Modeling to Learn
Test. Don’t guess.

Session 1: Helping Teams Find Local Improvements to Meet Veterans’ Needs

@LZPhD
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Poll 1: I am a...

Please select all that apply.

A. Veteran
B. Frontline provider or clinician
C. Researcher
D. Healthcare leader/policy maker
E. Another professional role
This is session 1 of a four part series.

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
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<tbody>
<tr>
<td>May 2, 2019</td>
<td>Introducing <em>Modeling to Learn</em> Helping Teams Find Local Improvements to Meet Veterans’ Needs</td>
<td>mtl how</td>
</tr>
<tr>
<td>12noon Pacific/3PM Eastern</td>
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<tr>
<td>May 9, 2019</td>
<td>Introducing Measurement Based Stepped Care for Suicide Prevention</td>
<td>mtl session 6 systems story</td>
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<td>12noon Pacific/3PM Eastern</td>
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<td>mtl session 7 base case</td>
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<tr>
<td>May 16, 2019</td>
<td>Comparing Measurement Based Care and Stepped Care for Suicide Prevention</td>
<td>mtl session 8 dynamic hypothesis</td>
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<tr>
<td>12noon Pacific/3PM Eastern</td>
<td></td>
<td>mtl session 9 compare alternatives</td>
</tr>
<tr>
<td>May 22, 2019</td>
<td>Putting it Together: Combining Measurement Based Stepped Care for Suicide Prevention</td>
<td>mtl session 10 systems thinking</td>
</tr>
</tbody>
</table>
Poll 2: I am here to…

Please select all that apply.

A. …learn more about suicide prevention.
B. …learn more about measurement based care.
C. …learn more about stepped care.
D. …learn more about Modeling to Learn.
E. …get continuing education credit.
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Session 1 Learning Objectives

1. Describe the advantages of teams testing their own hypotheses about improvement plans using local team data.

2. Compare the advantages of team simulation learning against to trial-and-error learning in the real-world.

3. Identify ways systems thinking helps teams evaluate both the risks and benefits of clinic changes over time.

Registration

https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming.cfm
### Modeling to Learn

overall learning objectives
include activities and competencies that...

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>...are meaningful for you and align your learning goals with your team</td>
</tr>
<tr>
<td>2.</td>
<td>...develop systems thinking skills and help you to see how several things fit together and understand causes that are hard to see without data and modeling resources</td>
</tr>
<tr>
<td>3.</td>
<td>...make VA data, initiatives and standards transparent to you</td>
</tr>
<tr>
<td>4.</td>
<td>...empower you to realize ongoing improvements in team quality of care and team quality of work life</td>
</tr>
</tbody>
</table>
Team
Participatory System Dynamics

Principles of the open science movement:
• collaborative
• free and open
• transparent and reproducible science.
Modeling to Learn

Test. Don’t guess.

Modeling to Learn Links

1. www.mtl.how/live - Modeling to Learn Live Sessions - Adobe Connect Room
2. www.mtl.how/data - Team Data User Interface - **Internal for VHA Providers Only
3. www.mtl.how/demo - Simulation Demonstration Self-Registration
4. www.mtl.how/sim - Simulation User Interface for Teams in MTL Live
5. www.mtl.how/menu - Modeling to Learn Menu - RedCap Survey of Team Needs/Priorities
6. www.mtl.how/facilitate - MTL Facilitator Dashboard at Forio Epicenter
7. www.mtl.how/github - This page - MTL GitHub Repository of Resources
8. www.mtl.how/video - MTL "How To" videos at YouTube
9. www.mtl.how/team - Team Participatory System Dynamics - The MTL Research & Development Team
10. www.mtl.how/lzim - MTL and Team PSD Lead - Lindsey Zimmerman, PhD
11. www.mtl.how/tms - VA TMS 2.0 Learning System for Accreditation
12. www.mtl.how/refs - MTL References
13. www.mtl.how/pubs - Publications & Presentations on MTL by Team PSD
Our series will focus on these two resources.

mtl

mtl.how

Session guides, links, and cheatsheets.

mtl

mtl.how/demo

Self-register

Course Code: cybersem
Poll Question 3: This four part series focuses on which two MTL resources?

Please select all that apply.

A. Modeling to Learn *Live*
B. Modeling to Learn *Demo*
C. Modeling to Learn *Data*
D. Modeling to Learn at *mtl.how*
E. All of the above
Modeling to Learn

We will have new learning opportunities this year. But, these are not covered in this HSRD Cyberseminar.
How can we reach more patients with our highest quality care?

- Other services
- Evidence-based practices

Source: VA Strategic Analytics for Improvement and Learning, FY 2017
1. VA innovates with national dissemination efforts to train providers in evidence-based mental health practices
2. Enterprise-wide quality measures
3. Clinical practice guidelines and mandates for evidence-based care
4. National electronic health information system
5. Mental health care coordinated in multidisciplinary teams
What works to improve EBP reach, why, and under what conditions?

