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Rural Suicide Prevention: Reviewing the Evidence and Gaps

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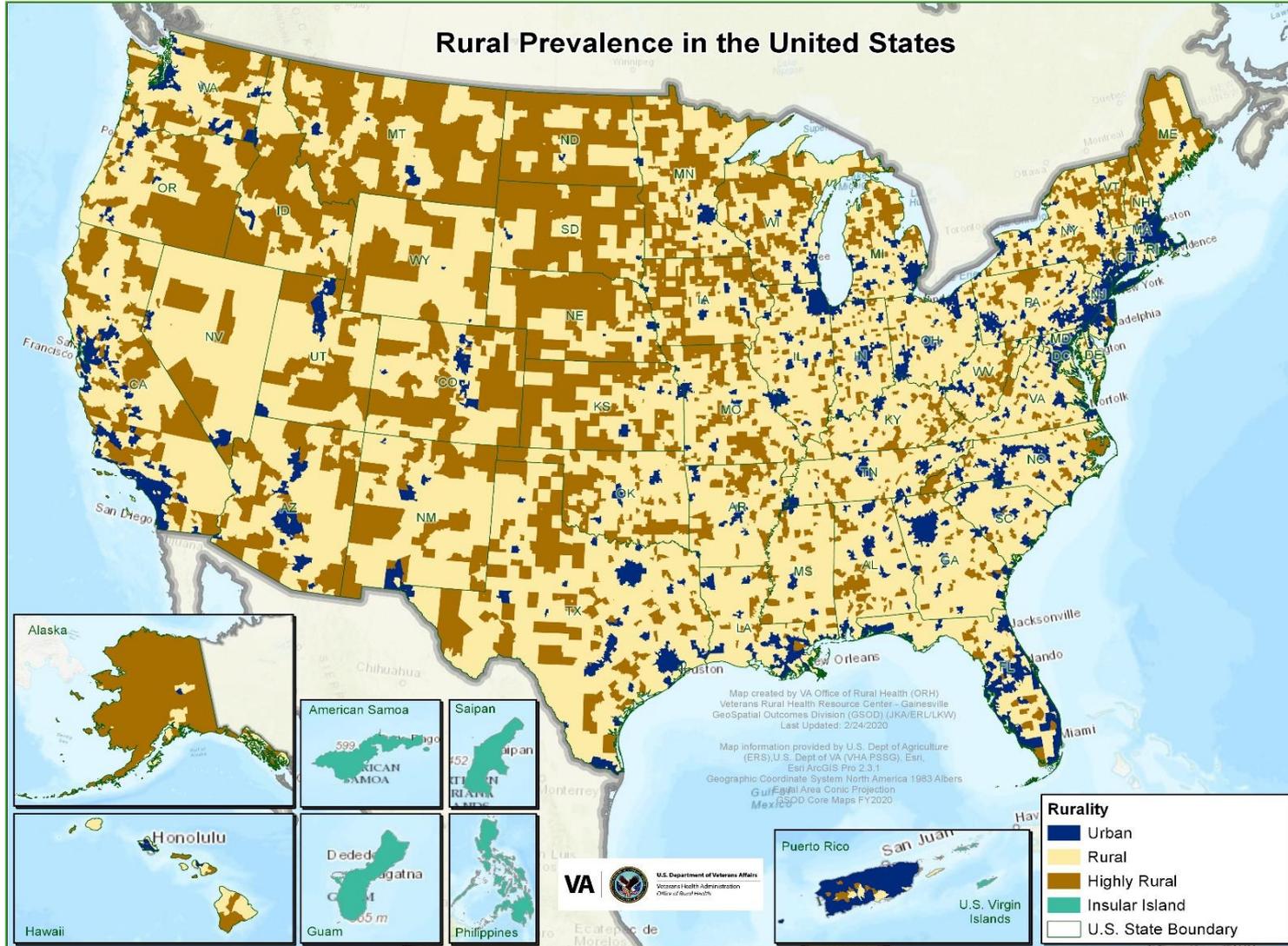


Disclaimer

This presentation is based on work supported in part by the U.S. Department of Veterans Affairs (VA), but does not necessarily represent the views of VA or the United States government.



What is rural?





