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REACH VET

*Recovery Engagement and
Coordination for Health –
Veterans Enhanced Treatment*

Predictive Analytics for Suicide Prevention

Program Overview

Fall 2018

REACH VET is...

- Supported by senior VA leadership as part of establishing **suicide prevention as the top clinical priority**

- A **predictive model** to identify Veterans who may **clinically** benefit from **enhanced** care, **outreach**, and **assessment of risk**

- A **supplement to** current clinical strategies to identify at-risk Veterans

- A complement to other VHA initiatives designed to **identify new opportunities** to enhance care for Veterans

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REACH VET: What are they at risk for?

- Suicide and suicide attempts
- Non-suicide external-cause mortality
    - Accidents, injuries, overdoses, violence
- Non-suicide all-cause mortality
- Mental health hospitalization
- Medical/surgical/rehabilitation hospitalization

Not all identified Veterans will have reported or experienced suicidal ideation or behavior.

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Background: The Predictive Model

- Developed by VA and NIMH researchers
- Includes clinical and administrative data for each Veteran who uses VHA services

Calculated Risk

Outcome	Top .1% Top Risk
Suicide (one month)	33x
Suicide (one year)	15x
Suicide attempt (one year)	81x

As compared to overall VHA population

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Preventing Other Adverse Outcomes

Outcome	Top .1% Top Risk
Other external-cause mortality	8.8x
Other all-cause mortality	1.5x
Mental health inpatient bed days of care	66.0x
Medical/Surgical/Rehab inpatient bed days of care	6.3x

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Model Predictors

- Demographics
- Prior suicide attempts
- Diagnoses
- VHA use
- Medications
- Interactions

McCarthy, J. F., R. M. Bossarte, et al. (2015). "Predictive Modeling and Concentration of the Risk of Suicide: Implications for Preventive Interventions in the US Department of Veterans Affairs." American Journal of Public Health 105(9): 1935-1942.

September 2015, Vol 105, No. 9 | American Journal of Public Health

McCarthy et al. | Peer Reviewed | Research and Practice | 1935

Variables from VA machine learning model

Demographics

Age >= 80
Male
Currently married
Region (West)
Race/ethnicity (White)
          (Non-white)
Service Connected (SC) Disability Status
SC > 30%
SC > 70%

Prior Suicide Attempts

Any suicide attempt in prior   1 month
                in prior   6 months
                in prior 18 months

Diagnoses

Arthritis (prior 12 months)
       (prior 24 months)
Bipolar I (prior 24 months)
Head and neck cancer (prior 12 months)
         (prior 24 months)
Chronic pain (prior 24 months)
Depression (prior 12 months)
       (prior 24 months)
Diabetes mellitus (prior 12 months)
Systemic lupus erythematosus (prior 24 months)
Substance Use Disorder (prior 24 months)
Homelessness or services (prior 24 months)

VHA utilization

Emergency Dept visit (prior month)
              (prior 2 months)
Psychiatric Discharge (prior month)
            (prior   6 months)
            (prior 12 months)
            (prior 24 months)
Any mental health (MH) tx (prior 12 months)
            (prior 24 months)
Days of Use (0-30) in the 13th month prior
          in the 7th month prior
Emergency Dept visits (prior month)
            (prior 24 months)
First Use in Prior 5 Years was in the Prior Year
Days of Inpatient MH (0-30) in 7th month prior
                Squared
Days of Outpatient (0-30) in   7th month prior
            in   8th month prior
            in 15th month prior
            in 23rd month prior
Days with outpt MH use in prior month, squared

Medications

Alprazolam (prior 24 months)
Antidepressant (prior 24 months)
Antipsychotic (prior 12 months)
Clonazepam (prior 12 months)
         (prior 24 months)
Lorazepam (prior 12 months)
Mirtazapine (prior 12 months)
         (prior 24 months)
Mood stabilizers (prior 12 months)
Opioids (prior 12 months)
Sedatives or anxiolytics (prior 12 months)
            (prior 24 months)
Statins (prior 12 months)
Zolpidem (prior 24 months)

