

Successes and Failures in Changing Multiple Behaviors in Populations of Primary Care Patients, Employees, and Parents

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US Health Care Costs & Behavior

- Health care is a \$1 Trillion /year industry.
 - Health behaviors account for at least 60% of all premature mortality.
- Smoking for example:*
- Average annual expenditure to an employer for a smoker = \$960.00/year
 - Health care costs –smoking > \$50 Billion
 - Health care costs + lost productivity > \$100 Billion/year

Population Impact

Impact = Participation Rate
(Reach) X Efficacy Rate

Population impact is critical to affect Health & Health Care Costs

Clinic-based approaches show good efficacy but reach/utilization rates can be low

Need new approaches to address both!

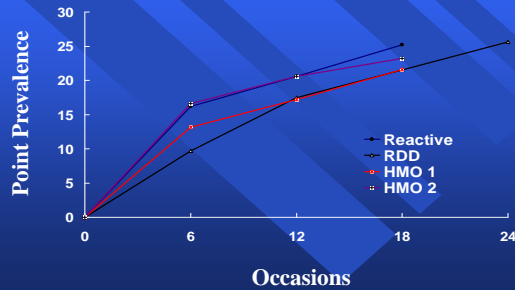
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TTM-Tailored Smoking Cessation Studies Summary

- **High Recruitment Rates**
 - Proactive recruitment procedures can recruit 80-85% of defined populations
 - Proactively recruited sample outcomes replicated reactively recruited sample outcomes
- **High Retention Rates**
 - Retained 65-75% of sample at 18-24 Months
- **Effective Intervention**
 - Point prevalence smoking cessation rates of 23-25% at 18-24 Months

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TTM-Tailored Smoking Cessation Outcomes Across Four RCT's



TTM-tailored Expert Systems Interventions Benefits

- Can reach a large proportion of the population in a cost-effective manner
- Can provide tailored feedback to full population
- Provide ideal platform to guide the complex series of changes required for disease prevention
- Provide lower-cost communications with “expert” conveniently and on demand over an extended period of time
- Disseminable

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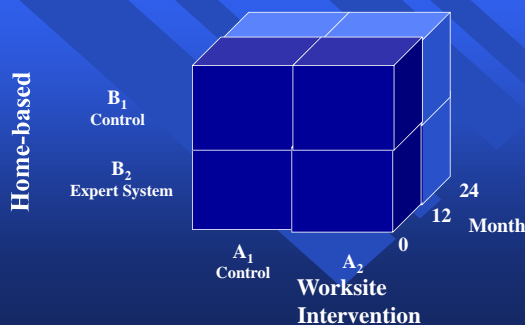
Cancer Risk Behaviors Targeted

- Smoking (3 studies)
- Dietary Fat (3 studies)
- Sun exposure (3 studies)
- Mammography Screening (1)
- Physical Activity (1)

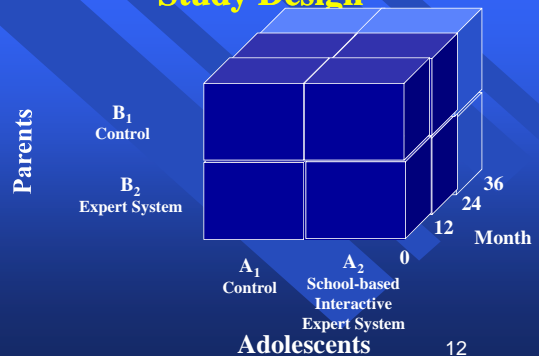
TTM-Tailored Multiple Behavior Tx

- Printed TTM-Tailored Expert System Feedback
 - Stage of change
 - Pros/Cons
 - Confidence/Temptation
 - Processes of change
- All at-risk feedback reports (snail) mailed to individuals’ homes at 3 timepoints:
 - Baseline, 6 months, & 12 months
- Included integrated multiple behavior manual & mammography materials when relevant

