Modeling to Learn

Test. Don't guess.

Session 2: Introducing Measurement Based Stepped Care for Suicide Prevention

🐦 **@LZPhD**

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Created by

VA Team PSD

1

Team
Participatory System Dynamics

mtl.how/team

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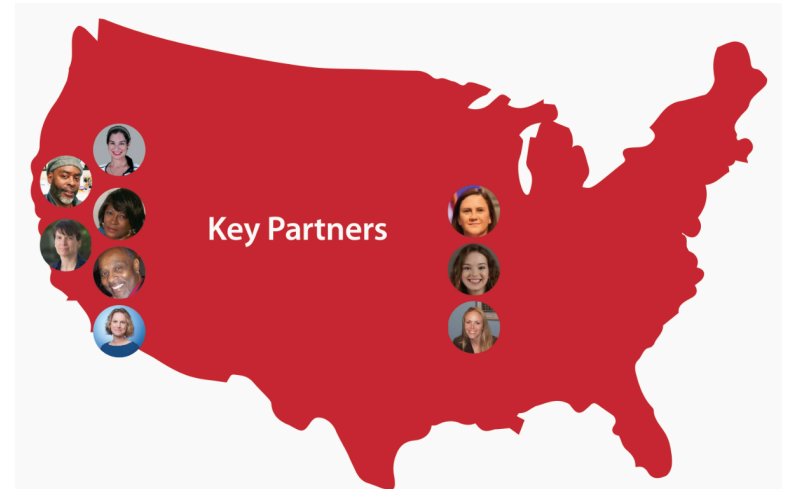Tom Rust, PhD, Andrew Holbrook, BS, Liz May, BS

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Team
Participatory System Dynamics

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Facilitators

Key Partners

Workgroup Leads

Co-Investigators

This is session 2 of a four part series.

Date	Title	Focus
May 2, 2019 12noon Pacific/3PM Eastern	Introducing *Modeling to Learn* Helping Teams Find Local Improvements to Meet Veterans' Needs	**mtl** mtl.how
May 9, 2019 12noon Pacific/3PM Eastern	Introducing Measurement Based Stepped Care for Suicide Prevention	**mtl** session 6 systems story **mtl** session 7 base case
May 16, 2019 12noon Pacific/3PM Eastern	Comparing Measurement Based Care and Stepped Care for Suicide Prevention	**mtl** session 8 dynamic hypothesis **mtl** session 9 compare alternatives
May 22, 2019 12noon Pacific/3PM Eastern	Putting it Together: Combining Measurement Based Stepped Care for Suicide Prevention	**mtl** session 10 systems thinking

Modeling to Learn

Test. Don't guess.

mtl.how/quick_overview

VA Team PSD

Modeling to Learn

Test. Don't guess.

Virtual Facilitation
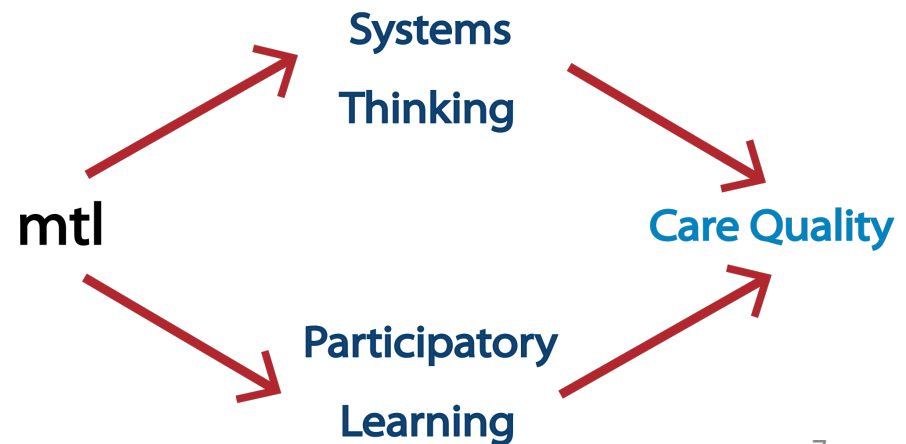
Transparent Local Data

Real-time Simulation

1. Equitable access to resources.
2. Mutual learning.
3. Shared decision-making.

VA Team 6 PSD

Poll 1: 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

mtl → Systems Thinking → Care Quality

mtl → Participatory Learning → Care Quality

This is session 2 of a four part series.

Date	Title	Focus
May 9, 2019 12noon Pacific/3PM Eastern	Introducing Measurement Based Stepped Care for Suicide Prevention	**mtl** session 6 systems story

Session 2 <u>Systems Story</u> Learning Objectives

1. Describe the systems story of this team's suicide prevention priority.
2. Test out your thinking about causes of this team's challenges using the model diagram.
3. Apply clinical expertise to develop a question for team learning using simulation.

✓CE Accredited

[Registration](https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming.cfm)

https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming.cfm

This is session 2 of a four part series.

| Date	Title	Focus
May 9, 2019 12noon Pacific/3PM Eastern	Introducing Measurement Based Stepped Care for Suicide Prevention	**mtl** session 7 base case

Session 2 Base Case Learning Objectives

4. Describe the base case of no new decisions in this team.
5. Test out your thinking about what is likely to cause oscillation in team trends.
6. Apply systems thinking to develop a hypothesis about this team's suicide prevention priority.

