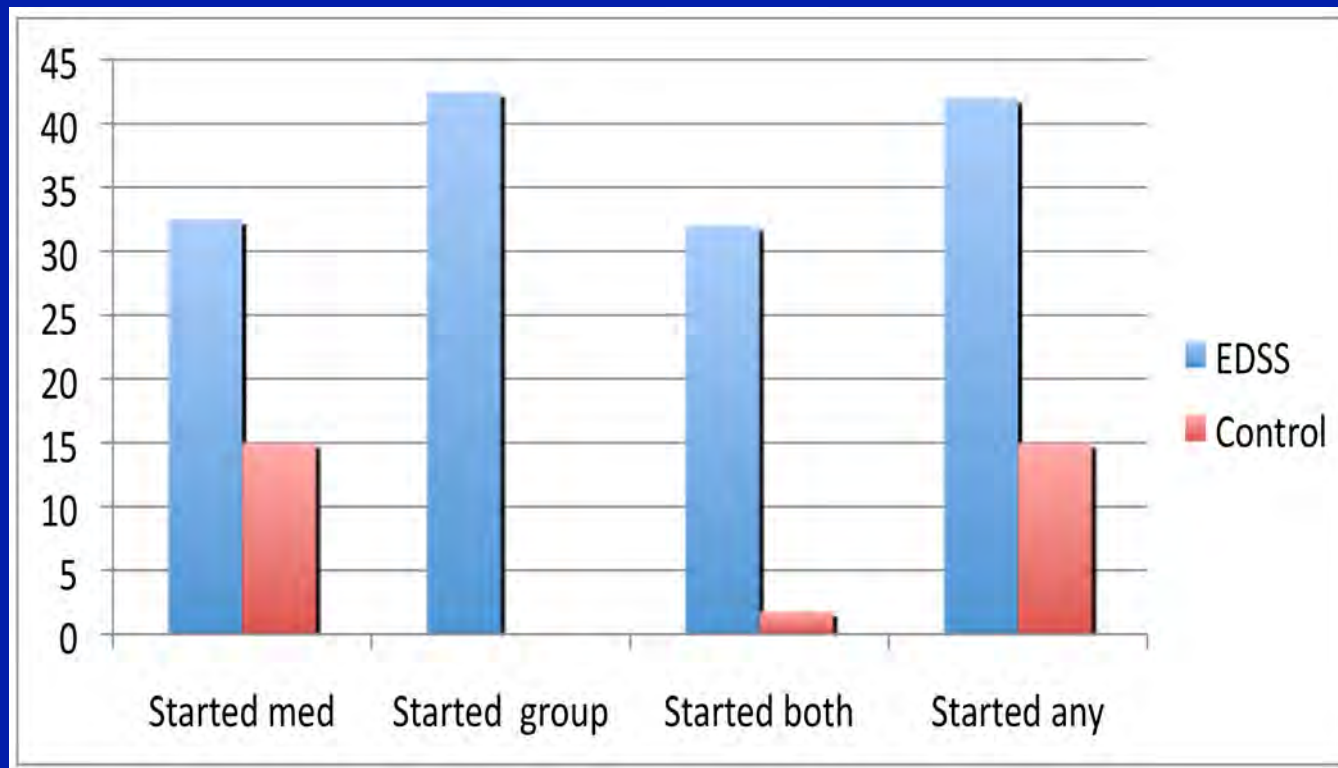
Aims of EDSS

- **Motivate to quit**
 - Assess level of nicotine dependence
 - Explore personal impact of smoking
 - Educate about health effects of smoking
 - Engage consumers with personal testimonials
- **Motivate to choose EBP treatment**
 - Educate about treatment efficacy and side effects
 - Engage consumers with personal testimonials
- **Provide information on treatment options and referral**

Design of Web-based tool

- Based on usability testing with 85 SMI smokers and research of others (Rotondi, 2007)
- Added mouse tutorial and enlarged buttons
- Linear design – only 2 layers deep
- Simplified language - 5th grade level
- Text to Audio (for slow or poor readers)

Thresholds EDSS pilot study: 2 month outcomes



Proportion of participants who started cessation treatment

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What is motivational about the EDSS?

- Components of motivational interventions for smoking cessation in SMI
 - Information about consequences of smoking
 - Assessment and personalized feedback
 - Money spent on cigarettes
 - Personal pros and cons of smoking
 - CO monitor reading & interpretation

CO monitor

- CO is one of the toxins in cigarette smoke
- Monitor provides reading that correlates with amount user smoked recently
- Provides personalized feedback → hypothesized to increase perception of personal health risk



CO monitor

- All of the motivational interventions tested in SMI used CO monitor
- Results from studies of CO monitor in general population are mixed, but they used distal outcome of abstinence

Problems with CO monitor

- Monitor not available to people who would use EDSS from home or library
- CMHCs and other treatment settings may not be willing or able to provide CO monitor
- Monitors are expensive

Other ways to personalize health risks?