Understanding causes of EBP reach, in local context, is critical to our stakeholders.
OUR STAKEHOLDERS

VA policy-makers, patients, and providers from psychiatry, psychology, social work, nursing & certified peer support specialists
VAPOR introduces Modeling to Learn

https://mtl.how/intro
Our PSD approach – Participatory Research:
A partnership approach to research that equitably involves stakeholders in all aspects of the research process and in which all partners contribute expertise and share decision-making and ownership.

Hovmand, 2014; Oetzel et al., 2018
Participatory Research is an **epistemology**.

- Scientific inquiry that actively considers the scope of current knowledge, its limits and validity.
- Participatory research asks, what knowledge is privileged or absent?
MTL focuses on learning among frontline teams making EBP-related care decisions.

<table>
<thead>
<tr>
<th>Scientific Model</th>
<th>Problem</th>
<th>Why problems persist</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Capacity</td>
<td>Learning</td>
<td>Stakeholders cannot or do not learn and adapt to their situation.</td>
</tr>
<tr>
<td></td>
<td>Coordination</td>
<td>Conflict or lack of stakeholder consensus.</td>
</tr>
<tr>
<td>EBP Specific Capacity</td>
<td>Analysis</td>
<td>Policies are inconsistent with the real system constraints.</td>
</tr>
<tr>
<td></td>
<td>Restructuring</td>
<td>The underlying structure of the system prevents workable solutions.</td>
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</tbody>
</table>
Target State: Lean SMART Goal

By April 2015, 40% of patients newly seen in outpatient mental health at Menlo Park for depression, PTSD, or anxiety disorders will have two psychotherapy visits completed within 28 days from time of intake assessment.

**Specific.**

**Measurable.**

**Actionable:** if never achieved morale may suffer.

**Realistic:** with the available resources.

**Time frame:** A due date.
Local clinic strategies are needed to address local differences.

<table>
<thead>
<tr>
<th>Clinic 1</th>
<th>Clinic 2</th>
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<tbody>
<tr>
<td><strong>3548 unique patients/year</strong></td>
<td><strong>2043 unique patients/year</strong></td>
</tr>
<tr>
<td>Lower caseload per provider</td>
<td>Higher caseload per provider</td>
</tr>
<tr>
<td>Rare wait for initial appointment</td>
<td>Occasional waitlist to get into clinic</td>
</tr>
<tr>
<td><strong>5.2 psychiatrists per 9 EBPsy providers</strong></td>
<td><strong>3.0 psychiatrists per 4 EBPsy providers</strong></td>
</tr>
<tr>
<td>Higher EBPsy providers/MD ratio</td>
<td>Lower EBPsy provider/MD ratio</td>
</tr>
<tr>
<td>Higher EBPsy base rate</td>
<td>Higher EBPharm base rate</td>
</tr>
<tr>
<td>Providers often self refer for EBPs</td>
<td>Referrals to other providers by necessity</td>
</tr>
<tr>
<td>Multiple on-site specialty programs</td>
<td>Only telehealth specialty care</td>
</tr>
<tr>
<td>Training program site multiple disciplines</td>
<td>No trainees providing care</td>
</tr>
<tr>
<td>Most groups &quot;open&quot; (ongoing enrollment)</td>
<td>Most groups &quot;closed&quot; (infrequent opening)</td>
</tr>
<tr>
<td>Shorter time to next available appointment</td>
<td>Longer time to next available appointment</td>
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</table>
Our aims.

- develop a systems understanding of VA mental health services and the limited reach of evidence-based mental health care.
- empower mental health stakeholders to make locally optimized quality improvement decisions.
Systems Science: interdisciplinary theory and methods for understanding complexity.
We define limited reach of high quality care among our patient population as a system behavior.

Source: VA Strategic Analytics for Improvement and Learning, FY 2017
Find out more about our early work by downloading this paper at mtl.how/demo.
Saturation achieved during structural behavioral validity testing.

**Direct Structure Tests**
- Empirical
- Structure-confirmation
- Parameter-confirmation

**Systems Theory Tests**
- Structure-confirmation
- Parameter-confirmation
- Direct extreme-condition
- Dimensional consistency

**Stakeholders & Literature**
- Reviews and evaluations
- Exemplar SD Models

**Structure-oriented Behavior Tests**
- Extreme-condition test
- Behavior sensitivity test
- Modified-behavior prediction
- Boundary adequacy test
- Phase relationship test
- Qualitative features analysis
- Turing test

**EBP Reach Behavior pattern tests**

Barlas, 1996
Why is PSD effective?

Two Causal Theories: Systems and Decision Science

Real World
- Unknown structure
- Inability to experiment
- Dynamic complexity
- Time delays

Virtual World
- Known structure
- Variable level complexity
- Controlled experiments

Decisions
- Real World
  - Implementation failure
  - Performance is goal
- Virtual World
  - Perfect implementation
  - Learning can be goal

Information Feedback
- Virtual World
  - Complete, accurate, immediate feedback
- Real World
  - Selective perception
  - Bias, distortion, error
  - Missing feedback
  - Delay
  - Ambiguity

Structure & Decision Rules
- Simulation to infer dynamics of mental models correctly

Mental Models
- Map feedback structure
- Team discussion
- Scientific reasoning

Nilsen, 2015; Sterman, 2000, 2006
Modeling to Learn

Test. Don’t guess.