Registration

https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming.cfm

Suicide Prevention - How to manage high risk patients.
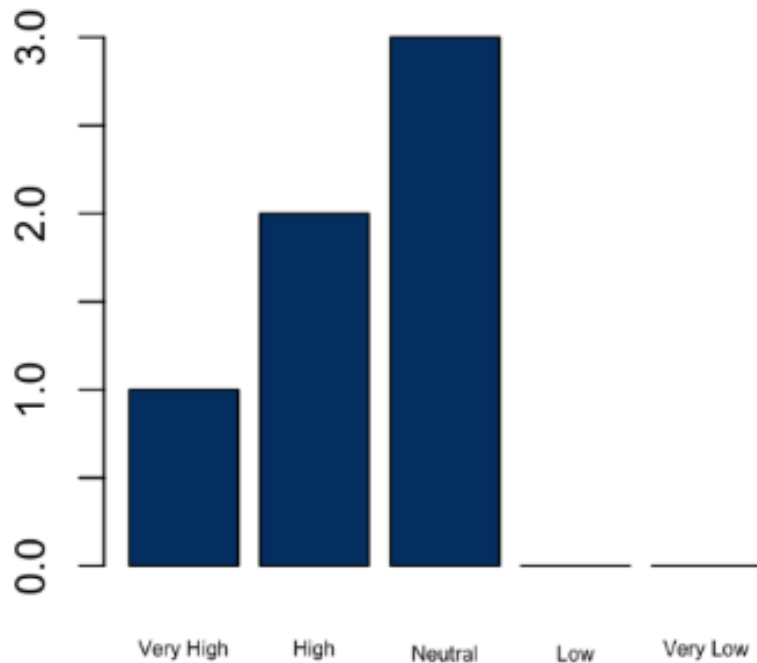
Stepped Care - How to decide when to step patients up to specialty care.
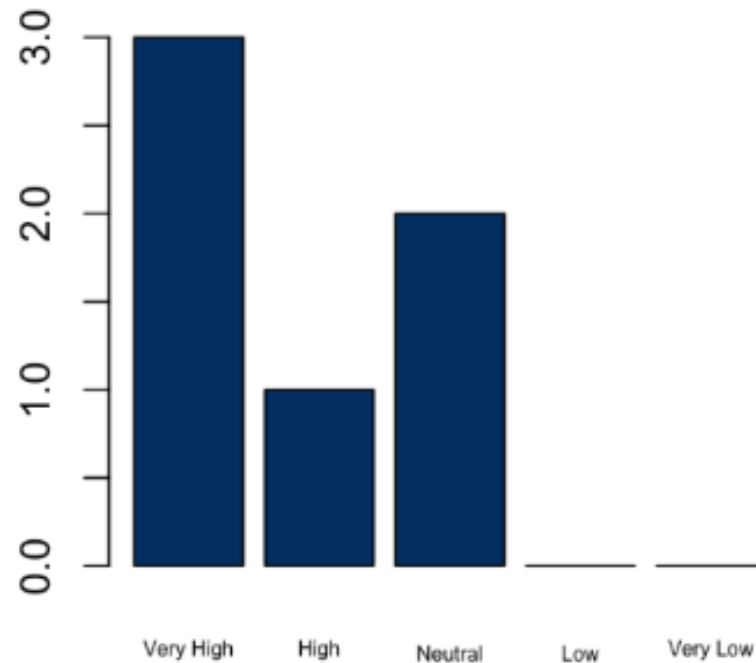
Session

Join Current Session ◉
Suicide Prevention -- Week 104
583ge_wl_bhip2_2019_04_14.xlsx

Play

Start a New Session
Care Coordination ○
Medication Management ○
Psychotherapy ○
Aggregate ○
Suicide Prevention ○

mtl
mtl.how/menu

This team has is managing care across general and specialty mental health settings.

mtl

Lindsey Zimmerman ✓ HOME 🏃 PLAY 💬 CHAT ? HELP → LOGOFF *Lindsey Zimmerman*

Outputs and Text ▼

⚙ Experiments ▲

Select Previous Experiment to Set Experimental Values to a Former State ▼ | Select Experiment | **Go**

❶ Team Data Table ▲

Measurement Based Care

	GMH	PC/PCMHI	SMH
New Care Episode Start Rate (mean)(pts/wk)	8.54	0.67	0.17
New Patient Wait Time (median) (wks)	2	5	4
High Risk Patient Flag Rates (mean)(pts/wk)	0.06	0.04	0.06
Time to Unflag High Risk patients (median)(wks)	24.14	43.57	22
Engagement Time before Ending (median)(wks)	81.43	204.86	68.64
Symptom Proportions (High Symptom %)	0.11	0.69	0.15
Time to Improve (wks)	43	32	28

Stepped Care

This team has is managing care across general and specialty mental health settings.

Stepped Care			
	Time from Flag to Step up/down	Engagement Time before Step up/down (median)(wks)	Wait Times (median)(wks)
GMH to PC/PCMHI	N/A	58.43	34.86
GMH to SMH	N/A	113	45.57
GMH to Residential	12	43	N/A
PC/PCMHI to SMH	N/A	43	21.43
PC/PCMHI to GMH	85.71	32	17.14
PC/PCMHI to Residential	34	64	N/A
SMH to GMH	0	33	71.29
SMH to PC/PCMHI	N/A	132	42.14
SMH to Residential	64.29	67	N/A

Team data estimation. Click on the "i"

Team Data

This model uses team data from the VA's Corporate Data Warehouse (CDW). It is generated by staff using VA enterprise systems, such as by a provider selecting CPT codes in CPRS. To limit data to the team, a dynamic query using clinics/grids is built from user selections. To estimate patient engagement patterns, the query generates a patient cohort (all patients who met with the team 6 to 18 months ago) and pulls all associated visits with the team. The model then uses the cohort data to make calculations.

