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## Duties When an Anonymous Student Health Survey Finds a Hot Spot of Suicidality

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### ABSTRACT

Public health agencies regularly survey randomly selected anonymous students to track drug use, sexual activities, and other risk behaviors. Students are unidentifiable, but a recent project that included school-level analysis discovered a school with alarmingly prevalent student suicidality. Given confidentiality protocols typical of surveillance, the surveyors were uncertain whether and how to intervene. We searched literature for duties to warn at-risk groups discovered during public health surveillance, but we found no directly applicable guidance or cases. Reasoning by analogy, we conclude that surveyors should contact the school's leaders to call attention to its outlier status, but public warning is unwarranted. However, such an ad hoc decision to issue a warning, even if only to school leaders, raises significant practical, legal and ethical issues. National public health and education associations should produce guidance that clarifies ethical and legal duties owed to schools and students involved in population health-risk surveillance.

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We present and analyze a case of public health surveillance that raised questions about duties to prevent harm and to protect confidentiality. The case brings into focus several important ethical concerns that can arise when a surveillance activity identifies a population subgroup with elevated levels of a dangerous behavior.


### CASE

In 2013, a biennial state-level student health survey directed by one of the authors (AHL) measured health-risk attitudes and behaviors among a probability sample of middle and high school students ( $n = 40,207$ ) in 224 randomly selected schools. Topics ranged from insufficient consumption of fruits and vegetables to cigarette and drug use, to suicidal ideation, plans, and attempts. Data were collected anonymously, with no way to back-link responses to students, a standard practice because public health agencies use such surveys only to address population-level rather than individual concerns, and because anonymity fosters honest responses to sensitive behavioral questions. Sampled students were told

participation was voluntary and that neither participation nor nonparticipation would have academic consequences. Parents provided consent, either actively (parent must submit signed approval) or passively (parent may submit signed disapproval) as determined by schools. To encourage school participation and promote local use of results, school administrators were promised reports of their site's results. Confidentiality agreements gave administrators sole authority to determine whether, how and to whom their school's aggregated results would be shared, including whether aggregated results would be provided to parents.

During preparation of school-level reports, analysts noticed that one middle school had alarmingly high rates of mental health concerns. An estimated 38% of the student body (53% of females, 25% of males) reported they had felt sad or hopeless almost every day for two weeks in the past 12 months; 31% (40% of females, 22% of males) reported they had seriously thought about suicide; 17% (25% of females, 10% of males) said they had made a suicide plan, and 13% (19% of females, 8% of males) had attempted suicide. All rates were two to three times higher than

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corresponding statewide rates ( $p < 0.001$  for all observed differences).

Concerned by these findings, the surveyors directly contacted the principal to call the results to his attention. He informed them that a student had died by suicide before the survey was administered, and that he had approved the school's survey participation to learn whether suicidality was a widespread problem and, if so, to use the survey results to advocate for and prioritize resources and schoolwide intervention.

## ETHICAL QUESTIONS

This case appears to have been appropriately resolved, but the surveillance team remained uneasy that they had no guidance regarding ethical duties that might generally apply to this and similar cases. They brought the following questions to the Research Ethics Consultation Service in our institution's Center for Bioethics and Humanities: Do student health surveyors incur a duty to highlight locally elevated risks and/or provide advisory warnings and recommendations when reporting results to principals? Should surveyors find out whether a school has taken action to address reported concerns, and if no action has been taken, do surveyors have further duties to students, parents, or the larger community? Would surveyors ever be obligated to breach school confidentiality? If so, what criteria or thresholds might apply in terms of prevalence, severity or immediacy of the health concern(s)? To whom would results need to be delivered? Discussions around these questions led to interdisciplinary exploration of these questions, bringing to bear the authors' combined scholarly interests in public health surveillance (AHL), public health ethics and law (MC, JJG, MKW, DSG), and school psychology (FC-H). We report our findings here.

## GUIDANCE FROM THE ETHICS OF PUBLIC HEALTH SURVEILLANCE

The current case arose from the core public health function of surveillance, which involves ongoing, systematic collection, analysis, and interpretation of health data, closely integrated with the timely dissemination of the information to those responsible for preventing and controlling disease and injury (Thacker and Berkelman 1988). Unlike research, whose primary goal is to produce generalizable new knowledge, surveillance monitors population health to inform and guide public health action. Scholars and practitioners have long distinguished surveillance from

research (Langmuir 1963; Snider and Stroup 1997; Thacker and Berkelman 1988), and recently revised human subjects protections exclude public health surveillance as non-research (USDHHS 2017). In addition, public health surveillance differs from clinical practice, where ethical guidelines primarily address responsibilities to individual patients, because surveillance works with populations whose individual members are usually unidentifiable. These distinctions blunt the applicability of ethical guidelines from research and clinical practice, as we discuss later. However, research exemption from ethical review does not mean public health surveillance needs no ethical framework or guidance.

