REACH VET and the Possible Impact on Integrated Healthcare

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REACH VET

- Based on the finding that, although suicide rates in VHA patients have decreased relative to the US adult population as a whole, they remain high
- Uses a predictive model to identify Veterans who may benefit from enhanced care, outreach, and assessment of risk
- Supplements current clinical strategies to identify at-risk Veterans
- Complements other VHA initiatives designed to identify new opportunities to enhance care for Veterans

REACH VET

- Veteran Centric: Promotes collaboration between providers and Veterans by involving Veterans in their own healthcare
- Engages Veterans early: REACH VET may decrease the likelihood that more serious conditions develop, improving Veterans' overall health and well-being
- Research indicates that various healthcare systems utilize predictive modeling to help ensure quality services, while also saving on monetary resources (e.g., less utilization of crisis or emergency services)

Model Predictors

- Demographics
- Prior Suicide Attempts
- Diagnoses
- VHA utilization
- Medications
- Interactions

RESEARCH AND PRACTICE

Predictive Modeling and Concentration of the Risk of Suicide: Implications for Preventive Interventions in the US Department of Veterans Affairs

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Objectives. The Veterans Health Administration (VHA) evaluated the use of predictive modeling to identify patients at risk for suicide and to supplement ongoing care with risk-stratified interventions.

Methods. Suicide data came from the National Death Index. Predictors were measures from VHA clinical records incorporating patient-months from October 1, 2008, to September 30, 2011, for all suicide decedents and 1% of living patients, divided randomly into development and validation samples. We used data on all patients alive on September 30, 2010, to evaluate predictions of suicide risk over 1 year.

Results. Modeling demonstrated that suicide rates were 82 and 60 times greater than the rate in the overall sample in the highest 0.01% stratum for calculated risk for the development and validation samples, respectively; 39 and 30 times greater in the highest 0.10%; 14 and 12 times greater in the highest 1.00%; and 6.3 and 5.7 times greater in the highest 5.00%.

Conclusions. Predictive modeling can identify high-risk patients who were not identified on clinical grounds. VHA is developing modeling to enhance clinical care and to guide the delivery of preventive interventions. (*Am J Public Health.* 2015;105: 1935-1942. doi:10.2105/AJPH.2015.302737)

Over the past 8 years, the Veterans Health Administration (VHA), the health system of the Department of Veterans Affairs, strengthened its mental health services and supplemented them with specific programs for suicide prevention.[1,2] However, suicide rates in VHA have been stable, without decreases that can be attributed to these enhancements.[3] The stable rates stand in contrast to increased rates in other US populations, especially middle-aged men,[4,5] and in veterans who do not use VHA.[3,6] VHA programs may have mitigated population-wide increases. Nevertheless, the finding that suicide rates in VHA remain high represents a strong call for action.

Although epidemiological research has identified an array of risk factors for suicide, effect sizes are, in general, small to moderate.[7,8] Despite considerable research on how risk factors combine or interact to affect risk, few reports offer information from multivariate models that clinicians could use in decision-making.[9–11] Two recent reports demonstrated that predictive modeling that uses information from medical and administrative records can identify patients at risk for suicide,[12,13] and predictive modeling may be more accurate than clinical evaluations.[13]

There is general agreement about domains that clinicians should consider in evaluating patients' risk of suicide.[14,15] However, obtaining the information needed requires high levels of clinical skill, including the ability to instill a sense of trust.[16] Accordingly, additional training has been recommended to ensure that a broad range of clinicians can conduct accurate assessments,[2] and research is needed to enhance the sensitivity of evaluations, improve clinical assessments, and develop psychological and biological markers.[17–20] Improvements in assessments are necessary, for example, to enable accurate identification of patients at imminent risk in the emergency department. However, improvements are not necessary prerequisites for use of predictive modeling to target preventive interventions.

In general, discussions of prevention in the field of mental health,[21] including the *2012 National Strategy for Suicide Prevention*,[2] consider 3 levels of intervention: indicated clinical services for those with symptoms or warning signs associated with high risk, selective clinical and community preventive services for groups of individuals at increased risk, and universal public health strategies directed toward entire populations. The Department of Veterans Affairs' suicide prevention strategy has focused on indicated strategies, for example, facilitating access to mental health services and related services, such as pain management, and on providing resources specifically for suicide prevention, including a crisis line integrated with clinical services.

To extend its indicated strategies, the Department of Veterans Affairs is implementing a *Clinical Practice Guideline for the Assessment and Management of Patients at Risk for Suicide*.[22] In addition, it is working to develop selective strategies. Consistent with recent calls for research to develop a taxonomy of high-risk subgroups,[23] VHA's initial approach used decision-tree analyses, considering categories derived from the electronic medical record for demographics, mental health and medical diagnoses, and service utilization. Although it was possible to identify classes of patients at specific levels of increased risk, these were distributed across many small and complex subgroups. Findings did not support use of decision-tree analyses to guide system-wide policies. Accordingly, the focus shifted to evaluating predictive modeling of clinical and administrative data from the electronic medical record for estimating levels of risk for individual patients. If this proved feasible, the next steps would be for the health care system to develop methods for informing providers about which of their patients are at high risk and for enhancing care.