What is rural?¹

Rural Stereotypes

- Open country
- Agriculture economy (or other extraction industry, e.g., mining, fishing, logging)
- White
- Uneducated

Rural Realities

- Range of rurality from frontier to large towns.
- Agriculture accounts for less than 1% of rural jobs today
 - Largest economic sectors are the health care and service industries.
- Cultural diversity of the rural U.S. is growing

Rural Veterans



RURAL VETERANS

4.7 Million
24% of All Veterans

ENROLLED RURAL VETERANS

2.7 Million
(57% of Rural Veterans)

RURAL VETERANS DEMOGRAPHICS



7% Women



49% earn less than
\$35,000/year



55% are 65 years
or older



ALL VETERANS

19.4 Million

ALL ENROLLED VETERANS

8.4 Million
(43% of All Veterans)

ALL VETERAN DEMOGRAPHICS



9% Women



45% earn less than
\$35,000/year



49% are 65 years
or older



URBAN VETERANS

14.8 Million
76% of All Veterans

ENROLLED URBAN VETERANS

5.6 Million
(38% of Urban Veterans)

URBAN VETERANS DEMOGRAPHICS



10% Women



42% earn less than
\$35,000/year



46% are 65 years
or older



Rural Life: The Challenges

Socio-Economic

- Higher percentage of individuals living below the poverty line
- Lower college graduation rates
- Higher rates of combined social and economic disadvantage
- Majority of wealth generated by rural economic activity goes to benefit urban areas and residents



Rural Life: The Challenges

Health Care

- Workforce shortages in health care and behavioral health
- Rural primary care providers report being less prepared to manage suicidal patients
- Rural residents in need are less likely to receive mental health or substance use treatment
- Rural residents are less likely to have health insurance
- National and state policies and programs are largely designed for urban settings



Rural Life: The Challenges

Health

- Rural residents are more likely to report fair to poor health
- Higher rates of significant health issues
- Greater rates of isolation

Strengths In Rural Communities



Rural

- More Veterans Per Capita
- Ingenuity, hardiness, and adaptation



Resilience

- Local access to role models and peers
- Culture of local support to survive



Social Capital

- People working in different community systems know each other



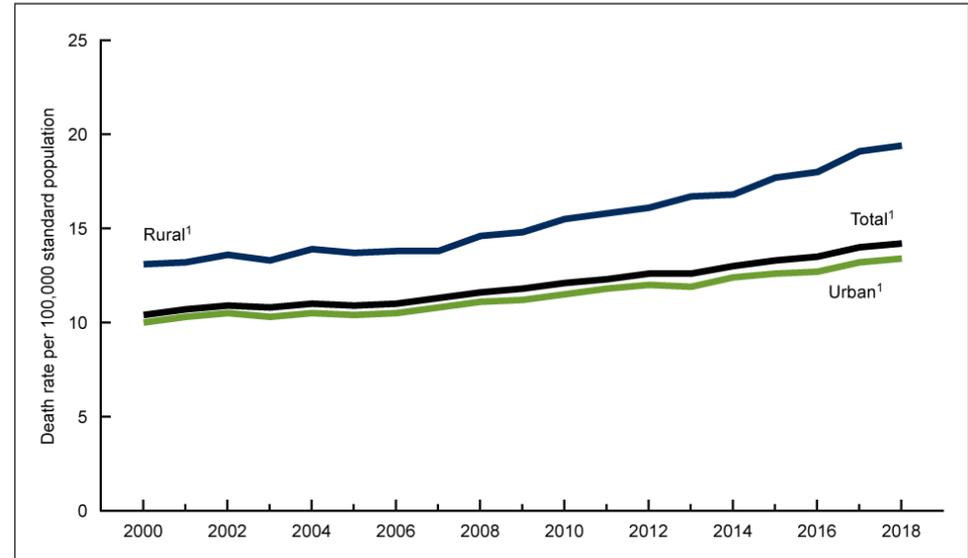
Trust

- Community Insiders Must Lead
- By Veterans and for Veterans

Rural Suicide in the U.S.²

- Rural suicide increased 48% from 200-2018
- Rural suicide rates are higher than urban (19.4 vs. 13.4 per 100,000 in 2018)
- Firearms suicide deaths are more prevalent in rural vs urban areas.

