

## Supplementary Online Content

Sekhar DL, Schaefer EW, Waxmonsky JG, et al. Screening in high schools to identify, evaluate, and lower depression among adolescents: a randomized clinical trial. *JAMA Netw Open*. 2021;4(11):e2131836. doi:10.1001/jamanetworkopen.2021.31836

**eTable 1.** Definitions of Each Criterion That Comprise the Primary Outcome

**eTable 2.** Reasons Students Did Not Meet Criterion 2 (Confirmed) Among Those Who Met Criterion 1 (Identified)

**eTable 3.** Reasons Students Did Not Meet Criterion 3 (Initiated) Among Those Students Who Met Criterion 2 (Confirmed)

**eTable 4.** Percentage of Students With Each Outcome by Subgroups of Sex, Race/Ethnicity, and School Location

This supplementary material has been provided by the authors to give readers additional information about their work.

| <b>eTable 1. Definitions of Each Criterion That Comprise the Primary Outcome</b> |  |
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| <b>Criterion</b>   | <b>Definition</b>  |
| Identified   | <p>Patient Health Questionnaire-9 (PHQ-9) score &gt;10 or<br/>           PHQ-9 question 9 score <math>\geq 1</math> or<br/>           Student Assistance Program (SAP) referral with one of the following primary or secondary referral reasons:</p> <ul style="list-style-type: none"> <li>• Behavioral concern</li> <li>• Externalizing behaviors</li> <li>• Internalizing behaviors</li> <li>• Self-harm</li> <li>• Suicidal ideation</li> <li>• Other – if depressed/depression or “past thoughts of harming self” specified</li> <li>• Other – if PHQ-9 screening specified</li> </ul>  |
| Confirmed  | <p>A SAP referral with a response of “yes” to the question “Was SAP warranted?” or<br/>           Missing response to that question but recommended services indicated. SAP does not diagnose but will consider the student’s individual situation via additional probing and make a recommendation accordingly.<br/>           Note: For students who met the identified criterion due to PHQ-9 result, a further requirement was a SAP referral that had the same primary and secondary referral reasons listed above.</p>   |
| Initiated  | <p>Received one of the following primary or secondary school-based, community-based, or liaison services recommended by the SAP team:</p> <ul style="list-style-type: none"> <li>• Behavioral</li> <li>• Crisis intervention</li> <li>• Family-Based Mental Health Services or Behavioral Health Rehabilitation Services</li> <li>• In-school support groups</li> <li>• Mental health assessment</li> <li>• Mental health treatment</li> <li>• One-to-one counseling with guidance counselor, school psychologist, etc.</li> <li>• One-to-one follow-up with team member</li> <li>• One-to-one follow-up with team member or other school personnel</li> <li>• One-to-one with mental health liaison</li> <li>• Other mental health treatment</li> <li>• Other support services</li> <li>• Outpatient therapy</li> <li>• Psychiatric inpatient</li> <li>• Psychiatric outpatient</li> <li>• Referral for further mental health assessment</li> <li>• School based mental health group</li> <li>• Screening by behavioral health SAP liaison</li> </ul> |

|  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>• Screening by mental health SAP liaison</li><li>• Screening with mental health liaison</li><li>• Services by/from school social worker</li><li>• Therapy</li></ul> |
|--|---|

**eTable 2.** Reasons Students Did Not Meet Criterion 2 (Confirmed)<sup>a</sup> Among Those Who Met Criterion 1 (Identified)

|  | Targeted screening (N=136) | Universal screening (N=793) | Total (N=929) |
|--|----------------------------|-----------------------------|---------------|
| <b>Reasons</b>   |                            |                             |               |
| Student Assistance Program (SAP) referral not warranted  | 3 (2.2%)                   | 83 (10.5%)                  | 86 (9.3%)     |
| Already in services/treatment  | 0 (0.0%)                   | 30 (3.8%)                   | 30 (3.2%)     |
| Referred to outside agency, no further information   | 42 (30.9%)                 | 156 (19.7%)                 | 198 (21.3%)   |
| Met with (or referred to) counselor, no further SAP engagement                                   | 24 (17.6%)                 | 205 (25.9%)                 | 229 (24.7%)   |
| Met with school social worker (suicide liaison), no further SAP engagement                       | 38 (27.9%)                 | 39 (4.9%)                   | 77 (8.3%)     |
| Met with school staff (role not specified in data provided by school), no further SAP engagement | 28 (20.6%)                 | 152 (19.2%)                 | 180 (19.4%)   |
| Parent/student refusal or no parental response   | 1 (0.7%)                   | 38 (4.8%)                   | 39 (4.2%)     |
| Parent will seek outside resources   | 0 (0.0%)                   | 12 (1.5%)                   | 12 (1.3%)     |
| Unenrolled/transferred   | 0 (0.0%)                   | 6 (0.8%)                    | 6 (0.6%)      |
| Recommended services, no further information   | 0 (0.0%)                   | 15 (1.9%)                   | 15 (1.6%)     |
| No information provided  | 0 (0.0%)                   | 56 (7.1%)                   | 56 (6%)       |
| Referred to crisis, no further SAP engagement  | 0 (0.0%)                   | 1 (0.1%)                    | 1 (0.1%)      |

