Modeling to Learn
Test. Don’t guess.

Session 4: Combining Measurement Based Care and Stepped Care for Suicide Prevention

@LZPhD
Lindsey Zimmerman, PhD
Office of Mental Health and Suicide Prevention
National Center for PTSD, Dissemination & Training Division

Tom Rust, PhD
Office of Healthcare Transformation
mtl.info@va.gov
Team
Participatory System Dynamics

Facilitators

Key Partners

Workgroup Leads

Co-Investigators

mtl.how/team
This is session 4 of a four part series.

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Focus</th>
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<tbody>
<tr>
<td>May 23, 2019</td>
<td>Putting it Together: Combining Measurement Based Stepped Care for Suicide Prevention</td>
<td>systems thinking</td>
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<td>12noon Pacific/3PM Eastern</td>
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Learning Objectives: *Modeling to Learn* how to use systems thinking.

1. Describe the decisions the team experimented with and how they intertwine to influence patients’ symptoms and risk.
2. Test your understanding of the "higher care quality improves recovery" system story by describing what’s happening when the simulation produces a runaway increase or decrease.
3. Apply systems thinking to anticipate the long-term trend in this team's ability to reduce patients' symptoms and suicide risk.
1. Equitable access to resources.
3. Shared decision-making.
MTL resources help teams look back two years and look ahead two years.
Conduct a combined experiment to reduce patient symptoms and wait times.

Will implementing both measurement-based care and stepped care address risks associated with either alone?
Findings from last session:
- Measurement Based Care (MBC) improved patients’ symptoms and risk, but reduced new care episode starts.
- Stepped care (SC) started more GMH care episodes, but didn't improve patients' symptoms and risk.
MTL focuses on improving **systems thinking** among frontline teams making care decisions.

<table>
<thead>
<tr>
<th>Systems Thinking</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td><strong>Complex</strong></td>
<td><strong>Forest not trees.</strong>&lt;br&gt;Relationships among two or more variables (wait times, improvement rate), or two or more settings (primary care, general mental health).</td>
</tr>
<tr>
<td><strong>Feedback</strong></td>
<td><strong>Loop not line.</strong>&lt;br&gt;Not simple cause and effect. The end of the story often influences the beginning, and is strengthened (reinforcing) or reduced (balancing) around the loop.</td>
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<table>
<thead>
<tr>
<th>System Behavior</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td><strong>Short and long term.</strong>&lt;br&gt;Better understanding of change over time (e.g., worse before better, better before worse).</td>
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</table>
Higher Care Quality Improves Recovery: why MBC reduced GMH patients’ symptoms and suicide risk. (zoom in)
Higher Care Quality Improves Recovery: *why* SC to address wait times is also needed. (zoom out)
Poll 1:
If we combine Measurement Based Care and Stepped Care, then will it most improve...

Select one.

A. Patients waiting to start care
B. Detecting changes in patients’ symptoms
C. Wait times to transfer patients’ care across settings
D. Managing our patient load
E. Care for patients at high risk for suicide
Dynamic Hypothesis: Combining MBC and SC will...
- **MBC** reduce patients’ symptoms and risk
- **SC** reduce wait times in GMH, and from GMH to SMH
- **COMBINED** will mitigate the *risks* of either alone.
Pull up prior work to save time.
What if we combine Measurement Based Care and Stepped Care? vs implementing each one individually
Decisions:

We should implement MBC *and* SC with Primary Care. Because higher quality improves recovery, when we...
1. reduce patients’ symptoms and risk, *and*
2. get patients to the right level of care at the right time.

**Measurement Based Stepped Care for Suicide Prevention**
This model shows the effects of measurement-based stepped care on patients' symptoms and risk. It allows you to explore the impacts of implementing measurement-based care to reduce delays in detecting patients at high risk for suicide, and to improve the quality of care by making better team decisions about when to step patients up to a higher level of care, or step them down to a lower level of care. It is also possible to experiment with team decisions related to new patient wait-times and access, the use of community care, and the impacts of provider overwork and burnout on the quality of care.