Figure 1. Age-adjusted suicide rates, by urban–rural status: United States, 2000–2018



¹Significant increasing trend from 2000 through 2018, with different rates of change over time; $p < 0.05$.

NOTES: Suicides in all ages are identified using the *International Classification of Diseases, 10th Revision* underlying cause-of-death codes U03, X60–X84, and Y87.0. Age-adjusted death rates are calculated using the direct method and the 2000 U.S. standard population. Classification of the decedent's county of residence is based on the 2013 NCHS Urban–Rural Classification Scheme for Counties, available from: https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf. Access data table for Figure 1 at: <https://www.cdc.gov/nchs/data/databriefs/db373-tables-508.pdf#1>.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

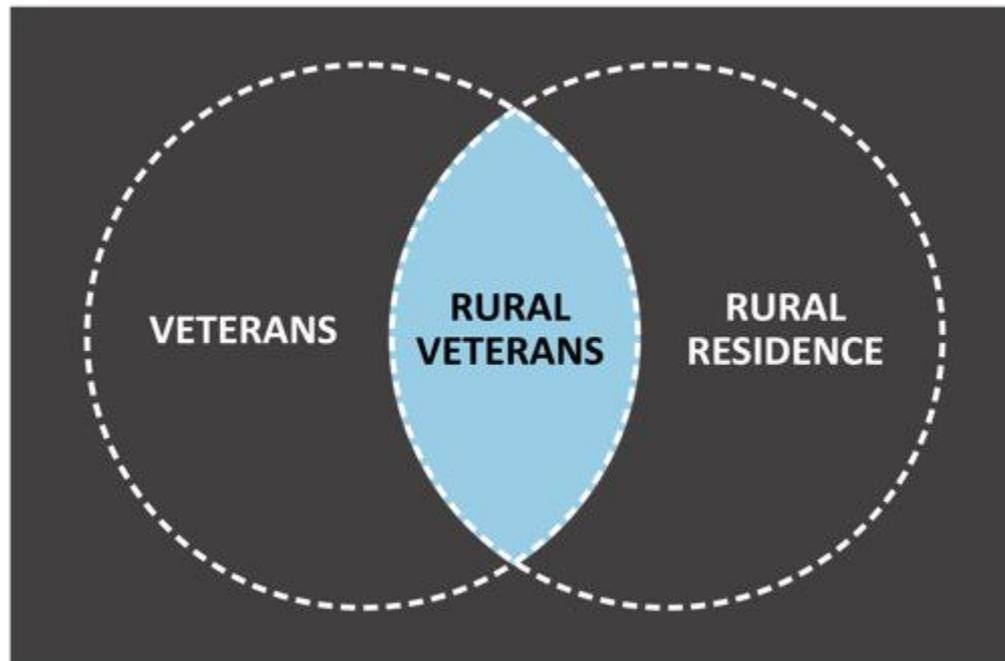


Rural Suicide Risk Factors Around the World³

- Geography
 - Access to services
 - Isolation
- Cultural factors
 - Stigma
 - Stoicism/Self-reliance
 - Male roles
- Economic
 - Farm Stress
 - Area deprivation
- Environmental
 - Lethal means
- Interpersonal factors
- Physical and Mental Health

Rural Veteran Suicide

Rural Veterans have a **20% increased risk of death by suicide** after controlling for access to care, demographic factors, and diagnoses.⁴



A Systematic Review of Factors Impacting Suicide Risk Among Rural Adults in the United States⁵

Key Questions

1. What are rural-specific risk and protective factors for adults in rural US communities?
2. What are barriers to mental health or suicide prevention treatment for adults in rural US communities?

Methods (PICOTS)

Population: US rural adults (18+ years old)

Intervention/Exposure: An intervention was not required for inclusion (e.g., surveys or administrative data were included).

Comparison: Rural-only or rural-urban comparisons.

Outcomes: All suicidal self-directed violence (SDV) including suicide and nonfatal SDV (e.g., suicide attempts and ideation); and barriers to treatment for mental health or suicide.