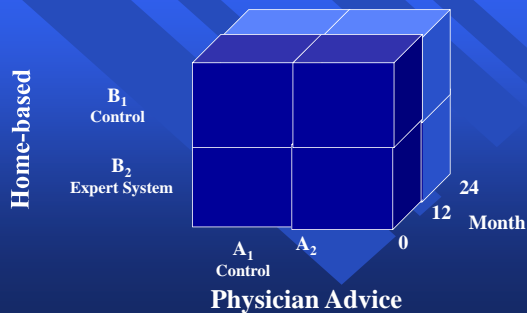
Worksite X Home (2 X 2) Study Design



Home-based X School-based (2 X 2) Study Design



MD Office X Home (2 X 2) Study Design

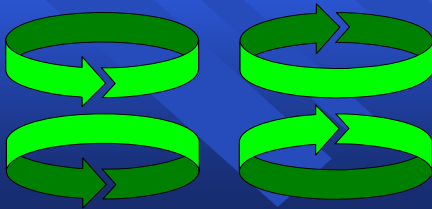


PO1 Research Questions

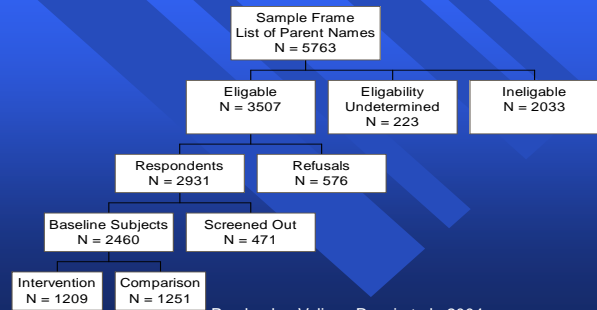
- Can proactive recruitment rates be replicated under conditions of increased multiple behavior response burden?
- Can smoking cessation efficacy rates be replicated when intervening with multiple risk behaviors?
- Will a TTM-tailored Diet intervention be effective in a general population?
- Will a TTM-tailored Sun Protection intervention be effective in a general population?
- Will a TTM-tailored simultaneous multiple risk behavior intervention be effective?

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Part I. Recruitment Rates

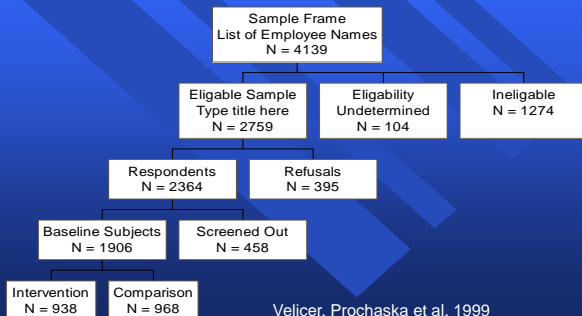


Parent Recruitment Rate = 83.6%



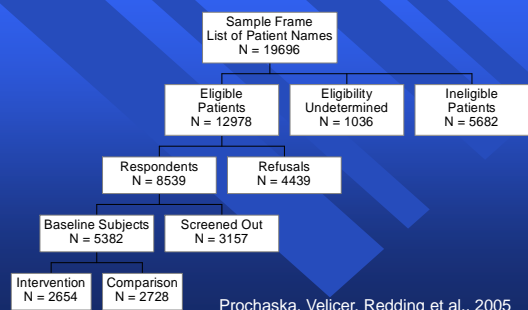
Prochaska, Velicer, Rossi et al., 2004

Employee Recruitment Rate = 85.7%



Velicer, Prochaska et al. 1999

Primary Care Patient Recruitment Rate = 65.8%

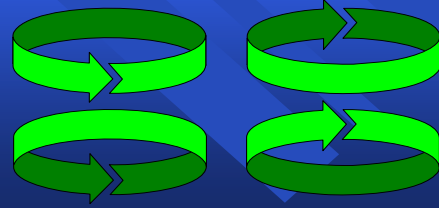


Prochaska, Velicer, Redding et al., 2005

High School Student Sample

- 9th Grade Students
- 22 Participating High Schools Randomized
 - 12 to Intervention
 - 10 to Comparison
- 6955 eligible students
- 7% Parents Refused Permission
- 1% Students Refused Permission
- N=4983 completed baseline assessment (79%)

Part II. TTM-Tailored Expert System Adult Outcomes For Smoking and Across Risk Behaviors