<sup>a</sup>identified (major depressive disorder [MDD] symptoms): positive Patient Health Questionnaire-9 (score >10 or response  $\geq$ 1 on question 9) or behavior prompting referral to SAP for MDD; confirmed: SAP does not diagnose, but to meet criteria, SAP must confirm identified behavior/symptoms warrant further evaluation

**eTable 3.** Reasons Students Did Not Meet Criterion 3 (Initiated)<sup>a</sup> Among Those Students Who Met Criterion 2 (Confirmed)

|  | Targeted screening (N=29) | Universal screening (N=151) | Total (N=180) |
|--|---------------------------|-----------------------------|---------------|
| <b>Reasons</b>                                 |                           |                             |               |
| Parent refusal/written permission not obtained | 14 (48.3%)                | 67 (44.4%)                  | 81 (45%)      |
| Student refusal                                | 3 (10.3%)                 | 17 (11.3%)                  | 20 (11.1%)    |
| Student already in treatment                   | 4 (13.8%)                 | 57 (37.7%)                  | 61 (33.9%)    |
| Did not receive recommended services           | 1 (3.4%)                  | 1 (0.7%)                    | 2 (1.1%)      |
| Other  | 7 (24.1%)                 | 9 (6.0%)                    | 16 (8.9%)     |

<sup>a</sup>confirmed: Student Assistance Program (SAP) does not diagnose, but to meet criteria, SAP must confirm identified behavior/symptoms warrant further evaluation; initiated: participated in at least one SAP recommended treatment/service for major depressive disorder, e.g., follow-up mental health supports

| <b>eTable 4. Percentage of Students With Each Outcome by Subgroups of Sex, Race/Ethnicity, and School Location</b> |                         |                    |                           |                            |
|--|-------------------------|--------------------|---------------------------|----------------------------|
| <b>Subgroup</b>  | <b>Outcome</b>          |                    | <b>Targeted screening</b> | <b>Universal screening</b> |
| <b>Sex</b>   | Totals                  | Male               | 3495 (100%)               | 3468 (100%)                |
|  |                         | Female             | 2941 (100%)               | 3005 (100%)                |
|  | Identified <sup>a</sup> | Male               | 110 (3.1%)                | 400 (11.5%)                |
|  |                         | Female             | 90 (3.1%)                 | 626 (20.8%)                |
|  | Confirmed               | Male               | 33 (0.9%)                 | 80 (2.3%)                  |
|  |                         | Female             | 31 (1.1%)                 | 153 (5.1%)                 |
|  | Initiated <sup>b</sup>  | Male               | 15 (0.4%)                 | 28 (0.8%)                  |
|  |                         | Female             | 20 (0.7%)                 | 52 (1.7%)                  |
| <b>Race/ethnicity</b>  | Totals                  | Non-Hispanic white | 2857 (100%)               | 2985 (100%)                |
|  |                         | Non-Hispanic Black | 1571 (100%)               | 1320 (100%)                |
|  |                         | Hispanic           | 1266 (100%)               | 1421 (100%)                |
|  |                         | Other              | 742 (100%)                | 747 (100%)                 |
|  | Identified              | Non-Hispanic white | 61 (2.1%)                 | 474 (15.9%)                |
|  |                         | Non-Hispanic Black | 95 (6.0%)                 | 187 (14.2%)                |
|  |                         | Hispanic           | 28 (2.2%)                 | 204 (14.4%)                |
|  |                         | Other              | 16 (2.2%)                 | 161 (21.6%)                |
|  | Confirmed               | Non-Hispanic white | 48 (1.7%)                 | 115 (3.9%)                 |
|  |                         | Non-Hispanic Black | 10 (0.6%)                 | 37 (2.8%)                  |
|  |                         | Hispanic           | 5 (0.4%)                  | 67 (4.7%)                  |
|  |                         | Other              | 1 (0.1%)                  | 14 (1.9%)                  |
|  | Initiated <sup>b</sup>  | Non-Hispanic white | 27 (0.9%)                 | 42 (1.4%)                  |
|  |                         | Non-Hispanic Black | 6 (0.4%)                  | 13 (1.0%)                  |
|  |                         | Hispanic           | 2 (0.2%)                  | 16 (1.1%)                  |
|  |                         | Other              | 0 (0.0%)                  | 9 (1.2%)                   |
| <b>Location</b>  | Totals                  | Urban              | 5728 (100%)               | 5735 (100%)                |
|  |                         | Rural              | 708 (100%)                | 738 (100%)                 |
|  | Identified              | Urban              | 189 (3.3%)                | 893 (15.6%)                |
|  |                         | Rural              | 11 (1.6%)                 | 133 (18.0%)                |
|  | Confirmed               | Urban              | 55 (1.0%)                 | 212 (3.7%)                 |
|  |                         | Rural              | 9 (1.3%)                  | 21 (2.8%)                  |
|  | Initiated <sup>b</sup>  | Urban              | 28 (0.5%)                 | 69 (1.2%)                  |
|  |                         | Rural              | 7 (1.0%)                  | 11 (1.5%)                  |

<sup>a</sup>identified (major depressive disorder [MDD] symptoms): positive Patient Health Questionnaire-9 (score >10 or response ≥1 on question 9) or behavior prompting referral to Student Assistance Program (SAP) for MDD; confirmed: SAP does not diagnose, but to meet criteria, SAP must confirm identified behavior/symptoms warrant further evaluation; initiated: participated in at least one SAP recommended treatment/service for MDD, e.g., follow-up mental health supports.

<sup>b</sup>two students had missing values