

# Compendium of Literature Related to the Mental Health Research Network Suicide Risk Identification Models

For additional questions, contact:

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## Main Outcome Paper Adults

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Simon GE, Johnson E, Lawrence JM, Rossom RC, Ahmedani B, Lynch FL, Beck A, Waitzfelder B, Ziebell R, Penfold RB, Shortreed SM. Predicting Suicide Attempts and Suicide Deaths Following Outpatient Visits Using Electronic Health Records. *Am J Psychiatry*. 2018 Oct 1;175(10):951-960. doi: 10.1176/appi.ajp.2018.17101167. Epub 2018 May 24. PMID: 29792051; PMCID: PMC6167136.

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- PubMed Central: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6167136/>

## Main Outcome Paper Adolescents

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Penfold RB, Johnson E, Shortreed SM, Ziebell RA, Lynch FL, Clarke GN, Coleman KJ, Waitzfelder BE, Beck AL, Rossom RC, Ahmedani BK, Simon GE. Predicting suicide attempts and suicide deaths among adolescents following outpatient visits. *J Affect Disord*. 2021 Nov 1;294:39-47. doi: 10.1016/j.jad.2021.06.057. Epub 2021 Jul 1. PMID: 34265670; PMCID: PMC8820270.

- DOI: <https://doi.org/10.1016/j.jad.2021.06.057>
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## Methods Papers

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Simon GE, Shortreed SM, Boggs JM, Clarke GN, Rossom RC, Richards JE, Beck A, Ahmedani BK, Coleman KJ, Bhakta B, Stewart CC, Sterling S, Schoenbaum M, Coley RY, Stone M, Mosholder AD, Yaseen ZS. Accuracy of ICD-10-CM encounter diagnoses from health records for identifying self-harm events. *J Am Med Inform Assoc*. 2022 Nov 14;29(12):2023-2031. doi: 10.1093/jamia/ocac144. PMID: 36018725; PMCID: PMC9667165.

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Coley RY, Walker RL, Cruz M, Simon GE, Shortreed SM. Clinical risk prediction models and informative cluster size: Assessing the performance of a suicide risk prediction algorithm. *Biom J*. 2021 Oct;63(7):1375-1388. doi: 10.1002/bimj.202000199. Epub 2021 May 24. PMID: 34031916; PMCID: PMC9134927.

- DOI: <https://doi.org/10.1002/bimj.202000199>
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Minus E, Coley RY, Shortreed SM, Williamson BD. Behavior of prediction performance metrics with rare events. *J Clin Epidemiol*. 2026 Jan;189:112046. doi: 10.1016/j.jclinepi.2025.112046. Epub 2025 Nov 10. PMID: 41224138; PMCID: PMC12667734.

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Simon GE, Shortreed SM, Johnson E, Rossom RC, Lynch FL, Ziebell R, Penfold ARB. What health records data are required for accurate prediction of suicidal behavior? *J Am Med Inform Assoc*. 2019 Dec 1;26(12):1458-1465. doi: 10.1093/jamia/ocz136. PMID: 31529095; PMCID: PMC6857508.

- DOI: <https://doi.org/10.1093/jamia/ocz136>
- PubMed: <https://pubmed.ncbi.nlm.nih.gov/31529095/>
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Simon GE, Shortreed SM, Johnson E, Yaseen ZS, Stone M, Mosholder AD, Ahmedani BK, Coleman KJ, Coley RY, Penfold RB, Toh S. Predicting risk of suicidal behavior from insurance claims data vs. linked data from insurance claims and electronic health records. *Pharmacoepidemiol Drug Saf*. 2024 Jan;33(1):e5734. doi: 10.1002/pds.5734. Epub 2023 Dec 19. PMID: 38112287; PMCID: PMC10843611.

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Shortreed SM, Walker RL, Johnson E, Wellman R, Cruz M, Ziebell R, Coley RY, Yaseen ZS, Dharmarajan S, Penfold RB, Ahmedani BK, Rossom RC, Beck A, Boggs JM, Simon GE. Complex modeling with detailed temporal predictors does not improve health records-based suicide risk prediction. *NPJ Digit Med*. 2023 Mar 23;6(1):47. doi: 10.1038/s41746-023-00772-4. PMID: 36959268; PMCID: PMC10036475.

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Simon GE, Cruz M, Shortreed SM, Sterling SA, Coleman KJ, Ahmedani BK, Yaseen ZS, Mosholder AD. Stability of Suicide Risk Prediction Models During Changes in Health Care Delivery. *Psychiatr Serv*. 2024 Feb 1;75(2):139-147. doi: 10.1176/appi.ps.20230172. Epub 2023 Aug 17. PMID: 37587793.

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Wolock CJ, Williamson BD, Shortreed SM, Simon GE, Coleman KJ, Yeargans R, Ahmedani BK, Daida Y, Lynch FL, Rossom RC, Ziebell RA, Cruz M, Wellman RD, Coley RY. Importance of variables from different time frames for predicting self-harm using health system data. *J Biomed Inform*. 2024 Dec;160:104750. doi: 10.1016/j.jbi.2024.104750. Epub 2024 Nov 16. PMID: 39557209; PMCID: PMC11891787.