Table Variable	Data and Estimation Description
New Care Episode Start Rate (pts/wk)	An estimate of the new care episode start rate, comprising patients starting a new episode of care after receiving no care in that setting within the last nine months. (pts/wk)
New Patient Wait Time (median) (wks)	An estimate of wait time for new patients with this team, capturing only the time gap between their first visit being scheduled and that visit being completed.
High Risk Patients Flag Rates (pts/wk)	An estimate of the rate at which patients are assigned a high risk for suicide flag while in treatment in each location. (pts/wk)
Time to Unflag High Risk Patients (wks)	Once a patient is assigned the high risk for suicide flag, this is the median number of weeks before the flag is removed. Or, if the patient already had the flag when they entered the location, it is the median number of weeks from when they first engaged with the team to the flag removal. (wks)

Team challenges related to suicide prevention.
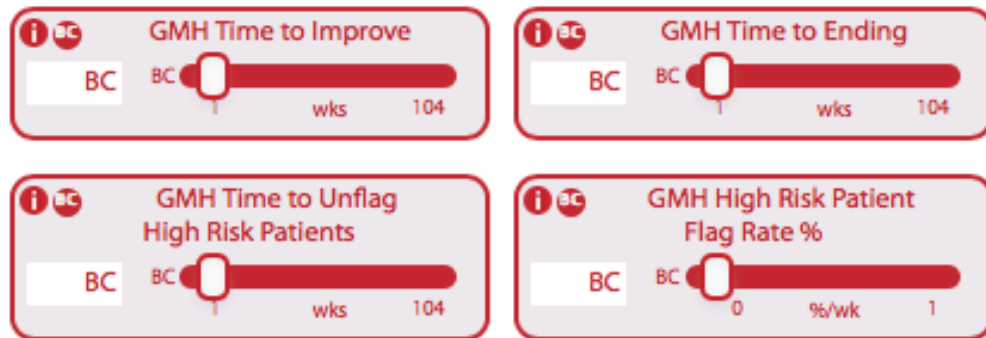
Team Question: How can we get our high symptom patients to the right care at the right time?

Outputs and Text

583ge_wl_bhip_2019_04_14.xlsx

Table Save Copy Export

Experiment Timeline

Today   1 Year   2 Years

Advance
End ▼ Quarters
Reset Run

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.

How can we get our high symptom patients into the right care at the right time? Specifically, stepping more of our high symptom patients up to PTSD clinical team and Addiction Treatment Services team?

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?

Poll 2: We have struggled with…

Please select all that apply.

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
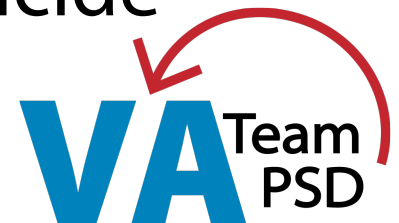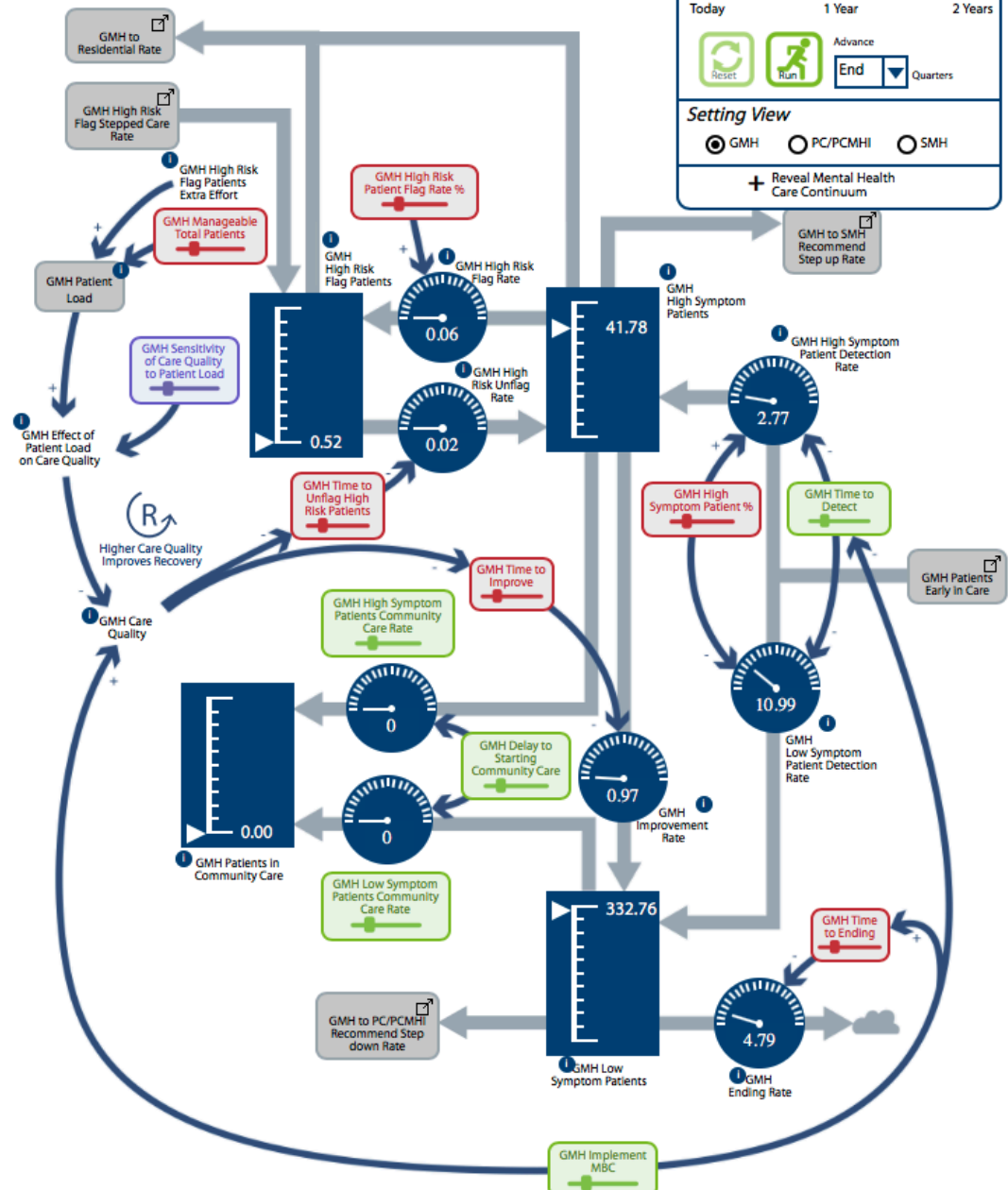
Systems Story: Higher care quality improves recovery (zoomed in)