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

Does implementing BOTH measurement-based care and stepped care allow us to get more high symptom patients into the right care at the right time WITHOUT unintended high wait times for our patients to Primary Care?

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

If we more readily detect our patients symptoms AND reduce transfer delays, then we expect to improve care quality AND step more patients down to PC, kicking off a virtuous cycle of improved care quality leading to recovery.

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

We cut wait times to SMH immediately AND reduced the ratio of high symptom patients in care, all without increasing wait times for our team. We achieved the largest drop in patient load and patients waiting for SMH, but this may be due to a reduction in SMH patients rather than improvements in SMH care.

**Our Decisions**
Based on what was learned in this experiment, what changes is the team ready to make in their practice?

All our experiments have improved quality and increased wait times to PC. We will show Primary Care our findings and use this knowledge together to work with leadership to address this unintended consequence.
Only the combination of MBC and SC increases patients getting better and reduces GMH and SMH wait times.
Implementing MBC alone, or SC alone, is not effective for getting local patients to the right treatment at the right time.

**MBC**
Without improvement for more than 6 months, we may lose faith and abandon the change.

**SC**
We see immediate improvement, but then we slowly go back to business-as-usual in two years.

**COMBINED**
“Virtuous Cycle”- We see immediate improvement in wait times, that continue to get better over the next two years.
“Vicious Cycle”- wait-times keep growing for primary care, due to increased patient load, an unintended effect of improving general mental health care quality.

**COMBINED**

1. GMH to PC/PCMHI wait times increase as GMH patients get better and are stepped down to Primary Care.
2. Toggle to PC/PCMHI to see it has the same Higher Care Quality Improves Recovery feedback.
3. PC/PCMHI has made no new decision to implement MBC in their setting....
Use Modeling to Learn in partnership with Primary Care: PC, like the other settings, has many options for working with the Higher Care Quality Improves Recovery systems story.
Counterintuitive fix for team’s need to reduce long GMH -> SMH wait times: Improve GMH care quality via MBC and coordinate SC with PC (not SMH).
Coordinating stepped care with PC (not SMH) will have a stronger effect because there more patients.

This is because the GMH to PC/PCMHI Recommend Step down Rate is higher than the GMH to SMH Recommend Step up Rate (patients/week).
MTL focuses on improving **systems thinking** among frontline teams making care decisions.

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<td><strong>Complex</strong></td>
<td>Forest not trees. Only the combination of MBC and SC increases patients getting better and reduces wait times.</td>
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<tr>
<td><strong>Feedback</strong></td>
<td>Loop not line. Increased wait-times for primary care, due to increased patient load is an unintended consequence of improving general mental health care quality.</td>
</tr>
<tr>
<td><strong>System Behavior</strong></td>
<td>Movie not snapshot. Counterintuitive fix long GMH-&gt;SMH wait times: Improve GMH care quality via measurement based care and coordinate stepped care with PC (not SMH).</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>Short and long term. With delayed improvement we may lose faith. Immediate improvements may not be sustained.</td>
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</table>
Our GMH team’s data for High Risk Flag Rates and Symptom Proportions:

<table>
<thead>
<tr>
<th>Measurement Based Care</th>
<th>GMH</th>
<th>PC/PCMHI</th>
<th>SMH</th>
</tr>
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<tbody>
<tr>
<td>New Care Episode Start Rate (mean)(pts/wk)</td>
<td>8.54</td>
<td>0.67</td>
<td>0.17</td>
</tr>
<tr>
<td>New Patient Wait Time (median) (wks)</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>High Risk Patient Flag Rates (mean)(pts/wk)</td>
<td>0.06</td>
<td>0.04</td>
<td>0.06</td>
</tr>
<tr>
<td>Time to Unflag High Risk patients (median)(wks)</td>
<td>24.14</td>
<td>43.57</td>
<td>22</td>
</tr>
<tr>
<td>Engagement Time before Ending (median)(wks)</td>
<td>81.43</td>
<td>204.86</td>
<td>68.64</td>
</tr>
<tr>
<td>Symptom Proportions (High Symptom %)</td>
<td>0.11</td>
<td>0.69</td>
<td>0.15</td>
</tr>
<tr>
<td>Time to Improve (wks)</td>
<td>43</td>
<td>32</td>
<td>28</td>
</tr>
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Stepped Care
A different team in our GMH setting, with more acute patients, stepping up/down to the same SMH and PC settings.

<table>
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<th>Team Data Table</th>
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<td>Symptom Proportions (High Symptom %)</td>
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<tr>
<td>Time to Improve (wks)</td>
</tr>
</tbody>
</table>
Poll 2

If a **New Team** from the same GMH setting **with more acute patients** ran this same combined MBC and SC experiment, then they would find that it would most improve...

Select one.

A. Patients’ symptoms and suicide risk will get better *faster* than in our original team.

B. Patients’ symptoms and suicide risk will get better *slower* than in our original team.

C. Patients’ symptoms and suicide risk will get worse *faster* than in our original team.

D. Patients’ symptoms and suicide risk will get worse *slower* than in our original team.

E. Patients’ symptoms and suicide risk will change *in the same way* across the two GMH teams over the next two years.
If the **New Team** with
- more high symptom patients, and
- more high risk flag patients,
implements both MBC and SC combined...

then, it will lead to even greater benefits than **Our Original Team** because...

the **Higher Care Quality Improves Recovery** story will apply to more patients in the **New Team**.
Comparing combined experiments across two different GMH teams in the same setting shows big differences in patients’ symptoms and risk.

In our **New Team**, *from the same setting*, the GMH Ratio of High to Low Symptoms drops *faster* and the number High Risk Flag Patients is reduced more due implementing MBC and SC than in our **Original Team**.
Five ways to help 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](mailto:mtl.how/data))
4. Simulation User Interface ([mtl.how/demo](mailto:mtl.how/demo))

**Research**
5. Advisory Board and other opportunities
Thank you, Team PSD!

mtl.how/team

Co-Investigators
David Lounsbury, PhD, Craig Rosen, PhD, Jodie Trafton, PhD, Steven Lindley, MD, PhD

Project Support
Stacey Park, McKenzie Javorka, Dan Wang, PhD, Savet Hong, PhD, Kathryn Azevedo, PhD, Savet Hong, PhD

Team PSD Mentees
Cora Bernard, PhD, Swap Mushiana, MS, Joyce Yang, PhD

VAPOR (Veteran VA Consumer) Board
DC Barlow, Ren Kramer & Erik Ontiveros
Leroy Edwards, Tammy Thompson

Georgia Health Policy Center
Jane Branscomb, MPH Debra Kibbe, MS

Ursula Davis, MA, Amanda Martinez, MPH

Takouba LLC
James Rollins, MEd & Howard Park, MSE, MBA

Partners

VA Palo Alto Mental Health Staff
Ann LeFevre, LCSW, PhD, Maya Kopsell, MD, Trisha Vinatieri, PsyD, Bruce Linenberg, PhD, Pompa Malakar, RN, Rosemarie Geiser, RN, Sarah Walls, LCSW, Gigi Fernandez, LCSW, Emily Hugo, PhD, Martha Losch, MD, Jessica Cuellar, PhD, Alka Mathur, MD, Erin Sakai, PhD, Kesha Diodato, LCSW, Nathaniel Mendelsohn, MD, Nina Yi, MD, Lisa Giovanetti, LMFT, Joan Smith, LCSW, Darryl Silva, LCSW, Karen Wall, RN, EdD, and Smita Das, MD.