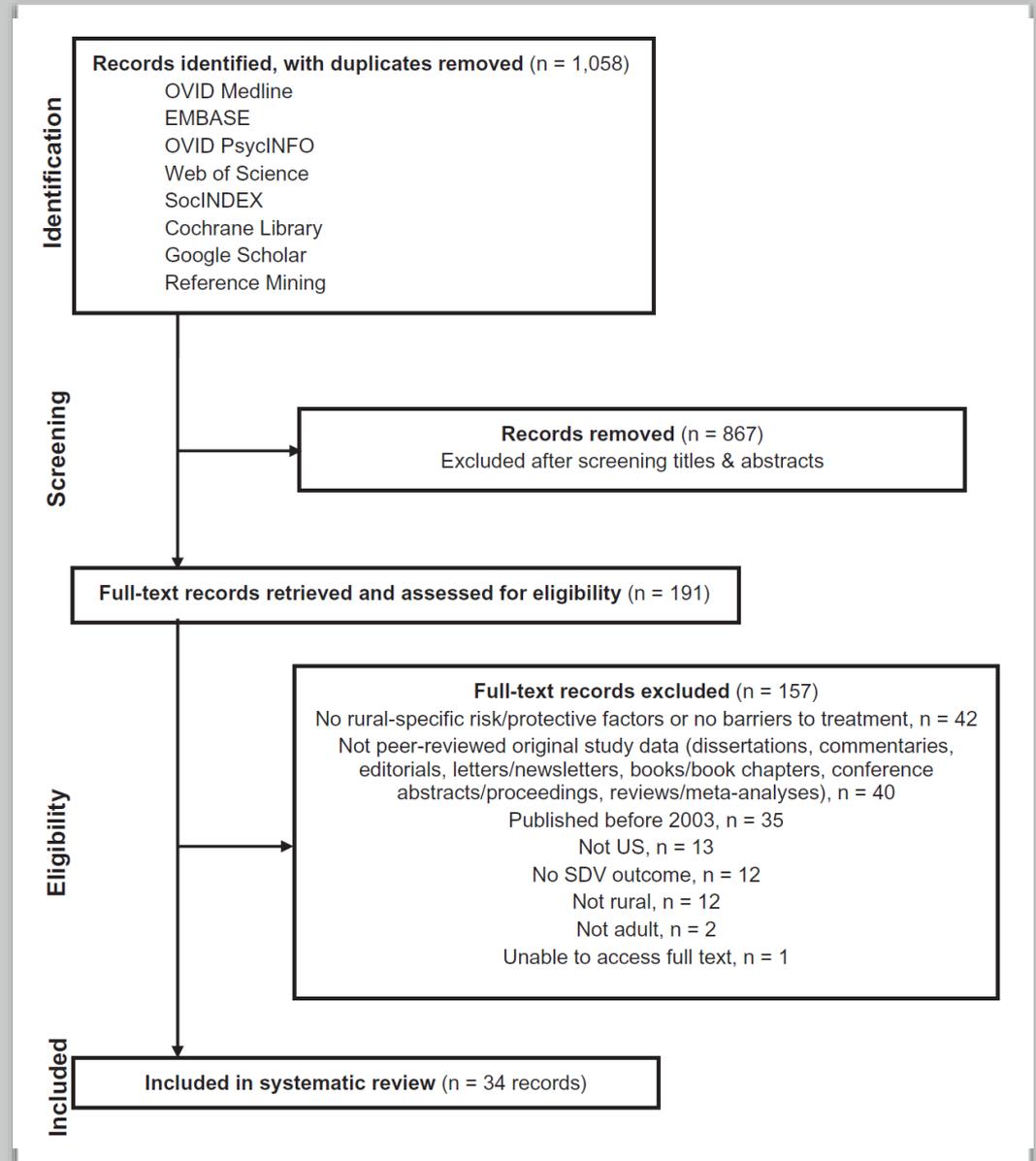
Timing/Setting: Restrictions were not based on timing, setting, or study design.

Only studies including original data and published in a peer-reviewed journal from January 1, 2003, through May 23, 2019, were included.

