

Telemedicine Suicide Prevention Intervention and its Impact on Underserved Populations

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ABSTRACT

- Objective:** Suicide is a major national public health concern accounting for over 49,000 deaths in 2022. The purpose of this study was to begin to quantify the impact of early suicide intervention by telepsychiatry providers.
- Methods:** This study consisted of emergency department (ED) patients assessed by telepsychiatry in 2021, 2023, and first half of 2024. Analysis was based on clinical suicide risk assessments. Selection criteria included a randomized sample of patients with a documented suicide risk assessment of Moderate or High "Overall level risk for suicide" as defined by the Safe-T protocol (Suicide Assessment Five-Step Evaluation and Triage). A comparison was also completed to suicide related ICD-10 codes from claims data.
- Results:** Overall level risk of suicide was similar between pre-Covid 2021 and post-Covid 2023. Gender delineation showed a relatively similar distribution for males, but suicide risk among females nearly doubled: 31.6% (2021) and 57.5% (2023). Age distribution shifts from 2021 to 2023 was notable for women 19-24, and age 55 plus. Disposition assessment found that 100% (2021), 91.3% (2023), and 85.7% (2024) were admitted for inpatient care. Assessment of suicide attempt, history of suicide attempt, or both in either 2021 and 2023 did not show as high of correlation to moderate or high overall risk of suicide as expected.² Associated analysis of psychiatry claims data with a documented suicide-related ICD-10 code showed a considerably lower impact rate (18.4%) as compared to this study's average impact rate (41%) based on clinical suicide risk assessment documentation.
- Conclusion:** This preliminary study of a single telepsychiatry practice estimates an annual impact of 10,000 ED patient lives who have benefitted from early and timely suicide prevention intervention and inpatient psychiatric care as recommended by qualified telepsychiatry providers based on comprehensive suicide risk assessments. The clinical evaluation of "Overall level of risk of suicide," proved to be the most reliable criteria of at-risk patients. Claims data (ICD-10 codes) alone analyses significantly underestimated the potential total impact by as much as 55%. Further study is warranted to validate and address findings suggesting that the Covid experience had a more significant mental health impact on women. Future research inclusive of statistical rigor, ethnicity, location (rural/urban) analysis and long-term outcomes would be valuable to understanding and improving preventative suicide care. Telepsychiatry is clearly bridging the mental health shortage gap and has a positive impact on lives touched ensuring the right level of care is delivered at the right time for at-risk suicidal patients.

INTRODUCTION

Suicide is a major national public health concern accounting for over 49,000 deaths in 2022.³ The journal, General Hospital Psychiatry, published a meta-analysis and systematic review which further shows the concern. It was performed on 15 studies composed of 29,071 participants¹ Concluding that suicide prevention interventions are effective in preventing completed and attempted suicides and should be widely implemented. The purpose of this study was to analyze suicide risk consult interventions on patients. With the goal to assess Access TeleCare's alignment to the research backed conclusion of the meta-analysis and national concern. This is a beginning to quantify the impact of early suicide intervention by telepsychiatry providers and ensure continuous improvement of telepsychiatry services to this patient population.

METHODS

Study Sample Criteria: This study consisted of emergency department (ED) patients with care provided by Access TeleCare telepsychiatry providers from the following time periods:

- Pre-Covid full year 2021
- Post-Covid full year 2023
- Jan - May 2024

Selection criteria included a randomized sample of patients (see Table 1) with a documented suicide risk assessment of Moderate or High "Overall level risk for suicide", as defined by the Safe-T protocol (Suicide Assessment Five-Step Evaluation and Triage, see Table 5).

Claims Data Comparison: The study sample patients were reviewed for suicide-related ICD-10 codes

Providers' Notes Analysis:

- Patients who attempted suicide:
 - Providers' notes in the 'Reason for Consult' component of the Suicide Risk Assessment where **Suicide Attempt was specifically listed**
 - 'Suicide Attempt' may be a single reason for consult or one of several reasons noted
- Patients who had a history of prior suicide attempt/s:
 - Providers' notes in the 'Suicide Risk Factors' component of the Suicide Risk Assessment where **'Hx of Prior Suicide Attempt' was specifically listed**
 - 'Hx of Prior Suicide Attempt' may be a single suicide risk factor or one of several risk factors noted

	2021	2023	Jan-May 2024
% Sampled	18%	23.5%	25%
Sample Size	50	50	21
# Patient Population	27,374	21,289	8,038

