



**Penn**

**Infectious Diseases**

# **Impact of Managed Problem Solving Antiretroviral Adherence Intervention on HIV Copy-Years**

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# Disclosure

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# **Problem Solving for Adherence**

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- **Depression is major adherence barrier**
- **Multifactorial nature of both depression and non-adherence**
- **Problem solving already adapted**
  - **Cancer and HIV respite care**
  - **Obesity**

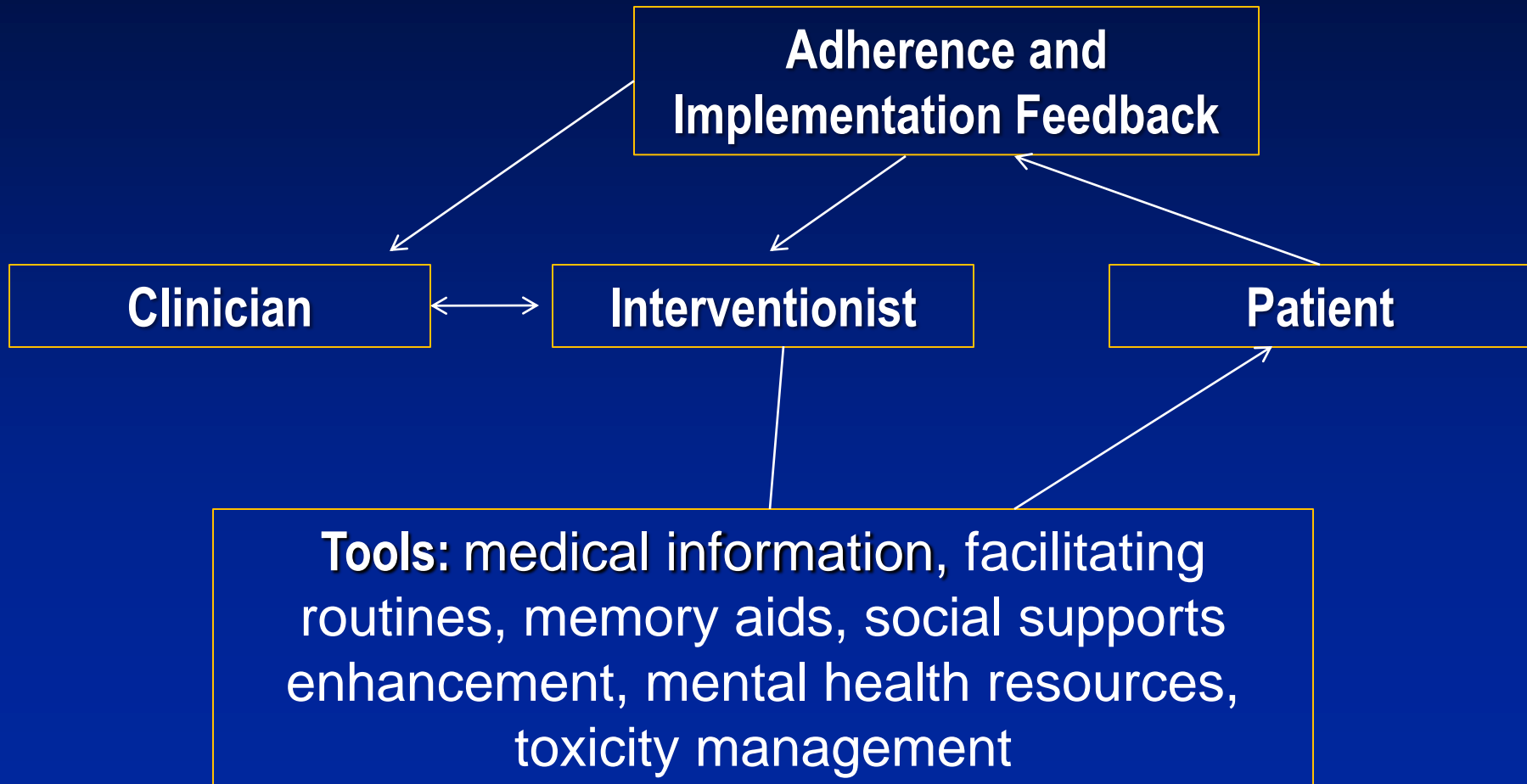
# Problem Solving Therapy vs. Treatment

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- **Therapy requires training**
  - Many sessions
  - Patients need motivation
  - Added burden of homework
- **Treatment**
  - Goal is just solving problems
  - Problem solver is part of team