Methods Continued

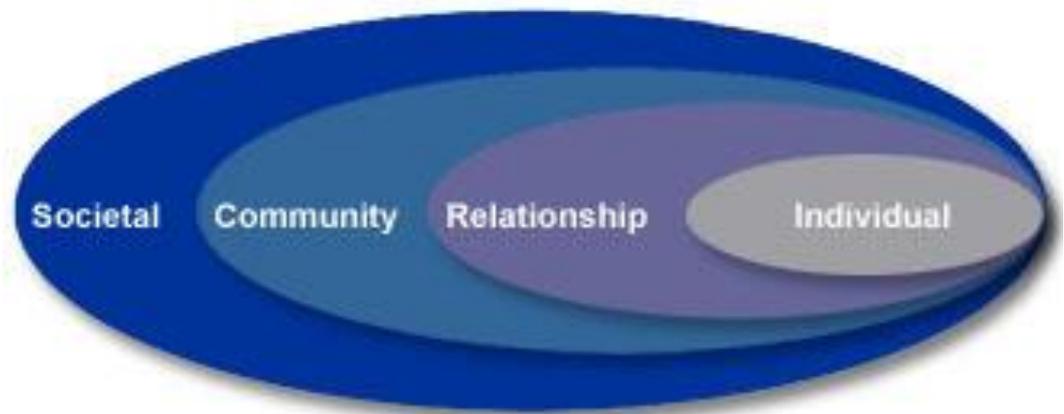
Data Sources: OVID Medline, EMBASE, OVID PsycINFO, Web of Science, SocINDEX, Cochrane Library, and Google Scholar

Risk of Bias/Strength of Evidence: Effective Public Health Practice Project (EPHPP) quality assessment tool for quantitative studies.⁶



Social Ecological Model⁷

- Classified findings based on the social ecological model
- Reduced findings into “inner” and “outer” levels:
 - Individual & relationship level factors
 - Community & societal level factors





Individual and Relationship Factors

Firearms

- Firearms may account for most of the rural-urban disparity in suicide rates, overshadowing the impact of other potential rural risk factors.
- Rural areas compared to urban areas were associated with 1.65-2.00 times greater likelihood and 1.54-2.00 times greater suicide rate of firearm-related suicides.
- Firearm involvement was found in 77% of rural suicide deaths compared to 61% for urban.
- For every increment along the rural-urban continuum, firearm-related suicide death increased by 1.13.

Alcohol and Drug Use

- Contributes to rural suicide among men, people with multiple attempts, and American Indian/Alaska Native people.
- Some contradictory evidence from the National Violent Death Reporting System using different variables for substance use and rurality.
 - Rural male decedents as having a higher blood alcohol content compared to urban men (AOR = 1.09, 95% CI: 1.02-1.17, $P < .001$).
 - Rural decedents are less likely to have a history of alcohol or drug abuse.
- Among rural AIANs, substance use was present in 59% of deaths and 73% of attempts.
- Rural individuals with substance abuse history were twice as likely to die by suicide (OR = 2.3, 95% CI: 1.0-5.3).

Other Individual and Relationship Factors

- Past suicide exposure
- Behavioral health care use
- Financial difficulties
- Attitudinal barriers to care
- Relationship problems as a contributing factor to suicide among rural AIANs.
- Rural decedents less likely to report a relationship problem.

Community and Societal Factors

Economic Factors

- Reduction in GDP in rural vs urban counties was linked to higher increase in suicide rates among rural females ($P < .001$).
- Median income and, counterintuitively, income inequality were identified as protective in rural communities.
- Among rural Alaska communities, remoteness was positively associated with suicide rates, whereas access to the modern economy was negatively associated.

Access and Quality of Behavioral Health Care

- Behavioral health care quality may be lower in rural communities.
 - Rural communities have fewer providers with specialty training for working with transgender individuals and display lower-quality prescribing patterns of depression education.
- Rural residents are more likely to experience a health service deficit, more likely not to have had a past year exam and have no identified primary care provider.
- Poor accessibility and availability act as barriers to mental
- health care.

Other Community and Societal Factors

Risk factors

- Higher divorce rates
- Cultural division between Alaska Native and mainstream cultures.

Protective factors

- A strong civic community,
- Greater proportion of Protestantism
- Strong traditional Native culture



Summary of Major Findings and Needs

Firearms are a primary driver of the rural suicide disparity in the U.S.

- Need research on how to reduce the rate of firearm suicide in rural U.S.

Substance use may be another important driver of rural suicides.