Table 1. Sampling Breakdown

RESULTS

Study Demographics

% patients with Moderate or High "Overall level of risk for suicide" criteria within randomized sample:

- 2021: 19 (38%) met criterion
- 2023: 23 (43.4%) met criterion
- Jan-May 2024: 14 (67%) met criterion

Overall level risk of suicide in the sample was similar between 2021 and 2023 (see Table 2). There was also a relatively similar distribution for males in 2021 and 2023. With females, there was most than double the suicide risk in 2023 versus 2021 (see Table 3). Age distribution shifts from 2021 to 2023 was notable for women 19-24, and age 55 plus (see Chart 1 and 2). Disposition assessment found that 100% (2021), 91.3% (2023) and 85.7% (2024) were admitted for inpatient care.

Additional analysis of first half of 2024 revealed similar findings in risk, gender and age delineation, and provided the third data point validating an upward trend of at-risk patients over time: 38% (2021) to 43.4% (2023) to 46% (2024). Assessment of suicide attempt, history of suicide attempt, or both in 2021 and 2023 did not show as high of correlation to moderate or high overall risk of suicide as expected.³ Limitations were present with the consistent availability of all abstracted elements.

The comparative analysis of psychiatry claims data with a documented suicide-related ICD-10 code (see Table 4) showed a considerably lower impact rate (18.4%) as compared to telepsychiatry provider patient data of average impact rate (41%) based on clinical suicide risk assessment documentation.

Overall Risk	2021	2023	Jan-May 2024	Gender	2021	2023	Jan-May 2024
Mod Risk	15 (79%)	16 (70%)	13 (62%)	Female	6 (31.6%)	13 (57.5%)	11 (52%)
High Risk	4 (21%)	7 (30%)	1 (5%)	Male	13 (68.4%)	10 (43.5%)	10 (48%)

Table 2: Risk Levels Across Years

Table 3: Risk by Gender Across Years

Year	Top Three Primary ICD-10 Codes (Claims Data)
2021	1. F29: Unspecified psychosis not due to a substance or known physiological condition 2. F33, F32 group of codes: Major depressive disorder, recurrent and single episode 3. R45.851: Suicidal ideations
2023	1. F39: Unspecified mood [affective] disorder 2. F33, F32 group of codes: Major depressive disorder, recurrent and single episode 3. R45.851: Suicidal ideations
2024*	1. F39: Unspecified mood [affective] disorder 2. F33.2: Major depressive disorder, recurrent severe without psychotic features 3. F29: Unspecified psychosis not due to a substance or known physiological condition *No patients with codes re suicide

Table 4: Sample Size Top Three Primary ICD-10 Codes

Step 4: Guidelines to Determine Level of Risk and Develop Interventions to LOWER Risk Level

This section of the Safe-T protocol is the most critical to the assessment of suicide risk. It is the most critical to the assessment of suicide risk. It is the most critical to the assessment of suicide risk. It is the most critical to the assessment of suicide risk.

RISK STRATIFICATION	TRiage	POSSIBLE INTERVENTIONS
Low Risk	1. Provide information about warning signs, provide resources for support, and ensure patient is safe and stable.	1. Provide information about warning signs, provide resources for support, and ensure patient is safe and stable.
Mod Risk	2. Provide information about warning signs, provide resources for support, and ensure patient is safe and stable.	2. Provide information about warning signs, provide resources for support, and ensure patient is safe and stable.
High Risk	3. Provide information about warning signs, provide resources for support, and ensure patient is safe and stable.	3. Provide information about warning signs, provide resources for support, and ensure patient is safe and stable.