# Conceptual Framework

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# Defining the Problem

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# Brainstorm

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# Decision re: Plan

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# Implement Plan

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# Assessment and Modification

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# MAPS Study Design

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- **Train interventionists to deliver MAPS**
  - College graduate
  - Familiar/comfortable with HIV topics
  - Health background not necessary
- **Randomize 1:1 to MAPS vs. Usual Care (UC)**

# Eligibility Criteria

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- HIV-1 infection
- Age  $\geq 18$  years
- HIV VL  $> 10^3$  copies/ml
- Any CD4 count
- Not living in care facility
- Able to consent
- Initiating an active regimen

# Baseline Screening

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- **Assessment of adherence barriers**
  - Knowledge of regimen
  - Knowledge of desirable adherence
  - Plans if doses missed
  - Depression
  - Substance Use

# **Delivery of Intervention**

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- **Initial visit**
  - Duration 60-90 min
- **3 monthly follow-up visits with adherence feedback via MEMS**
  - Duration 45-60 min
- **Weekly phone calls for 3 mo**
  - Duration 5-20 min
- **Monthly refill calls for 1 yr**
  - Duration 1-5 min

# Outcomes

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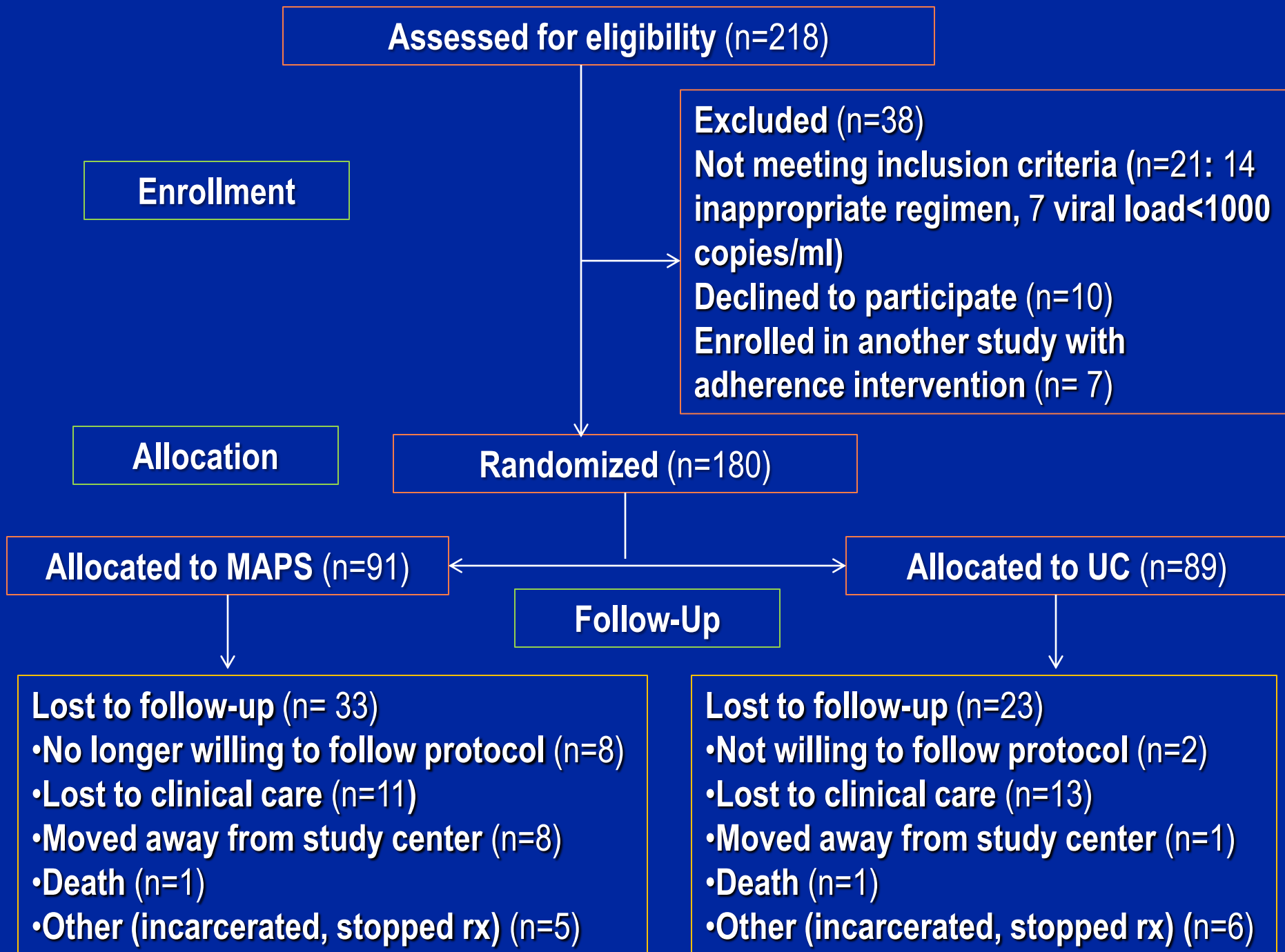
- Primary: adherence
  - Measured continuously using MEMS
  - Summarized quarterly: % doses taken
- Secondary: HIV VL
  - Measured quarterly
  - VL < 75 copies/ml
  - HIV copy-years = average viral load over each quarter x 3 months, and summed over the year