General Mental Health Stepped Care:
Higher care quality improves recovery (zoomed out)
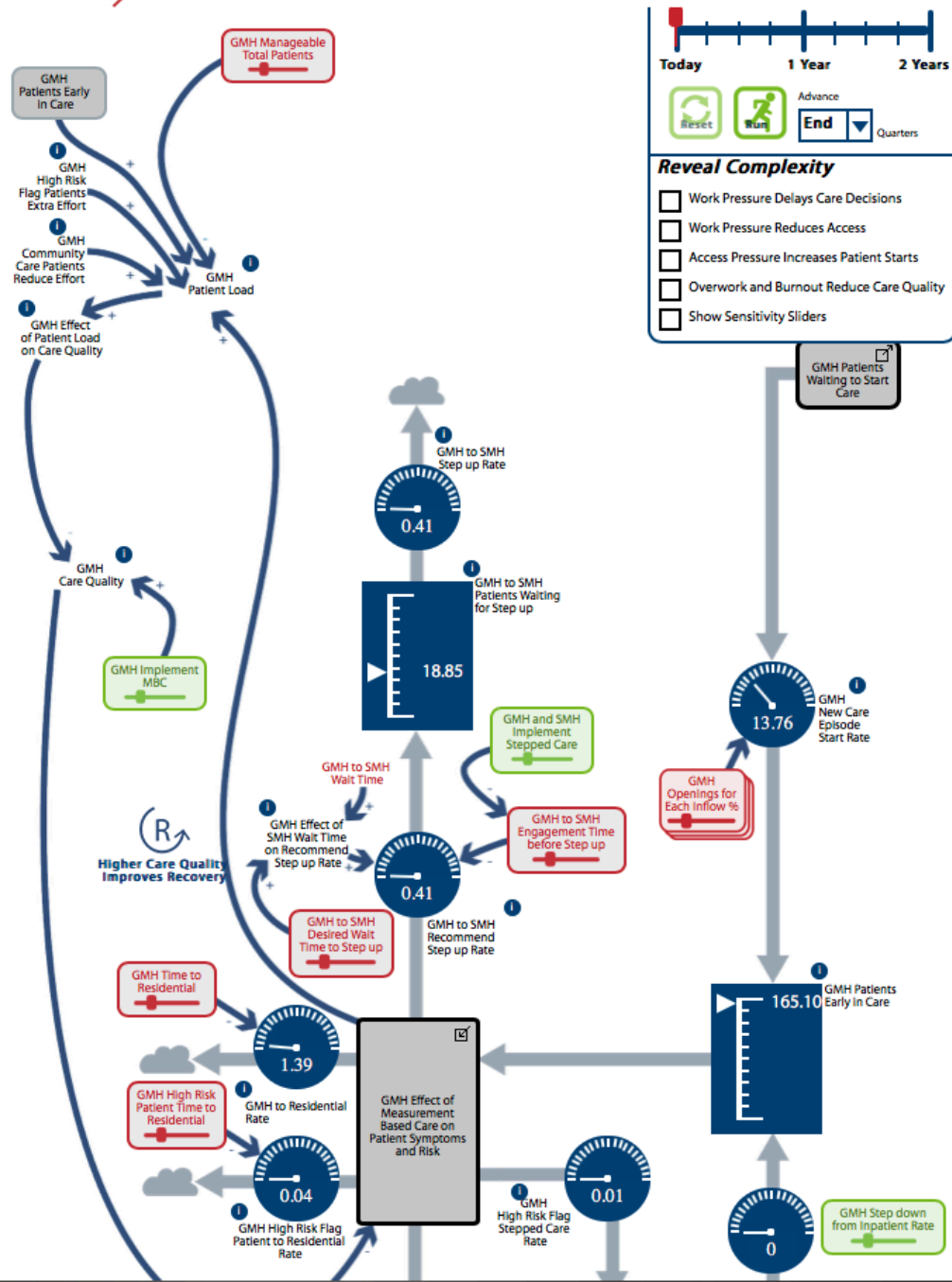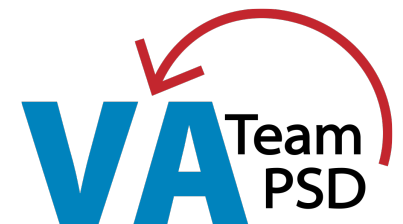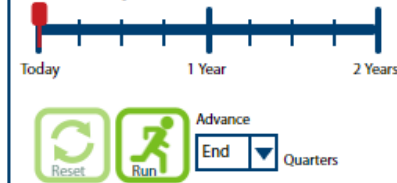
MTL resources help teams look back two years and look ahead two years.

Data UI
What is.
2 years

Today

Sim UI
What if?
2 years

Poll 3:
If we make no new decisions, then…

Please select all that apply.