Variables Included in the REACH VET 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

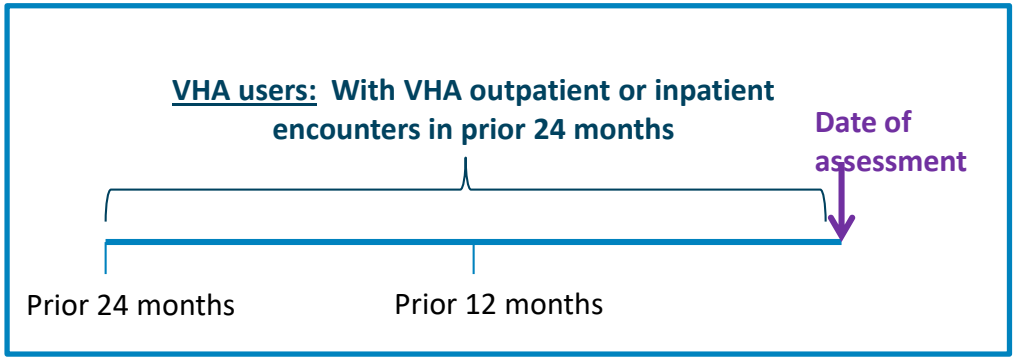
Emergency Dept visit (prior month)
(prior 2 months)
Psychiatric Discharge (prior month)
(prior 6 months)
(prior 12 months)
(prior 24 months)
Any mental health (MH) tx (prior 12 months)
(prior 24 months)
Days of Use (0-30) in the 13th month prior
in the 7th month prior
Emergency Dept visits (prior month)
(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, square

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



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.

REACH VET Initial Implementation Findings

February 2018: 1 year of full implementation

- Examined six-month outcomes for patients identified March – May 2017
- REACH VET patients exhibit:
  - More health care appointments
  - More mental health appointments
  - Decreases in the percent of missed appointments
  - Greater completion of suicide prevention safety plans
  - Fewer admissions to mental health inpatient units
  - Decreased All-Cause Mortality

Overall, early findings on implementation and outcomes are positive and the full report is expected June 2018

REACH VET and Integrated Healthcare

- Resources in health care are becoming increasingly limited, which requires greater emphasis on value (Bates et al., 2014)
- Private sector usage of predictive models have predicted future hospital admissions and costs (Billings et al. 2007), thereby improving efficiency of their care
- Predictive modeling has helped manage patients more effectively, often by having case managers work with them to improve their care. Such an approach has already resulted in cost reductions (Nelson, 2012).

REACH VET and Integrated Healthcare

- Billings et al. (2017) found that predictive modeling could identify those at-risk for hospital admission, to then allow for clinicians/care coordinators to engage with these high-risk patients.
- Combining clinical decision support with computer based patient records can decrease medical errors/practice variation, enhance patient safety, and improve patient outcome (Chen, J., Greiner, R., 1999).
- Group Health Cooperative stratifies its patients by demographic/medical features to determine which groups are high resources utilizers; this creates the opportunity to develop programs/educate these populations to prevent/ manage their conditions (Kincade, 1998).

REACH VET and Integrated Healthcare

- The REACH VET predictive model represents both medical and mental health risk variables
- REACH VET identifies those individuals with multiple comorbidities (e.g., chronic pain, cancer diagnosis, etc.) are at risk for suicide even if they have no previous mental health concerns (McCarthy, et al., 2015).
- Through a collaborative discussion with the provider, the Veteran has a voice in their treatment goals and decisions
- By being alerted to statistically at-risk patients proactively, providers are able to intervene early and help prevent the need for additional emergency services, thereby allowing for greater access to healthcare services desired by these and other patients throughout the system

REACH VET and Access to Care

- Effectiveness data shows an increase in PC and MH appts, as well as decreased missed appointments
- Engaged Veterans may increase usage of resources but then lesson over time; for instance, simply as a function of regression to the mean, one may expect to observe reductions in acute care episodes and mental health encounters (REACH VET initial findings).
- Taking into consideration effectiveness data outcomes and predictive model success in the private sector, the hope is that REACH VET will focus resources intentionally to increase quality of care and greater access to care for others

REACH VET and Future Directions

- Full effectiveness data findings for REACH VET will be released in June 2018
- Results may provide more information about the utility in integrated healthcare settings overall
- Possible outcomes may include an increase in efficiency of healthcare services, while improving access to care

SUICIDE RISK MANAGEMENT Consultation Program

FOR PROVIDERS WHO SERVE VETERANS

Why worry alone?

The Suicide Risk Management Consultation Program provides free consultation for any provider, community or VA, who serves Veterans at risk for suicide.

Common consultation topics include:

- Risk Assessment
- Conceptualization of Suicide Risk
- Lethal Means Safety Counseling
- Strategies for How to Engage Veterans at High Risk
- Best Practices for Documentation
- Provider Support after a Suicide Loss (Postvention)

#NeverWorryAlone

To initiate a consult email:

SRMconsult@va.gov

www.mirecc.va.gov/visn19/consult

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Thank You

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