# ITT vs. AT

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- **Intent to Treat**
  - Primary analysis approach
  - Strategy trial-all subjects evaluated
- **As Treated**
  - Secondary analysis approach
  - Provides useful data on patients remaining in care





Baseline Characteristics	MAPS (n=91)	UC (n=89)
Median age (range), yrs	43 (20-65)	42 (19-60)
Male sex	52 (57%)	56 (63%)
Race    Black	80 (88%)	73 (82%)
White	9 (10%)	15 (17%)
Other	2 (2%)	1 (1%)
Treatment naïve	40 (44%)	32 (36%)
Baseline VL (log <sub>10</sub> copies/ml)-Q25,75	3.24 (2.46, 4.32)	3.47 (2.35, 4.40)
Baseline CD4 count cells/mm <sub>3</sub> - Q25,75	287 (146, 370)	244 (116, 379)

# Adherence Results

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- MAPS associated with higher adherence
  - ITT: Odds of being in a higher category of adherence 1.78 (1.07-2.96) for MAPS vs. UC
  - AT: Odds of being in a higher category of adherence 2.33 (1.35-4.05) for MAPS vs. UC

# VL Results

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- **MAPS -higher odds of UDVL**
  - ITT: Odds of UDVL=1.48 (0.94-2.31) favoring MAPS
  - AT: Odds of UDVL=1.98 (1.15-3.41) favoring MAPS
- **MAPS-lower HIV copy-years**
  - ITT:MAPS: 1.54 vs. UC: 2.02 log copy-years,  $p=0.046$
  - AT: MAPS: 1.36 vs. UC: 1.87 log copy-years,  $p=0.027$

# Limitations

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- **Generalizability**
  - Specialty clinic population
  - Use of MEMS for feedback
- **Evidence for effect**
  - Mixed conclusion on virologic effect
- **Bias**
  - Unclear how dropouts affected true impact of intervention

# Conclusions and Next Steps

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- **MAPS effective at improving adherence and virological outcome**
  - Refine and disseminate
- **Adapt to VA System**
  - MAPS-EXTRA
  - Use pharmacy refill system
- **Modify approach to use for retention**
  - PREPARE

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