A. Care quality will stay the same

B. Care quality will get worse

C. Care quality will get better

D. Some care will get better and some worse

E. I don't know

Hypothesis: If we make no new decisions in our team, then…

1. we won't get our patients to specialty care they need
2. our patient load will increase
3. we won't help as many patients toward recovery.

Outputs and Text
583ge_wl_bhip_2019_04_14.xlsx

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.

> How can we get our high symptom patients into the right care at the right time? Specifically, stepping more of our high symptom patients up to PTSD clinical team and Addiction Treatment Services team?

Table Save Copy Export

Experiment Timeline

Today   1 Year   2 Years

Reset Run   Advance   End   Quarters

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

> If we make no new decisions in our team, then we won't be able to get our patients in the specialty programs they need, our patient load will increase, and we won't move as many patients into recovery as we would like.

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?

What if we made no new decisions?

Basecase
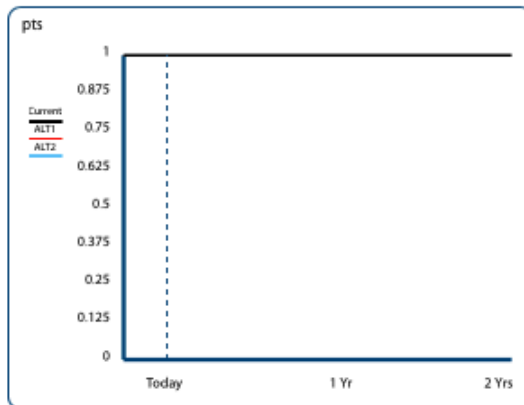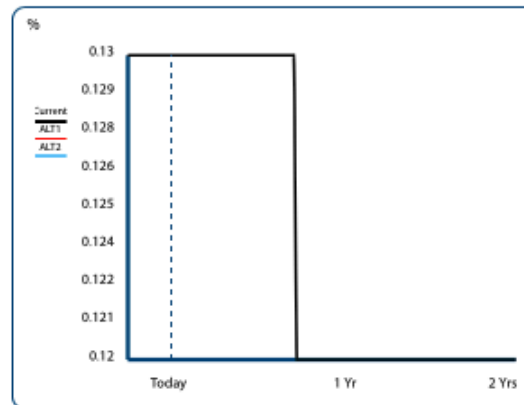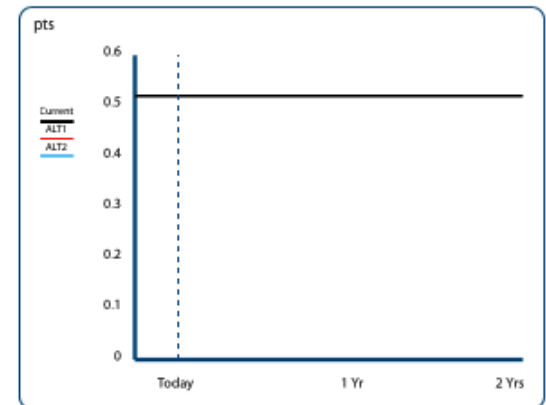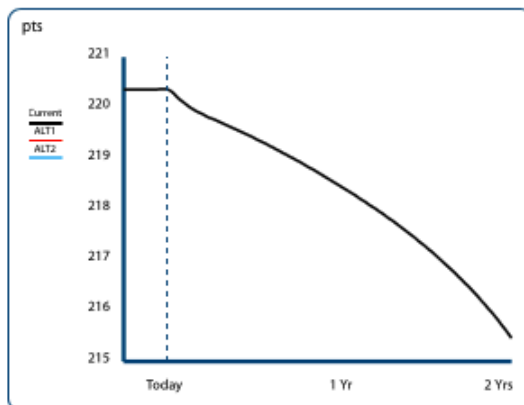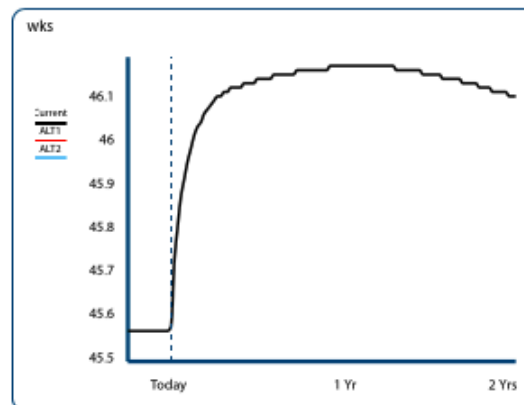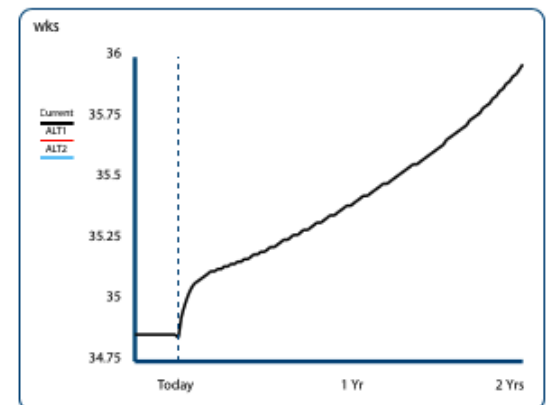
Mental Health Care Continuum (zoomed out again)
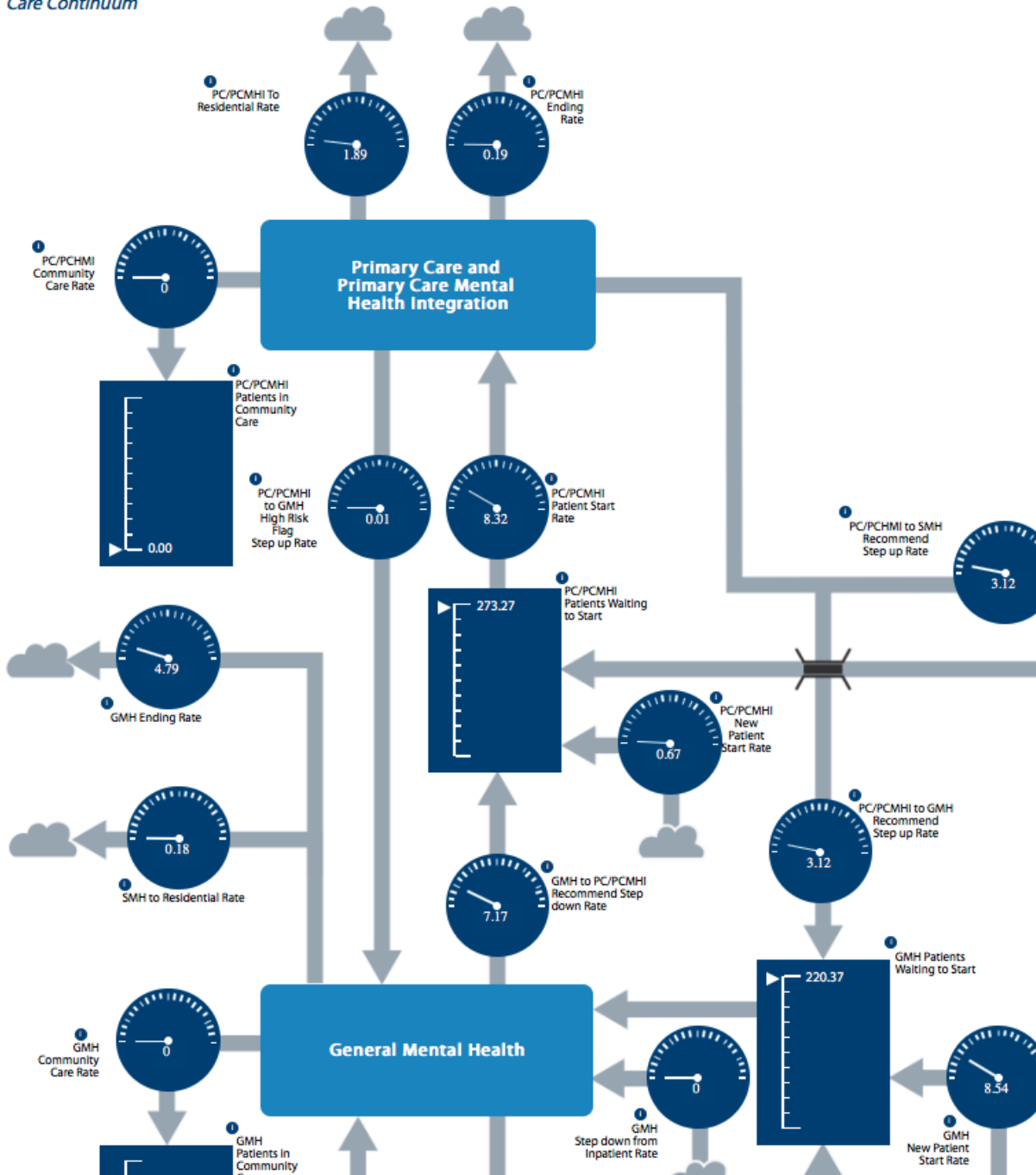
Findings: If we make no new decisions, then…

