

## Supplementary Materials

**Figure S1. Equations for multilevel variance component calculation**

$$(1) \eta_{ijk} = \log\left(\frac{P_{ijk}}{1 - P_{ijk}}\right) = \gamma_{000} + r_{ojk} + u_{ook}$$

$$(2) = \frac{r_{ojk}}{r_{ojk} + u_{ook} + \pi^2/3}$$

$$(3) = \frac{u_{ook}}{r_{ojk} + u_{ook} + \pi^2/3}$$

where  $P_{ijk}$  denotes the probability of the outcome equal to 1 of a student  $i$  in school  $j$  and school district  $k$ ;  $\eta_{ijk}$  denotes the log odds of the outcome;  $\gamma_{000}$  is the grand mean of log odds of the outcome;  $r_{ojk}$  is the error term across level-2 units (schools) but within level-3 unit  $k$ ; and  $u_{ook}$  is the error term across level-3 units (school districts).

**Supplemental Table S1. Centers for Disease Control and Prevention’s (CDC) Division of Adolescent and School Health (DASH) Program Strategies, Suggested Activities, and Implementation Level**

| Strategy   | Suggested Activities   | Implementation Level <sup>1</sup> |        |
|--|--|-----------------------------------|--------|
|  |  | District                          | School |
| <b>Designate a district school health coordinator, and establish, strengthen, and maintain school health councils at the district level and school health teams at the school level.<sup>1</sup></b> |  |                                   |        |
| <b>Exemplary sexual health education</b>   |  |                                   |        |
| Strengthen policies and guidance <sup>2</sup>  | Assess, develop, monitor, and enforce policies and provide guidance on: <ul style="list-style-type: none"> <li>• health education requirements</li> <li>• classroom management strategies</li> <li>• selection of health education curricula</li> <li>• provision of health education materials</li> <li>• health education scope and sequence K-12</li> <li>• qualifications for health educators</li> <li>• instructional competencies for health education</li> </ul> | ✓                                 |        |
| Strengthen staff capacity <sup>3</sup>   | Provide professional development at least every 2 years for health education on: <ul style="list-style-type: none"> <li>• subject matter topics</li> <li>• delivering curricula</li> <li>• instructional competencies</li> <li>• policies and guidance on health education</li> </ul>  | ✓                                 | ✓      |
| Increase student access to programs and services <sup>3</sup>  | <ul style="list-style-type: none"> <li>• Select school health education curricula resulting in student behavioral change that are evidence-based and aligned with national, state, and district standards</li> <li>• Deliver effective classroom sexual health education curricula to students</li> </ul>  | ✓                                 | ✓      |
| Engage agency, parent, and community partners <sup>3</sup>   | Engage and strengthen collaborations with parents, students, parent organizations, youth-serving community organizations, and local health agencies  | ✓                                 | ✓      |
| <b>Sexual health services</b>  |  |                                   |        |
| Strengthen policies and guidance <sup>3</sup>  | Assess, develop, monitor, and enforce policies and provide guidance on: <ul style="list-style-type: none"> <li>• what health services may be provided to students</li> <li>• contradictions among federal, state, and district policies</li> <li>• school and district policies on student absences related to seeking medical care</li> <li>• confidentiality policies at the federal, state, and district levels</li> </ul>  | ✓                                 |        |

| Strategy  | Suggested Activities   | Implementation Level <sup>1</sup> |        |
|---|--|-----------------------------------|--------|
|   |  | District                          | School |
|   | <ul style="list-style-type: none"> <li>• guidance on student referrals to sexual health services</li> </ul>  |                                   |        |
| Strengthen staff capacity <sup>3</sup>                        | Provide professional development at least every 2 years to increase student access to appropriate health services including: <ul style="list-style-type: none"> <li>• policies and guidance on health services provision to students including confidentiality</li> <li>• raising awareness of student need for and availability of services</li> <li>• guidance on providing referrals to students for on-site services or community health care providers</li> </ul> | ✓                                 | ✓      |
| Increase student access to programs and services <sup>3</sup> | Increase student access to appropriate health services through: <ul style="list-style-type: none"> <li>• social marketing campaigns</li> <li>• coordinating with condom availability programs</li> <li>• coordinating with school-based STI testing programs</li> <li>• providing referrals to on-site or community health care provider services</li> <li>• increasing billing and reimbursement for eligible services</li> </ul>                                     | ✓                                 | ✓      |
| Engage agency, parent, and community partners <sup>3</sup>    | Engage and strengthen collaborations with state and local health departments; third-party contractors for school-based clinics; local health care providers; child health insurance programs; federal and state health care exchanges; and local health care providers.  | ✓                                 | ✓      |
| <b>Safe and Supportive Environments</b>                       |  |                                   |        |
| Strengthen policies and guidance <sup>3</sup>                 | Assess, develop, monitor, and enforce policies and provide guidance on: <ul style="list-style-type: none"> <li>• anti-bullying and sexual harassment policies</li> <li>• school-wide bullying prevention programs</li> <li>• revise or eliminate zero-tolerance policies</li> <li>• classroom management policies and guidance; anti-discrimination policies</li> <li>• soliciting and receiving parent input on policies and programs.</li> </ul>                     | ✓                                 |        |
| Strengthen staff capacity <sup>3</sup>                        | Provide professional development at least every 2 years for health education on: <ul style="list-style-type: none"> <li>• school anti-bullying policies and programs</li> <li>• classroom management strategies; school-wide positive behavior programs; strategies</li> </ul>   | ✓                                 | ✓      |

| Strategy  | Suggested Activities   | Implementation Level <sup>1</sup> |        |
|---|--|-----------------------------------|--------|
|   |  | District                          | School |
|   | <p>to increase student connection to schools and adults</p> <ul style="list-style-type: none"> <li>• strategies to increase parent communication with adolescents</li> <li>• strategies to involve parents in school policies, practices, and decision-making.</li> </ul>  |                                   |        |
| Increase student access to programs and services <sup>3</sup> | <ul style="list-style-type: none"> <li>• Set positive behavior expectations school-wide</li> <li>• Provide targeted and intensive behavioral interventions for students with behavioral problems</li> <li>• Use language, behaviors, and environmental cues to make adults more approachable by students</li> <li>• Link students to mentorship and service-learning opportunities</li> <li>• Support student participation in clubs and extracurricular activities</li> <li>• Promote gender and sexual-supportive programs and practices (e.g., gay-straight alliances)</li> <li>• Promote parent practices to enhance the health of students</li> <li>• Involve parents in school programs and decision-making</li> </ul> | ✓                                 | ✓      |
| Engage agency, parent, and community partners <sup>3</sup>    | Engage and strengthen collaborations with parents, students, parent organizations, community youth-serving organizations, and local health departments   | ✓                                 | ✓      |

*Note.* <sup>1</sup>Districts are required to engage in all of the listed activities; <sup>2</sup>Districts are required to assist all district secondary schools in all of the listed activities; <sup>3</sup>Districts are required to assist priority schools in one or more of the listed activities.