2021 Patients by Age & Gender Pre-Covid

2023 Patients by Age & Gender Post-Covid

Table 5. Safe-T Protocol, Suicide Risk Levels

Chart 1 & 2: 2021 and 2023, by Age & Gender

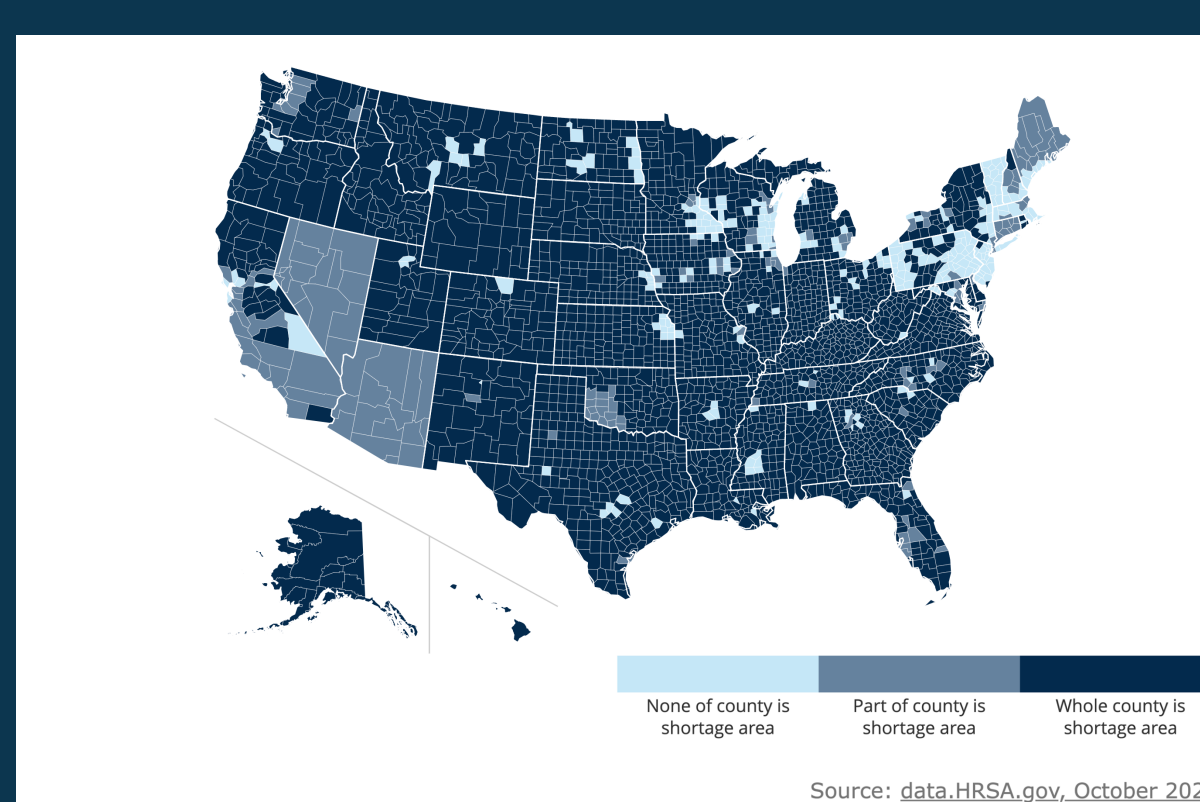
CONCLUSIONS

This preliminary study of a single telepsychiatry practice estimates an annual impact of 10,000 ED patient lives who have benefitted from early and timely suicide prevention intervention and inpatient psychiatric care as recommended by qualified telepsychiatry providers based on comprehensive suicide risk assessments. The clinical evaluation of "Overall level of risk of suicide," proved to be the most reliable criteria of at-risk patients. Claims data (ICD-10 codes) analyses significantly underestimated the potential total impact by as much as 55%.

Key Takeaways:

- This study demonstrates the importance of suicide risk intervention
- Most patients were in need of and received inpatient psychiatric care over the 2.5-year sample period (100% in 2021, 91.3% in 2023, 85.7% in 2024). Extrapolating suicide risk rates to full data set estimates a "lives" impact of 10,402 and 9,218 patients respectively (see Table 6)
- Exact additional quality of life years is expected to have been realized for these patients. However, could not be specifically estimated for the study as only initial consults were conducted
- The importance of early suicide risk intervention is undisputed
- The potential for Access TeleCare to care for broader communities with underserved Mental Health services, as indicated by extrapolating the data is great (see Table 6)

Further study is warranted to validate and address findings suggesting that the Covid experience had a more significant mental health impact on women. Future research inclusive of statistical rigor, ethnicity, location (rural/urban) analysis and long-term outcomes would be valuable to understanding and improving preventative suicide care. This study shows the positive impact telepsychiatry has on lives touched, ensuring the right level of care is delivered at the right time for at-risk suicidal patients. This matches the tremendous need, as depicted in RHHub's map of Health Professional Shortage Areas (HPSA) in Mental Health by County (see Chart 3, Table 6).⁴



Year	Potential Reach
2021	10,402
2023	9,218
2024	5,385

Table 6. Potential Reach

Chart 3: HPSA Map, Mental Health by County

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