      1. care quality doesn't improve

      2. wait times to transition patients to specialty care stay the same

      3. we won't help as many patients toward recovery.

Decisions:

We will experiemnt to see if implementing measurement based care produces a virtuous cycle of moving more of our veterans into recovery.

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.

How can we get our high symptom patients into the right care at the right time? Specifically, stepping more of our high symptom patients up to PTSD clinical team and Addiction Treatment Services team?

Table   Save   Copy   Export

Experiment Timeline

Today   1 Year   2 Years

Reset   Run   Advance   End   Quarters

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

If we make no new decisions in our team, then we won't be able to get our patients in the specialty programs they need, our patient load will increase, and we won't move as many patients into recovery as we would like.

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

Care quality does not improve (wait time to step up changes by ~1%). However, if our manageable patient load stays the same over the next two years as the past two years, we shouldn't expect things to get worse, either.

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

We will next experiment to see if implementing Measurement Based Care will produce a virtuous cycle of moving more of our Veterans into recovery.
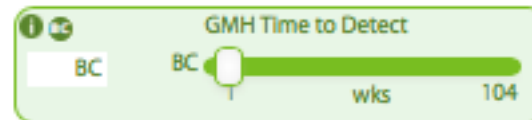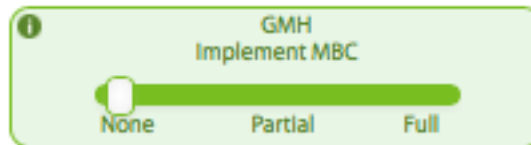
Team challenges related to care quality.
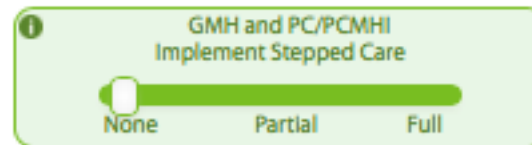
1. What if we implemented <u>measurement-based care</u> in our team?