Office of Mental Health and Suicide Prevention (10NC5)
Matthew Neuman, PhD, Matthew Boden, PhD, Hugo Solares, PhD, Shalini Gupta, PhD, David Wright, PhD, Susanna Martins, PhD, Eric Schmidt, PhD, Amy Robinson, PharmD, Ilse Wiechers, MD

Office of Healthcare Transformation (10A5)
Tom Rust, PhD, Andrew Holbrook, Liz May

VA Employee Education Services (EES)
Elizabeth Bowling, MA, RD/LD, Correy Mathews, Ann Hier, MS, Fawn Powell, MHA, Justin Spears, MBA, Ed Caldwell MEd, Amy Jones, MSEd, Julie Sydow MA, Cate Wright, and Lara Dolin
MTL Resources and Help

Session guides, links, and cheatsheets.

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

@LZPhD

**Lindsey Zimmerman, PhD**
Office of Mental Health and Suicide Prevention
National Center for PTSD, Dissemination & Training Division

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Office of Healthcare Transformation

mtl.info@va.gov

https://www.hsrdsResearch.va.gov/cyberseminars/catalog-archive.cfm
Modeling to Learn
Test. Don’t guess.

mtl.how/quick_overview
You can review *Modeling to Learn* session guides at [mtl.how](http://mtl.how)

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Session guides, links, and cheatsheets.
Download 1-page Modeling to Learn Cheatsheets at mtl.how
Modeling to Learn

You can review data at within VA at mtl.how/data.
You can self-register and use the demonstration simulation to explore the suicide prevention module.

- **Self-register**
- **Course Code:** cybersem
- **Once registered go to:** mtl.how/demo_login
Run Your Test

Click the icon to run your own simulation.

Please provide some information so we can send you a login.

Please note that your name, email and password will only be used to create your login credentials. You will have access to the simulation for 5 days, unless you were given a Course Code. Unless you choose to continue to receive updates about the Modeling to Learn program, the system will erase your information after 5 days.

*First Name?

*Last Name?

*Your email?

*Create a Password?

*Confirm your password?

*Your Institution? Please select

If other please specify >

*Your Role? Please select

If other please specify >

*Your Discipline? Please select

If other please specify >

*How did you find us? Please select

If other please specify >

Enter your course code >

You do not need a course code, however, some users may have course codes for specific trainings.

Yes No Would you like email updates about Modeling to Learn quick tips and new releases?

mtl
mtl.how/demo
Once registered go to: mtl.how/demo_login
Help is available in top navigation bar.

<table>
<thead>
<tr>
<th>Model Diagram</th>
<th>Experiment Timeline</th>
<th>Outputs</th>
<th>Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The blue header at the top shows the module and data file chosen. The rates (circles) and stocks (rectangles) update dynamically with changes in the experiment variables. Throughout the model diagram, there are “i” icons to explain how the variable is calculated.</td>
<td>Use reveal complexities to look at balancing and reinforcing feedback systems stories. In the systems stories, there are two kinds of arrows. Plus signs mean trends move in the same direction. Minus signs mean trends move in the opposite direction.</td>
<td>View trends over time for ≤6 variables Text or Q/H/F/D Enter Question, Hypothesis, Findings, and Decisions text for each experiment. Expanded Outputs View Q/H/F/D Text and Results Dashboard at once. Results Dashboard View trends over time for ≤6 variables. Compare ≤2 experiments against current run.</td>
<td>Select Experiment Select previous experiments to cue up experiment values and q/h/f/d text from previous experiments. Team Data Table Shows initial starting values of experimental variables based on team data. Experiment Adjust experiment sliders to test different values in the sim by dragging the slider.</td>
</tr>
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Additional Suicide Prevention Resources

https://www.mentalhealth.va.gov/suicide_prevention/resources.asp

Twenty helpful resources are available at the link for:

- Veterans and their Loved Ones
- Community Providers and Community Members
- VA Providers and Teams