Interactions

- Between Other anxiety disorder (prior 24 months) and Personality disorder (prior 24 months)
- Interaction between Divorced and Male
- Interaction between Widowed and Male

VHA users: **With VHA outpatient or inpatient encounters in prior 24 months** — **Date of assessment**

Prior 24 months   Prior 12 months

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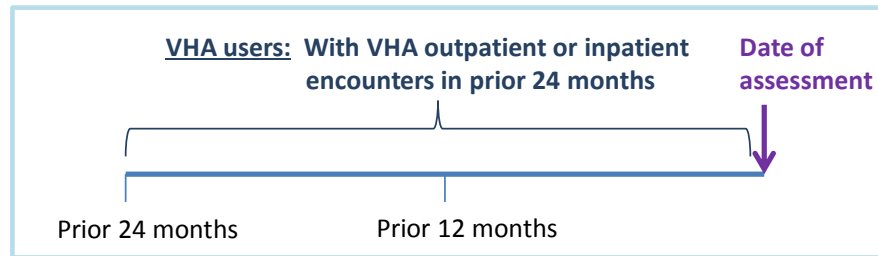
REACH VET Steps

REACH VET Coordinators

1. Access the dashboard.
2. Identify appropriate provider.
3. Communicate with identified provider.
4. Document in EMR using template.

Mental Health and Primary Care Providers

1. Receive notification about a high-risk Veteran.
2. Re-evaluate care.
3. Consider treatment enhancement strategies.
4. Reach out to the Veteran.
5. Document in EMR using template.

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Re-Evaluation of Care

- Clinician reviews medical record to re-evaluate the care the Veteran has been provided.

- Care should be evaluated in a comprehensive manner and not limited to that provider's services.
  - Review screening evaluations and rescreen as needed.
  - Review diagnoses, current problems, and treatment plans.
  - Ensure patients have access to all services requested and needed and are receiving evidence-based care.

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Care Enhancement Strategies

- Considers additional treatment enhancement strategies
  - Enhanced communication (e.g., via caring communications)
  - Safety planning
  - Increased monitoring of stressful life events
  - Interventions designed to enhance coping strategies

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Provider to Veteran Outreach

- Provides information about REACH VET

- Informs the Veteran that s/he have been identified as a patient who may benefit from enhanced care

- Checks in regarding current symptoms and stressors

- As is clinically indicated, collaboratively discusses changes to the treatment plan and/or care enhancement strategies

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National Implementation

- Fully implemented in February 2017

- Identifying **~6,700 Veterans per month**

- Identified more than **30,000 unique Veterans in the first year**

- REACH VET **implementation team** working to support program uptake
  - CPRS templates launched to decrease administrative burden

- REACH VET **facilitation provided to 7 VISNs/28 sites**
  - Conduct site visit, work collaboratively to create an implementation plan, and provide six months of virtual support

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Technical Assistance

- Available nationally via email or phone

- Majority of contacts are with REACH VET Coordinators

- Develop educational tools and modified the program based on user feedback
  - Creation of national note templates
  - Dashboard user guides
  - Best practices document
  - Training video on how to talk to a patient about REACH VET

- These changes are disseminated to the field via a monthly national REACH VET call

- REACH VET intranet site houses all training and educational resources

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REACH VET Dashboard & Note Templates

Provider enters note using national note template → Health factors go into CDW (Corporate Data Warehouse) → Dashboard team pulls these health factors daily → Dashboard is updated to reflect completion of tasks