- Need to clarify the relationship between substance use and suicide comparing rural and urban communities.
- Need to investigate suicide outcomes as a results of substance use prevention efforts in the rural U.S.

Access to and Quality of Care disparities are persistent.

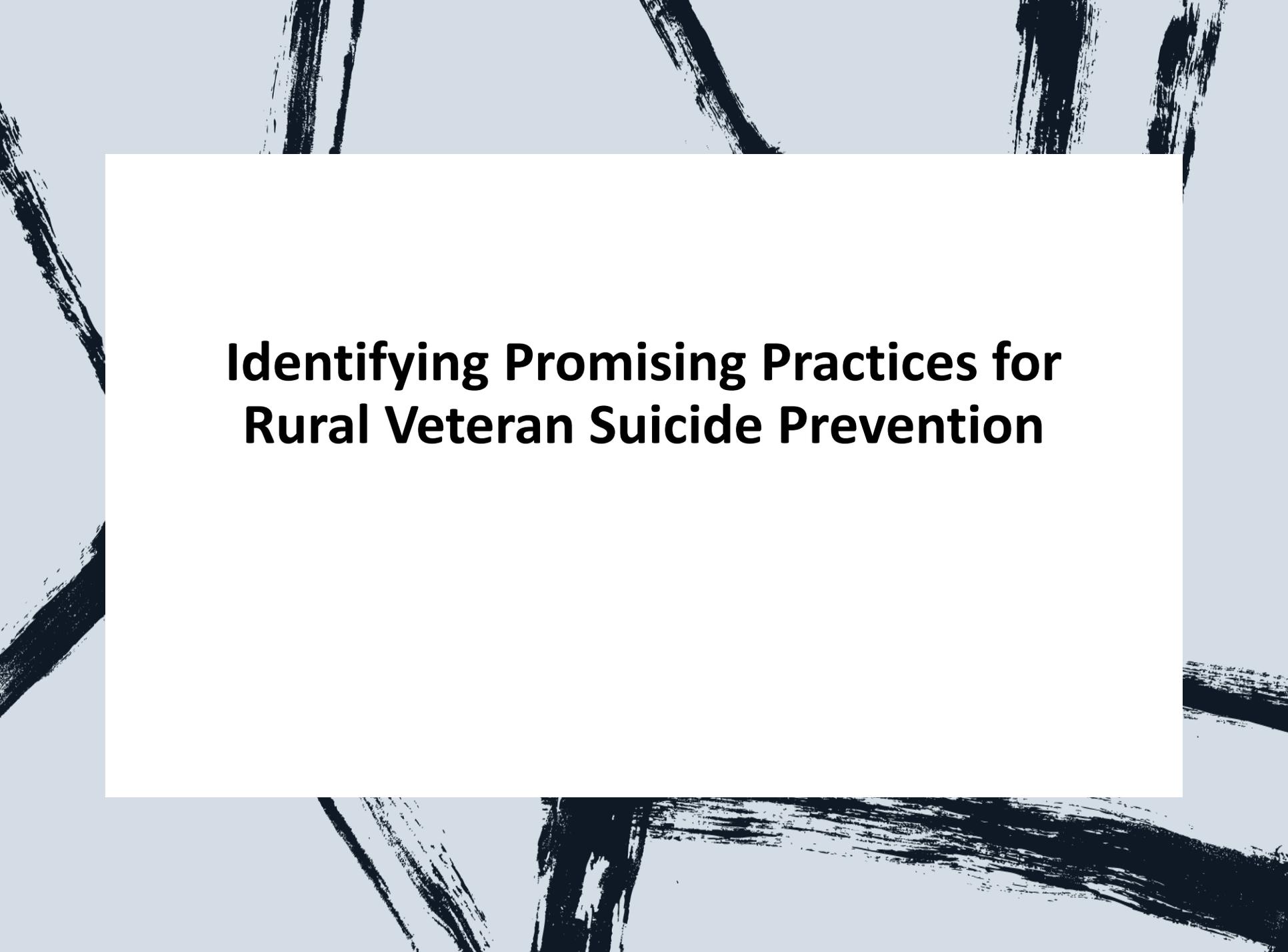
- Need to examine the impact on suicide outcomes of access and quality of care in rural places.
- Need to investigate suicide outcomes as a result of programs to improve access and quality of care.