- Health checklist with feedback
 - Shown to reduce problem drinking (Riper 2009)
 - Component of MI for SMI (Steinberg et al 2004)
 - Easy to incorporate and use
 - Free

Smoking cessation EDSS

With and without CO monitor

Specific Aims

- Randomized study to assess whether EDSS with CO monitor and health checklist feedback leads to higher rates of tx initiation than EDSS with health checklist alone

Intervention

- Compare 2 versions of computer EDSS
 - one with CO monitor and health checklist
 - one without CO monitor but with health checklist
- Tests impact of CO monitor component

Study group: Inclusion criteria

- 132 (120 at f/u) smokers with SMI in tx at Thresholds
- Age 18-70
- English speaking
- Physically able to use computer
- No desire to quit smoking is required

Study Group: Exclusions

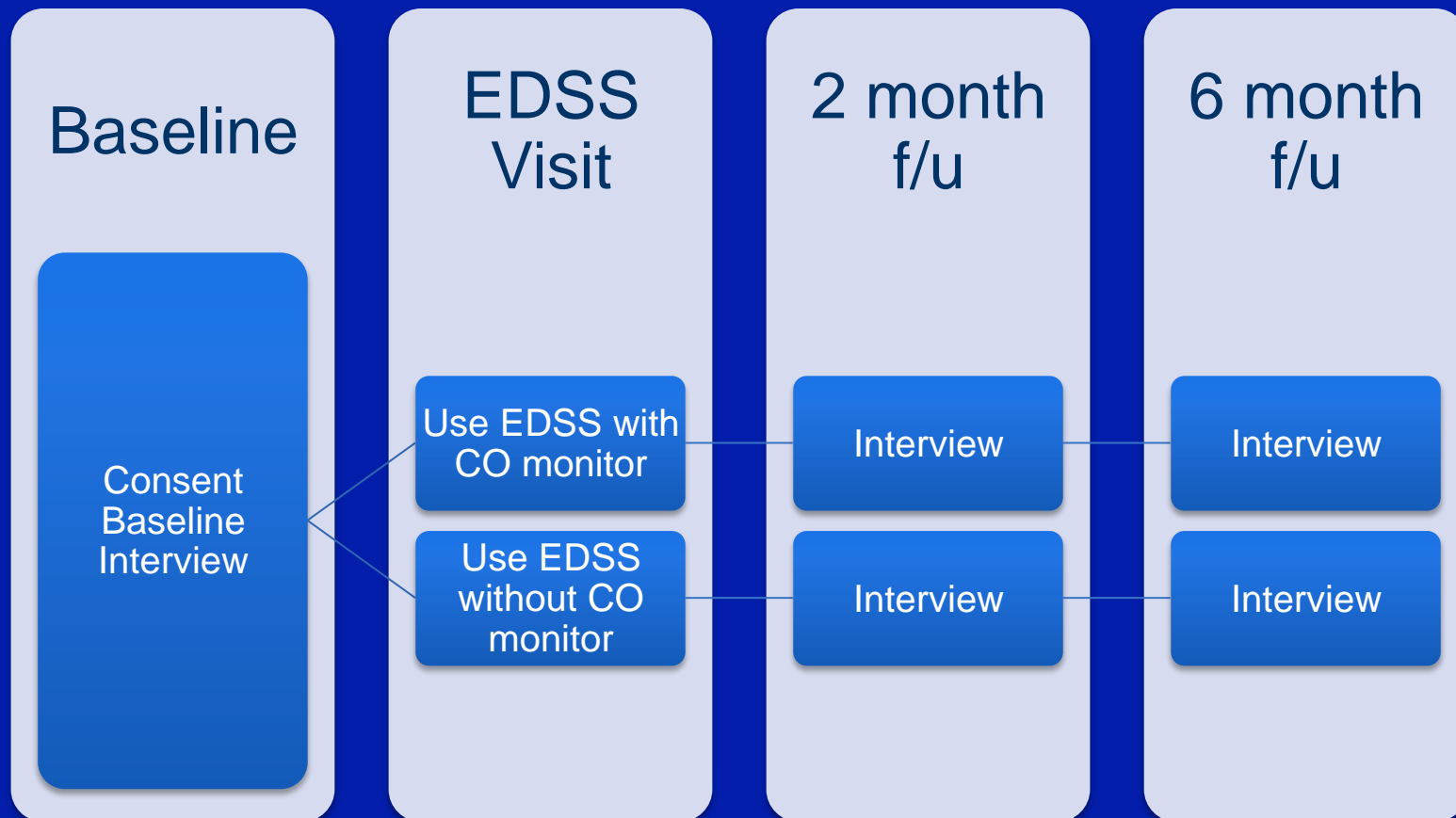
- Current use smoking cessation treatment (past month)
 - This group is already motivated and in tx
- Active substance dependence with use in past month
 - Screen with clinician/chart
 - Screen in baseline interview
 - 1 or more day/week for drug
 - 2 or more day/week of excessive use for alcohol

SUD exclusion

– Rationale:

- Tobacco cessation associated with other substance abstinence
- Research on timing of tobacco cessation treatment is mixed & inconclusive
- Conclusion: Best time to offer smoking cessation treatment to member with substance use disorder is when member is engaged in treatment of alcohol/drug disorder.