2. What if we implemented <u>stepped care</u> between our clinic and PC/PCMHI?

Next week for session 3:

Date	Title	Focus
May 16, 2019 12noon Pacific/3PM Eastern	Comparing Measurement Based Care and Stepped Care for Suicide Prevention	**mtl** session 8 dynamic hypothesis **mtl** session 9 compare alternatives

We compare two questions for our teams:

1. What if we implemented <u>measurement-based care</u> in our team?

2. What if we implemented <u>stepped care </u>between our clinic and PC/PCMHI?

Registration
https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming.cfm

Modeling to Learn

You can review data at *within VA* at mtl.how/data.

mtl.how/data

You can review data at *within VA* at mtl.how/data.
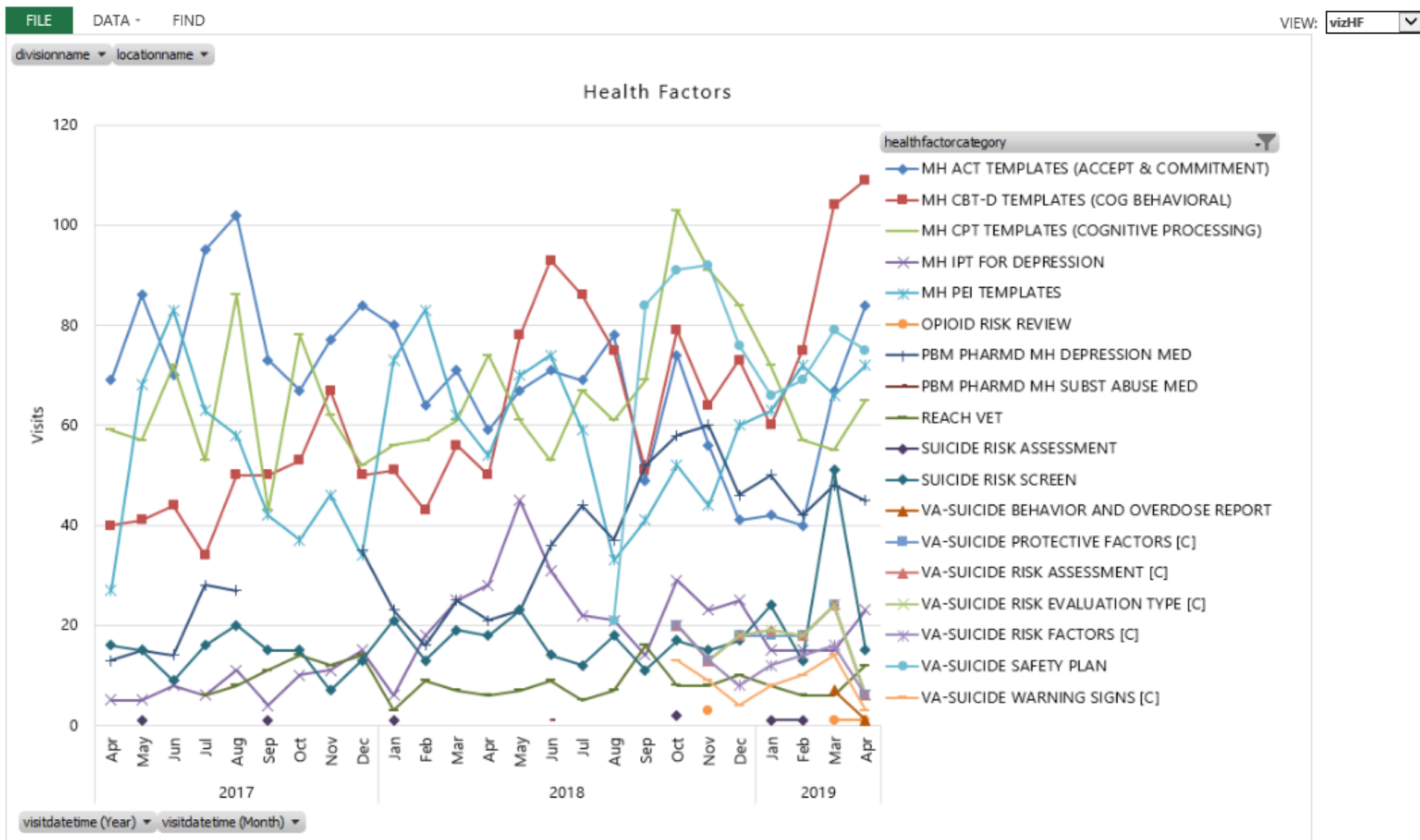
You can review data at *within VA* at mtl.how/data.
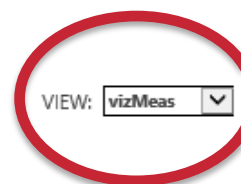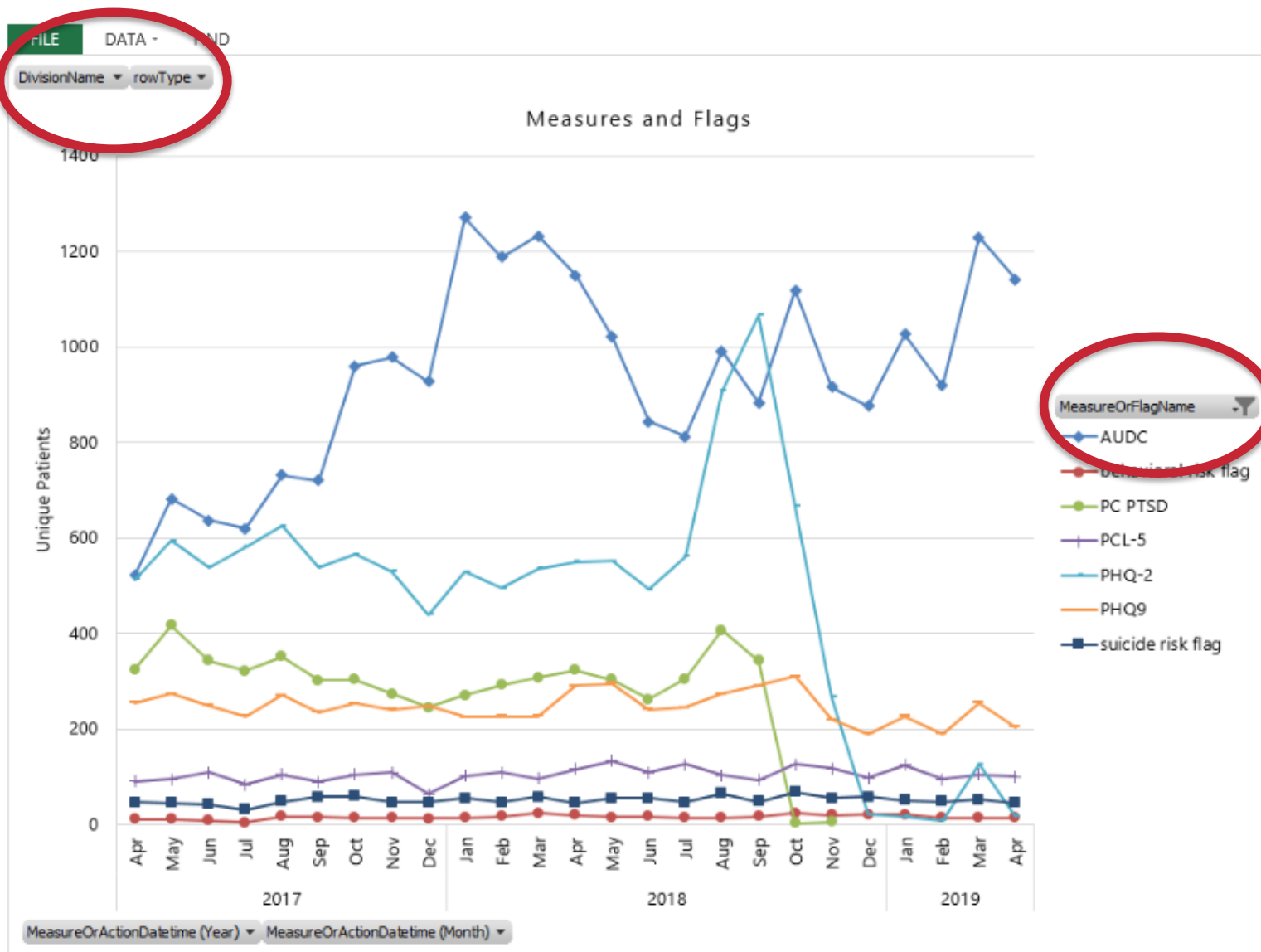
You can review *Modeling to Learn* session guides at
[mtl.how](mtl.how)