Virtual Facilitation

Transparent Local Data

Real-time Simulation

1. Equitable access to resources.
3. Shared decision-making.
Is MTL effective for improving quality? Strong preliminary signal in pilot clinics.

*HCS = Regional health care system

**Key:**
- Green = Upper control limit (UCL)
- Red = 12-month pre-PSD EBP proportion
- Purple = Lower control limit (LCL)
- SD = standard deviations

12 mos. sustained sig. improvement + 3 SD (α = .003)

8 mos. sustained sig. improvement + 3 SD (α = .003)
MTL Fidelity Checklist for 12-session Plan

Session Summaries across MTL Modules

session 01. Today we're modeling to learn how to align our team vision.

session 02. Today we're modeling to learn how to check our patient data and team trends.

session 03. Today we're modeling to learn how to produce team data for simulation.

session 04. Today we're modeling to learn how to prioritize team needs.

session 05. Today we're modeling to learn how to log-in to our team world.

session 06. Today we're modeling to learn how to tell a systems story.

session 07. Today we're modeling to learn how to evaluate our base case of no new decisions.

session 08. Today we're modeling to learn how to test a dynamic hypothesis.

session 09. Today we're modeling to learn how to compare alternatives.

session 10. Today we're modeling to learn how to use systems thinking.

session 11. Today we're modeling to learn how to make future team decisions.

session 12. Today we're modeling to learn how to turn team learning into a team plan.
We developed a secure website for reviewing team trends over time.

Select Your VISN

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<thead>
<tr>
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<th>VISN 4</th>
<th>VISN 5</th>
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<td>VISN 20</td>
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<td>VISN 22</td>
</tr>
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</table>

New Labels: ptss, depression

- **Visits:**

Grand Total: 3438, 1708
MTL resources help teams look back two years and look ahead two years.
Schedule – How to manage team schedules (i.e. clinics/grids) to meet patients needs.

New patients – How to get new patients in care, while meeting existing patients needs.

Return to clinic – How return to clinic orders free us to get patients to the right treatment at the right time.

Overwork – How overbooking or overworking increases patient no shows.
Why is *Modeling to Learn* effective?

**Medication Management**

**Our Question**: Briefly describe what your team wants to learn from this experiment.

If we get an increase in opioid use disorder referrals, will it increase the wait-time for x?

**Our Hypothesis**: Outline the systems story your team believes will cause the outcomes your team expects to observe.

**Our Findings**: Describe your team’s findings, insights and conclusions from this experiment.

**Our Decisions**: Based on what was learned in this experiment, what changes is the team ready to make in their practice?
“Staff” and “Time” barriers as dynamics.

mtl.how/demo
Causal mechanisms (dynamics) are made transparent for local learning.

Red =
- Read in from existing team data
- Standardized

mtl.how/sim
Our Hypothesis
Outline the expected outcomes of your team’s experiment in measurable terms.

Our Results
Describe what results and understandings your team achieved from the experiment.

Our Decisions
Briefly describe the decisions your team arrived at to support your hypothesis.

Results Dashboard

Control Panel
Control Panel View
- Model Run Alternatives Comparison
- Inter-Model Run Variable Comparison

Current Run Decision Values
- 0.50 Change in the True Missed Appointments(AUD)
- 0.50 Change in the True Missed Appointments(DEP)
- 0.50 Change in the True Missed Appointments(OUD)

Select Variables
- Alcohol Use Disorder(AUD)
- Opoid Use Disorder(OUD)
- Depression(DEP)
- Post Traumatic Stress Disorder(Other)

MTL tools helps frontline staff find the best local changes faster.
MTL shows whether things may get better before worse or worse before better.
Poll 4: Which is likely most useful for team learning?

Please select all that apply.

A. Facilitation
B. Team data
C. Simulation
D. All of the above
E. None of the above
Modeling to Learn
Test. Don’t guess.

Look before you leap.

Measure twice cut once.
Five ways to improve MTL usefulness.

Email: mtl.info@va.gov

Subject line: Learning

1. MTL Live Team/Clinic
2. Pilot Review EES materials (e.g., Video, Guides)

Design

3. Data User Interface (mtl.how/data)
4. Simulation User Interface (mtl.how/demo)

Research

5. Advisory Board and other opportunities
Optional Poll 5: I am interested in

Please select all that apply.

A. Partnering to improve MTL Learning
B. Partnering to improve MTL Design
C. Partnering to improve MTL Research
D. All of the above
E. None of the above

mtl.info@va.gov
Session 1 References


Session 1 References (cont.)


Resources and Help

Session guides, links, and cheatsheets.

Self-registration for simulation demo. *Course code: cybersem*

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