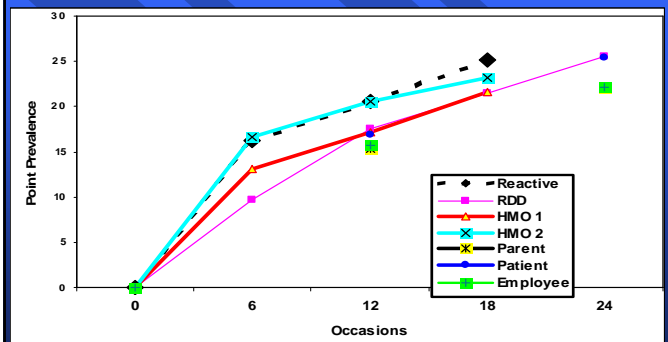


TTM-Tailored Intervention for Smoking Cessation: Point Prevalence across 7 Studies

Month 0 6 12 18 24

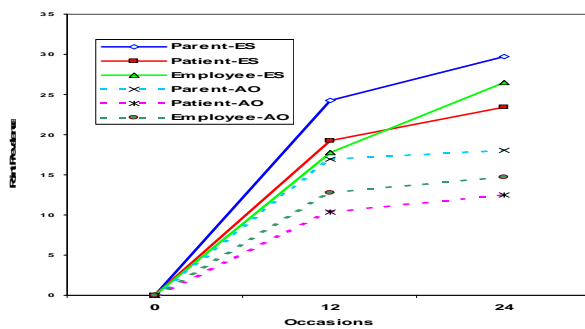
■ Reactive (1993)	0	16.2	20.6	25.2	
■ RDD Sample (2001)	0	9.7	17.5	21.5	25.6
■ HMO I (Vel,1999)	0	13.1	17.2	21.6	
■ HMO II (Proch, 2001)	0	16.6	20.6	23.2	
■ Parent (2004)	0		15.3		22
■ Patient (2005)	0		16.9		25.4
■ Employee	0		15.7		22.1

Smoking Cessation: Seven RCT's



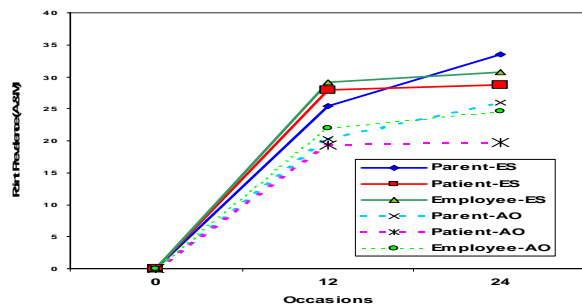
Sun Protection: Three RCT's

UV Reduction across 3 Studies



Diet: Three RCT's

Dietary Fat Reduction over 3 Studies



Multiple Behavior Impact

■ Co-Action

Significant Co-Action (Paired Action) between behavior pairs (1.5 - 2.0 OR) at 12 + 24 month followup timepoints for treatment group only

Paiva AL, Prochaska JO, Yin HQ, Rossi JS, Redding CA, et al. (2012) Treated individuals who progress to action or maintenance for one behavior are more likely to make similar progress on another behavior: Coaction results of a pooled data analysis of three trials. *Preventive Medicine*, 54, 331-334.

Discussion

- Good reach across samples for multiple risk behavior trials
- TTM-tailored Interventions changed multiple risk behavior outcomes in three parallel RCT's
- Physician Office + Worksite arm interventions did not produce significant behavior change outcomes
- TTM-tailored multiple risk interventions replicated results for single risk behavior RCT's

Discussion continued

- TTM-Tailored Intervention outcomes replicated across three defined populations -Primary care patients, Parents, Employees
- Simultaneous interventions targeting multiple risk behaviors were as effective as interventions targeting single risk behaviors
- TTM-Tailored interventions can be effective in large populations

Future Research

- How many behavioral interventions can be utilized while maintaining efficacy? What are limits?
- Modular vs. Integrated treatments
- Multiple Behavioral Risk Outcome indicator (e.g., CVD risk index for Cancer or Health...)
- What additional treatments may enhance outcomes?

Impact = Efficacy X Reach X # Risk Behaviors

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