mtl.how

Session guides,
links, and
cheatsheets.

mtl1.7_models	Update README.md
mtl1.8_models	Update README.md
session01	Update README.md
session02	Update mtl_session02_see.md
session03	Update mtl_session03_see.md
session04	Add files via upload
session05	Update mtl_session05_see.md
session06	Update mtl_session06_see.md
session07	Update mtl_session07_see.md
session08	Update mtl_session08_see.md
session09	Update mtl_session09_see.md
session10	Update mtl_session10_see.md
session11	Update mtl_session11_see.md
session12	Add files via upload
LICENSE	Initial commit
README.md	Update README.md

You can self-register and use the demonstration simulation to explore the suicide prevention module.

mtl.how/demo

Modeling to Learn
Test. Don't guess.

Username

Password

Internet Explorer is not supported by *Modeling To Learn* For best results,please use Chrome, Edge, Firefox, or Safari

Login

Version 1.8 (DEMO)

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

Help is available in top navigation bar.

mtl

Lindsey Zimmerman   ✓ HOME   🏃 PLAY   💬 CHAT   ❓HELP   → LOGOFF

Lindsey Zimmerman

🏃 PLAY

Model Diagram	Experiment Timeline	Outputs	Experiment
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.	Use reveal complexities to look at balancing and reinforcing feedback systems stories. ↻R ↻B 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.	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 ⬌ Expand **Results Dashboard** View trends over time for ≤6 variables. Compare ≤2 experiments against current run.	**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. ❶ Appointment Supply 000 BC ▬ 0 Appts/Week 200

Start a new Suicide Prevention Session.

1. Review the team data and "i" information.
2. Zoom in/out to review system stories and complexity reveals for each care setting.
3. Run, examine the output, and save a base case of no new decisions.

*Once registered go to:
mtl.how/demo_login

mtl.how/demo

Team
Participatory System Dynamics

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

MTL Resources and Help

mtl.how

mtl.how/demo

Session guides, links, and cheatsheets.

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

@LZPhD

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https://www.hsrd.research.va.gov/cyberseminars/catalog-upcoming.cfm

Session 2 Bibliography

- **Barlas, Y.** (1996). Formal aspects of model validity and validation in system dynamics. *System Dynamics Review*, *12*(3), 183–210.

- **Hovmand, P. S.** (2014). *Community Based System Dynamics*. Retrieved from http://link.springer.com/10.1007/978-1-4614-8763-0

- **Sterman, J. D.** (2006). Learning from evidence in a complex world. *American Journal of Public Health*, *96*(3), 505–514.

- **Zimmerman, L., Lounsbury, D. W., Rosen, C. S., Kimerling, R., Trafton, J. A., & Lindley, S. E.** (2016). Participatory System Dynamics Modeling: Increasing Stakeholder Engagement and Precision to Improve Implementation Planning in Systems. *Administration and Policy in Mental Health and Mental Health Services Research*, *43*(6), 834–849. https://doi.org/10.1007/s10488-016-0754-1

mtl.how/refs

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