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Coley RY, Johnson E, Simon GE, Cruz M, Shortreed SM. Racial/Ethnic Disparities in the Performance of Prediction Models for Death by Suicide After Mental Health Visits. *JAMA Psychiatry*. 2021 Jul 1;78(7):726-734. doi: 10.1001/jamapsychiatry.2021.0493. PMID: 33909019; PMCID: PMC8082428.

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Zou R, D Williamson B, M Shortreed S, Coley RY. Validation of a Risk-Prediction Model in the Presence of Outcome Misclassification. *Stat Med*. 2026 Apr;45(8-9):e70377. doi: 10.1002/sim.70377. PMID: 41930736; PMCID: PMC13047735.

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## Implementation

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Yarborough BJH, Stumbo SP, Schneider JL, Richards JE, Hooker SA, Rossom RC. Patient expectations of and experiences with a suicide risk identification algorithm in clinical practice. *BMC Psychiatry*. 2022 Jul 23;22(1):494. doi: 10.1186/s12888-022-04129-1. PMID: 35870919; PMCID: PMC9308306.

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- PubMed: <https://pubmed.ncbi.nlm.nih.gov/35870919/>
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Yarborough BJH, Stumbo SP, Schneider J, Richards JE, Hooker SA, Rossom R. Clinical implementation of suicide risk prediction models in healthcare: a qualitative study. *BMC Psychiatry*. 2022 Dec 14;22(1):789. doi: 10.1186/s12888-022-04400-5. PMID: 36517785; PMCID: PMC9748385.

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- PubMed: <https://pubmed.ncbi.nlm.nih.gov/36517785/>
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Richards JE, Yarborough BJH, Holden E, Shulman L, Stumbo SP, Coley Y, Simon GE. Implementation of Suicide Risk Estimation Analytics to Support Mental Health Care for Quality Improvement. *JAMA Netw Open*. 2022 Dec 1;5(12):e2247195. doi: 10.1001/jamanetworkopen.2022.47195. PMID: 36525278; PMCID: PMC9856428.

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Yarborough BJH, Stumbo SP. A Stakeholder-Informed Ethical Framework to Guide Implementation of Suicide Risk Prediction Models Derived from Electronic Health Records. *Arch Suicide Res*. 2023 Apr-Jun;27(2):704-717. doi: 10.1080/13811118.2022.2064255. Epub 2022 Apr 21. PMID: 35446244; PMCID: PMC9665102.

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Cruz M, Shortreed SM, Richards JE, Coley RY, Yarborough BJ, Walker RL, Johnson E, Ahmedani BK, Rossom R, Coleman KJ, Boggs JM, Beck AL, Simon GE. Machine Learning Prediction of Suicide Risk Does Not Identify Patients Without Traditional Risk Factors. *J Clin Psychiatry*. 2022 Aug 31;83(5):21m14178. doi: 10.4088/JCP.21m14178. PMID: 36044603; PMCID: PMC10270326.

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- PubMed Central: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10270326/>

## Examples of external implementation/validation

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Shaw JL, Beans JA, Noonan C, Smith JJ, Mosley M, Lillie KM, Avey JP, Ziebell R, Simon G. Validating a predictive algorithm for suicide risk with Alaska Native populations. *Suicide Life Threat Behav*. 2022 Aug;52(4):696-704. doi: 10.1111/sltb.12853. Epub 2022 Mar 15. PMID: 35293010; PMCID: PMC9378560.

- DOI: <https://doi.org/10.1111/sltb.12853>
- PubMed: <https://pubmed.ncbi.nlm.nih.gov/35293010/>
- PubMed Central: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9378560/>

Papini S, Hsin H, Kipnis P, Liu VX, Lu Y, Girard K, Sterling SA, Iturralde EM. Validation of a Multivariable Model to Predict Suicide Attempt in a Mental Health Intake Sample. *JAMA Psychiatry*. 2024 Jul 1;81(7):700-707. doi: 10.1001/jamapsychiatry.2024.0189. PMID: 38536187; PMCID: PMC10974695.

- DOI: <https://doi.org/10.1001/jamapsychiatry.2024.0189>
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- PubMed Central: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10974695/>

Haroz EE, Rebman P, Goklish N, Garcia M, Suttle R, Maggio D, Clattenburg E, Mega J, Adams R. Performance of Machine Learning Suicide Risk Models in an American Indian Population. JAMA Netw Open. 2024 Oct 1;7(10):e2439269. doi: 10.1001/jamanetworkopen.2024.39269. PMID: 39401036; PMCID: PMC11474420.

- DOI: <https://doi.org/10.1001/jamanetworkopen.2024.39269>
- PubMed: <https://pubmed.ncbi.nlm.nih.gov/39401036/>
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