Role of financial and economic factors is unclear.

- Need to investigate the complicated interactions between individual and community level factors, including culture and gender as well.

Fewer studies and lower evidence quality for factors at the outer levels of social ecology.

- Need more rigorous investigation of factors at the outer levels of social ecology.
- Investigation of interdependence of factors across levels of social ecology will be important to understanding the role community and societal factors.



Identifying Promising Practices for Rural Veteran Suicide Prevention

Menu of Options (2018)⁸

- Searched PubMed, PsychINFO, Google Scholar, SPRC Resource Library and National Registry of Evidence-Based Programs and Practices
- Searched for programs within four categories: crisis intervention, primary care, gatekeeper training, and public awareness
- Iterative discovery, i.e., “snowballing”
- Resources rated by a team of 4 mental health professionals
- Included resources with a rating indicating alignment with rural veteran suicide prevention

Table 1
Resource Rating Domains and Scale

Domain	Definition	Rating scale
Scope	Extent to which the resource aligns with the scope and goals of the rural veteran-suicide prevention program	1 = <i>No applicability</i> 2 = <i>Requires significant modifications</i> 3 = <i>Fits with slight modifications</i> 4 = <i>In alignment</i>
Rurality	Extent to which the resource can be applied to rural populations	1 = <i>Does not apply to rural populations</i> 2 = <i>Requires significant modifications</i> 3 = <i>Fits rural with slight modifications</i> 4 = <i>Designed for rural populations</i>
Veteran Focus	Extent to which the resource can be applied to veteran populations	1 = <i>Inappropriate for veteran populations</i> 2 = <i>Requires significant modifications</i> 3 = <i>Applies to veterans with minor modifications</i> 4 = <i>Designed for veteran populations</i>
Published research support	Supporting empirical evidence available	1 = <i>No available supporting documentation</i> 2 = <i>Minimal qualitative data only</i> 3 = <i>Preliminary empirical data</i> 4 = <i>Empirically validated</i>

Scoping Review (2020)⁹

- Updated and expanded the Menu of Options search
- Added a parallel search for American Indian and Alaska Native prevention programs
- Included only “programs”

Intervention Strategies

Cooperation with general practitioners
 Public awareness/stigma reduction campaigns
 Gatekeeper training programs
 Programs targeting high-risk
 Restricting access to lethal means
 Improving access to care

ORH Promising Practices

Increased access
 Strong partnerships
 (Clinical) Impact
 Return on investment
 Operational feasibility
 Customer satisfaction

Cultural Adaptability

Cultural fit (overall)
 Dissemination to rural Native communities

Other

Measured suicide or similar



Findings from Scoping Reviews

In 2018: We reviewed 300 resources and retained 70 for the Menu of Options.

- ❖ **Only 1 resource was developed specifically for rural communities.**

In 2020: We identified and rated 51 general adult suicide prevention programs and 13 AI/AN programs.

- ❖ **No programs developed for or tested with AI/AN Veterans.**
- ❖ A number of promising practices were identified.
- ❖ More research needed on adapting and tailoring promising programs for rural and AI/AN Veterans.

Conclusions

Some existing promising practices that have shown positive effects on suicide outcomes in rural communities

- **Suicide Prevention Toolkit for Rural Primary Care Practices¹⁰**
- **Gatekeeper Training (e.g., QPR,^{11,12} MHFA^{13,14})**
- **Sources of Strength^{15,16}**
- **Promoting Community Conversations About Research to End Suicide (PC CARES)¹⁷**



How does it fit here?

Promising programs to test in rural populations or adapt for rural settings.

