MANAGED PROBLEM SOLVING (MAPS)

Good Evidence – Medication Adherence

INTERVENTION DESCRIPTION

Target Population
- HIV clinic patients who are antiretroviral treatment-experienced or -naïve

Goals of Intervention
- Improve adherence to antiretroviral therapy

Brief Description

Managed Problem Solving (MAPS) is an individual-level, problem-solving intervention delivered in person and via telephone calls to HIV clinic patients. The intervention focuses on improving medication adherence through an iterative, five-step process which consists of 1) identifying barriers to adherence, 2) brainstorming to generate potential solutions, 3) decision-making and developing a plan of action, 4) implementing the plan, and 5) evaluating and modifying the plan as necessary. In-person sessions include education related to the treatment regimen and to common medication misperceptions; problem-solving to identify daily routines, cues, cognitive aids and social supports; screening to identify barriers related to depression, substance use, toxicity management and competing demands; and review of adherence data to determine where problems have occurred and to develop solutions. In addition, on-going telephone calls reinforce content delivered during the in-person sessions, allow for additional problem solving, remind patients to obtain refills, and encourage continued adherence to intervention strategies.

Theoretical Basis
- Social Cognitive Theory

Intervention Duration
- Four in-person sessions: one 60-90 minute session followed by three 20-45 minute sessions delivered monthly over 3 months; twelve weekly telephone calls (20-30 minutes per call) during the first 3 months, and monthly telephone calls throughout the remaining 9-month intervention period

Intervention Setting
- HIV clinics

Deliverer
- Trained interventionists, with at least a college degree and some prior experience working with a patient population

Delivery Methods

- Discussion
- Goal setting/plan
- Lecture/teach
- Memory aids/cues
- Problem solving

INTERVENTION PACKAGE INFORMATION

An intervention package is not available at this time. Please contact **Robert Gross**, Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, Perelman School of Medicine, 423 Guardian Drive, Philadelphia, PA 19104-6021.

Email: grossr@pennmedicine.upenn.edu for details on intervention materials.

EVALUATION STUDY AND RESULTS

The original evaluation was conducted in Philadelphia, Pennsylvania between 2005 and 2010.

Key Intervention Effects

- Increased medication adherence
- Achieved undetectable viral load

Study Sample

The baseline study sample of 180 men and women living with HIV is characterized by the following:

- *85% Black or African American persons, 13% White persons, 2% other*
- *60% male, 40% female*
- *Mean age of 43 years, range: 19-65 years*
- *40% treatment-naïve, 60% treatment experienced*

Recruitment Settings

HIV clinics

Eligibility Criteria

HIV clinic patients were eligible if they were at least 18 years of age, had an HIV-1 plasma viral load >1000 copies/mL, and were either 1) treatment naïve and initiating a standard regimen or 2) treatment experienced and either restarting their most recent suppressive regimen or initiating a new regimen.

Assignment Method

HIV clinic patients (N = 180) were randomly assigned to 1 of 2 study arms: MAPS (n = 91) or usual care comparison (n = 89).

Comparison Group

The usual care comparison included meetings with a pharmacist for regimen education and, if desired, provision of pill organizers.

Relevant Outcomes Measured and Follow-up Time

- Medication adherence behavior (recorded using MEMs caps) was defined as the proportion of prescribed doses taken. Medication adherence was categorized as ≤ 70%, 71-80%, 81%-90%, 91-95%, or > 95% and was assessed at 3, 6, 9, and 12 months post-initiation of intervention.
- Viral load was measured at 3, 6, 9 and 12 months post-initiation of intervention and was assessed as undetectable (< 75 copies/mL) or detectable.

Participant Retention*

- MAPS Intervention
  - 75% retained at 3 months post-initiation of intervention
  - 68% retained at 6 months post-initiation of intervention
  - 76% retained at 9 months post-initiation of intervention
  - 84% retained at 12 months post-initiation of intervention

- Usual Care Control
  - 75% retained at 3 months post-initiation of intervention
  - 79% retained at 6 months post-initiation of intervention
  - 78% retained at 9 months post-initiation of intervention
  - 87% retained at 12 months post-initiation of intervention

Significant Findings

- Across the four assessments (3 to 12 months post-initiation of intervention), intervention participants were significantly more likely to be in a higher adherence category than comparison participants (OR = 1.78, 95% CI = 1.07 - 2.96, missing data imputed; Adj OR = 2.33, 95% CI = 1.35 - 4.05, without imputation).
- Across the four assessments (3 to 12 months post-initiation of intervention), intervention participants were significantly more likely to have an undetectable viral load (< 75 copies/mL) than comparison participants (Adj OR = 1.98, 95% CI = 1.15 -3.41, without imputation).

Considerations

- This study did not meet the best-evidence criteria due to < 70% retention rate per arm at each assessment and no significant intervention effects on the undetectable viral load outcome across the four assessments in an intention-to-treat analysis with missing data imputed.
- At baseline, 69% were on a protease inhibitor (PI)-based regimen and 28% were on a nonnucleoside reverse transcriptase inhibitor (NNRTI)-based regimen.
- The MEMs cap was placed on one medication bottle; for patients receiving multiple antiretroviral drugs, the monitored drug was selected in the following order of preference: 1) Nonnucleoside analog reverse transcriptase inhibitor, 2) protease inhibitor (ritonavir first), 3) integrase inhibitor, 4) entry inhibitor, or 5) nucleoside reverse transcriptase inhibitors.

***Information obtained from author**

REFERENCES AND CONTACT INFORMATION

Gross, R., Bellamy, S. L., Chapman, J., Han, X., O'Duor, J., Palmer, S. C., Houts, P. S., Coyne, J. C., & Strom, B. L. (2013). Managed problem solving for antiretroviral therapy adherence: A randomized trial. *JAMA Internal Medicine, 173*(4), 300-306. doi: 10.1001/jamainternmed.2013.2152

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