Study design



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Measures

- Use of quit treatments
- Smoking characteristics
- Symptoms
- Cognition

Study timeline

Table 2: Study timeline

Study month	1	2	3	4	5	6	7	8	9	10	11	12
Prepare EDSS, train staff	█	█										
Recruitment, baseline, EDSS		█	█	█	█	█						
Two-month follow-up interviews			█	█	█	█	█					
Four-month follow-up interviews				█	█	█	█	█	█			
Six-month follow-up interviews						█	█	█	█	█	█	
Data entry and cleaning		█	█	█	█	█	█	█	█	█	█	█
Data analysis and write up											█	█

Cessation treatments

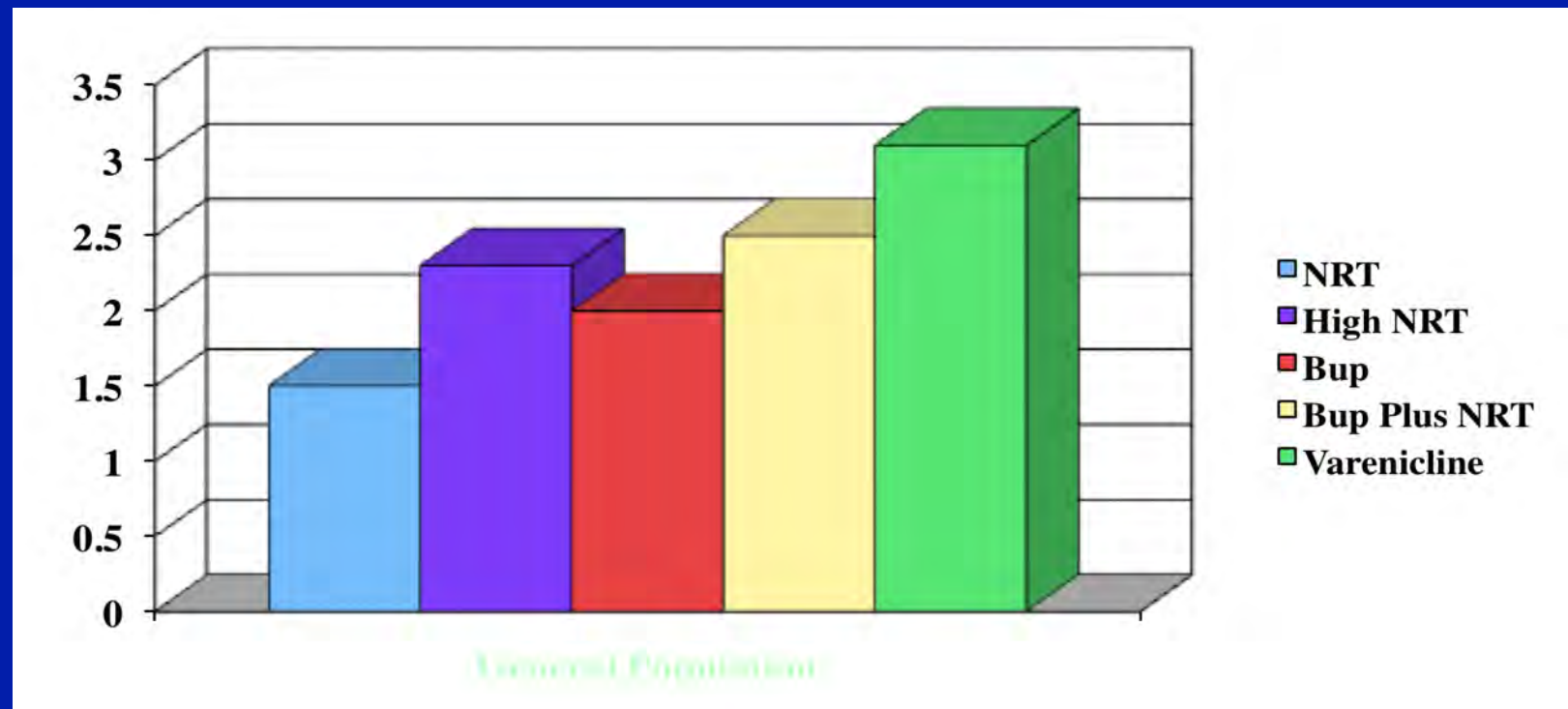
Cognitive Behavioral Therapy for smoking cessation

- Teaches skills to quit
- Helps maintain motivation to quit
- 10 sessions
- Expect members to go through twice
- Expect members to use medication (Chantix, bupropion or nicotine replacement) as well as group

Medications to quit

- Chantix (varenicline) is a nicotinic receptor partial agonist – it reduces craving and withdrawal
- Bupropion (Zyban) is an dopaminergic antidepressant that also reduces craving and withdrawal discomfort
- Nicotine replacement therapy – patch, lozenge, gum reduce withdrawal

How much do meds help people quit?



Odds ratios for treatment effect over placebo in general population

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Discussion



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