- Safety Planning / Crisis Response Planning
- Lethal Means Counseling
- Reducing access to lethal means (e.g., gun locks, medication blister packaging)
- Stigma reduction and public awareness campaigns
- Comprehensive public health programs (e.g., European Alliance Against Depression)





Some of our ongoing Studies

Together With Veterans

- Comprehensive public health model
- Veteran leadership and peer-to-peer model

Tribal-VHA Partnerships for Suicide Prevention

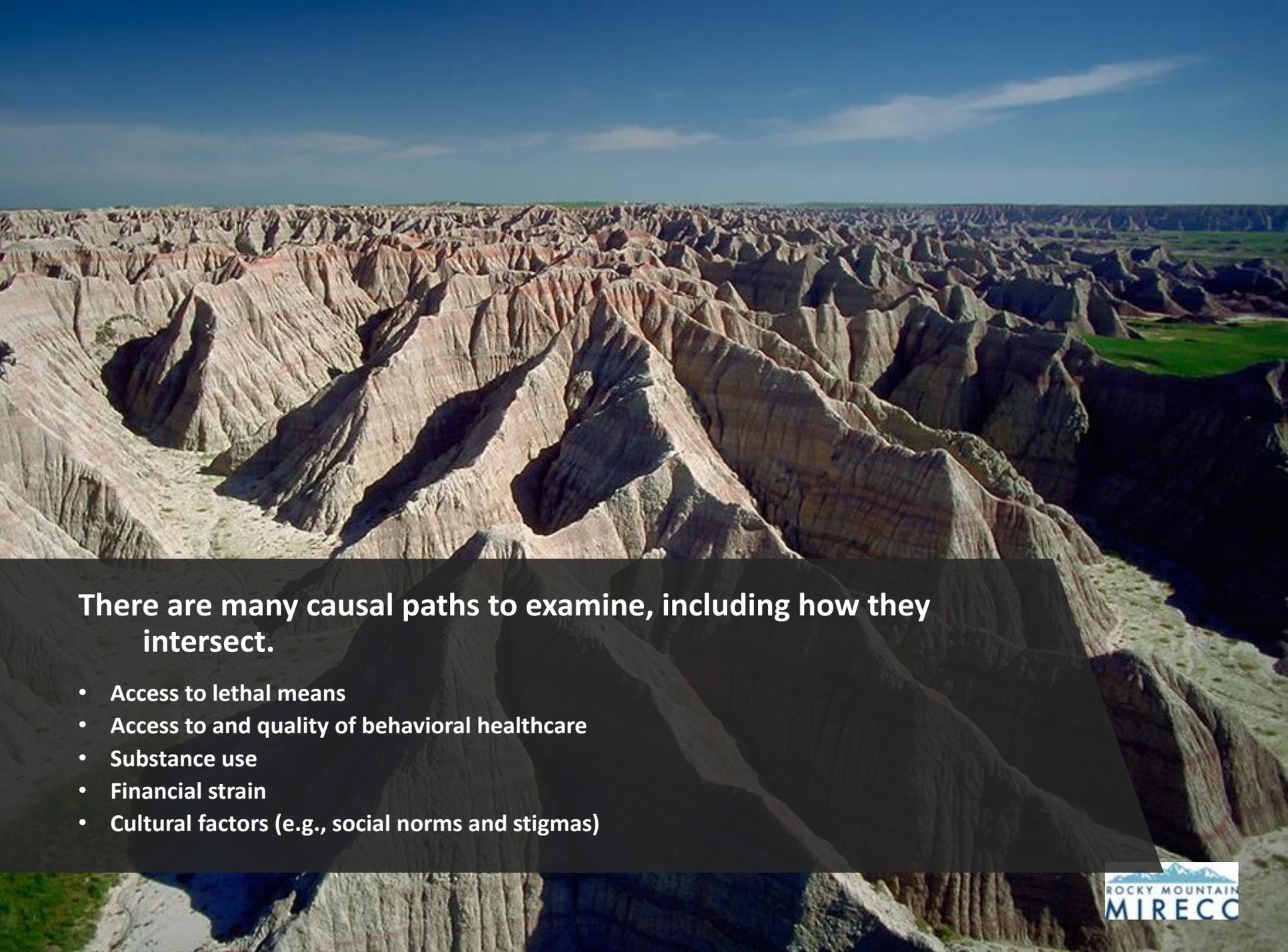
- Support VHA teams in being effective partners with local tribes

Operation Veterans Strong

- Community-tailored online wellness portal

ASCEND

- National survey of Veterans, including an oversampling plan for rural Veterans



There are many causal paths to examine, including how they intersect.

- Access to lethal means
- Access to and quality of behavioral healthcare
- Substance use
- Financial strain
- Cultural factors (e.g., social norms and stigmas)



Rural suicide prevention remains a frontier.

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