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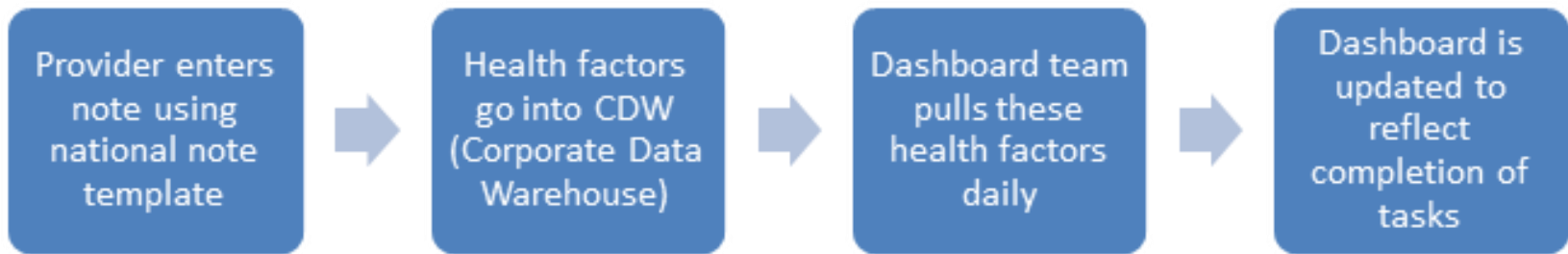
Dashboard Report

- Tracks completion of tasks nationally, by region, by facility and for each Veteran identified

- Historical and current reports

- Data reported is from the start of full implementation (i.e., February 2017)

- Quarterly data reported was pulled two weeks after the last release of each quarter
  - E.g., For the first quarter (Feb-Apr 2017), data reported is for two weeks after the April 2017 release

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Monthly Metrics

		Week 2					
Facility	Release Date	# Eligible	Assigned Coordinator	Provider Assigned	Care Evaluation Performed	Attempted Outreach	Successful Outreach
National	8/8/2018	6600	97.6%	89.6%	86.0%	77.3%	75.7%
	5/9/2018	6603	97.8%	87.7%	84.0%	80.7%	70.1%
	2/14/2018	6693	94.8%	80.8%	77.0%	67.8%	75.4%
	11/13/2017	6667	91.1%	75.9%	71.4%	63.8%	73.8%
	8/9/2017	6774	81.5%	67.2%	63.6%	58.2%	75.8%

Met or exceeded 80%

Randomized Program Evaluation

- The REACH VET randomized program evaluation is funded by the VA HSR&D Service (PI Landes, SDR 16-195)

- Using a hybrid effectiveness-implementation design, we are evaluating the impact of REACH VET on patient outcomes and the impact of facilitation on implementation outcomes

  - SMITREC is leading the effectiveness evaluation
  - Little Rock is leading the implementation evaluation

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Initial Effectiveness Evaluation

- February 2018: One year of implementation

- Initial implementation findings:
  - Looked at six-month outcomes for patients identified March – May 2017
  - In comparison to the control groups, patients exhibited:
    - More health care appointments
    - More mental health appointments
    - Decreases in the percent of missed appointments
    - Greater completion of suicide prevention safety plans
    - Less all-cause mortality
  - Overall, early findings on implementation and outcomes are positive

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What is Facilitation?

Facilitation

- A process of <u>interactive problem solving</u> and support that occurs in a context of a recognized need for improvement and a supportive <u>interpersonal relationship</u>

- Facilitation can be internal or external to a system. This interactive support process can include <u>a combination of any implementation strategies</u>, and typically bundles multiple strategies as needed

Powell et al., 2015

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Implementation Outcomes

- **Reach**: the proportion of patients identified at each facility who receive the REACH VET intervention

- **Adoption**: proportion of facilities that implement REACH VET and the proportion of mental health and primary care providers in each facility that participate

- **Implementation fidelity**: whether facilities implemented all components of the intervention as directed by the memos and the REACH VET program website

- **Cost of implementation**: document the amount of effort and time needed to offer virtual external facilitation

- **Cost of the intervention**: document the amount of effort and time needed to implement REACH VET activities

- **Organizational context:** Organizational Readiness for Change survey

- **Barriers, facilitators, experience of facilitation process:** done via qualitative interviews

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Measuring Facilitation

- Using the same methods as other Behavioral Health QUERI projects using facilitation to allow comparison across projects

- Time and activity tracking logs (Bauer et al., 2017)

- Facilitator debrief interviews
  - Includes a Key Events Template (Woodward et al., 2016)

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Where are we going?

- Program Effectiveness Evaluation

- Update REACH VET predictive model

- Continue to streamline clinical process to improve efficiency

- Share risk data with other VHA informatics platforms

- Expand use of predictive analytics for decision support through multiple pathways

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Questions and comments?

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