Some ethical tensions in the current case are recognizable in the World Health Organization (WHO) ethical guidelines on public health surveillance (WHO 2017), which notes:

- [P]ockets of suffering that are unfair, unjust and preventable cannot be addressed if they are not first made visible (WHO 2017, 5).
- Officials, agencies, and organizations responsible for surveillance should try to engage the population beforehand about the goals, processes, and potential impacts (both positive and negative) of surveillance activities as a means of demonstrating respect for persons. When this is not possible or is not done, those responsible for surveillance must bear in mind that their work is being done without consideration of the concerns of the community; those responsible for surveillance necessarily become stewards not only of the common good but of community interests. (WHO 2017, 33)
- *Guideline 13. Results of surveillance must be effectively communicated to relevant target audiences. ... Decision-makers must also weigh the harm that could result if affected communities are not informed and thus deprived of knowledge and the ability to take action to reduce the risks and the capacity to engage in advocacy. ... There is continuing debate about when, if ever, those responsible for the design and conduct of surveillance are ethically obliged to inform the subjects of surveillance about individual results or diagnosis and then refer them to the appropriate service ... Relevant ethical considerations in making a judgment about returning information to individuals include feasibility, the possibility of taking action and the potential benefit to the individual (WHO 2017, 41).*

Additional ethical considerations include harms that might arise from breaching community confidentiality. The American Public Health Association Code of Ethics requires professionals to “protect the confidentiality of information that can bring harm to an individual *or community* if made public” (Thomas et al. 2002, emphasis added). A breach of confidentiality “must be justified on the basis of the high likelihood [without a breach] of significant harm to the individual or others” (Thomas et al. 2002). We note that both protection and breach of confidentiality rest on ethical duties to prevent harm, but no specific principles or guidance appear to have been published regarding harms to be prevented or methods for deciding when and how to act for preventing harm based on surveillance data.

Surveillance data are typically analyzed by age, sex, race, ethnicity, socioeconomic status, and/or location to detect specific groups that may suffer elevated levels of risk or adverse health conditions. The field recognizes that reporting, sharing, or acting on such findings raises ethical dilemmas, including (a) tension between exposing communities to stigma (or failing to protect them from stigma) vs. benefiting them with additional resources, (b) tension between preserving freedom of choice vs. intervening in ways that are somewhat coercive, (c) risk of inaction if data are not shared outside public health agencies, and (d) risk of either inadequate response or excessive anxiety if the right level of alarm is not issued (Klingler et al. 2017). In student health surveillance cases, the first three dilemmas could arise if surveyors considered sharing findings outside the school without administrative permission; these were avoided in the current case, where the surveyors decided to notify only the school principal. The fourth dilemma was also avoided in the current case because the principal’s heightened awareness of the concern and intention to address it matched the level of concern among the survey staff. Had the principal not responded appropriately, the surveyors would have faced a decision about how to calibrate the alarm level to the risk level and the principal’s capacity to understand and act on the concern.

## **GUIDANCE FROM HEALTH CARE ETHICS**

In general, health care providers have a “duty to warn” authorities or potential victims in cases of immediate and serious threats to individual or public safety, and other situations where one or more potential victims can be identified and disclosure is

reasonably expected to mitigate an immediate threat (Shah et al. 2013). This duty was most famously articulated in the context of mental health therapy during a California case (Supreme Court of California 1976) in which a University student told a psychologist at the student health center that he planned to kill Tatiana Tarasoff, another student with whom he was obsessed. The psychologist told campus police, who briefly detained the threatening student but released him after a supervising psychiatrist said further detention was not justified. The student went on to kill Ms. Tarasoff. In a lawsuit brought by her parents, a trial court found no legal “duty to warn” and noted the law clearly obligates mental health professionals to keep secret things their patients tell them in confidence. But the California Supreme Court overturned the decision, saying that the confidentiality “privilege ends where the public peril begins;” the court later went further, saying a therapist has not only a duty to warn but also an obligation to use reasonable care to protect potential victims (a “duty to protect”).

Tarasoff-like duties to warn are now mandatory in 31 states and the District of Columbia, and are permitted in another 15 states (NCSL 2018). Some of these rules go beyond the original decision (Johnson et al. 2014). For example, with the advent of the HIV epidemic, several states developed specific duty-to-warn laws that allow doctors to breach confidentiality to warn spouses who might be at risk of contracting HIV infection. After a mass shooting in a movie theater, Colorado’s duty to warn statute (C.R.S. 13-21-117) was expanded to require that mental health professionals warn not just specific people but also specific places that might be endangered.

While these laws define the responsibilities of clinical practitioners, to our knowledge no duty to warn doctrine has emerged that applies to public health professionals doing surveillance work. Our searches for relevant federal and state case law revealed no published cases addressing our fact-pattern. In general, tort-based duties to warn can arise in a variety of contexts, but in the health professions they tend to track Tarasoff rules, which typically impose two strict requirements: The person threatening to do harm must identify the intended victim (or, in Colorado, the targeted place), and the potential harm must be imminent. The current case involves potential self-harm rather than someone targeting a third party, and no information was available to determine whether the potential harm was imminent. Although the case involves a specific place (the school), we are uncertain

whether Colorado courts would consider it a targeted place in the meaning of the law. For these reasons, we don't believe Tarasoff duties apply in the current case.

An additional challenge in applying Tarasoff-type duties to public health professionals is that clinicians' duty to warn arises from their fiduciary relationships with patients, a special relationship in which unequal power requires more empowered clinicians to hold more vulnerable patients' interests paramount (Richard and Rathbun 1993). Tarasoff rules establish circumstances in which health professionals owe a duty to third parties that might outweigh their obligation to hold their patient's information in confidence. But student health surveyors have no fiduciary relationship with the randomly selected schools they survey, nor any direct relationship with unidentified individuals in the student body whom a breach of school confidentiality might be intended to protect. On the other hand, a fiduciary duty could arise if a school were to commission surveyors to discover and report concerning levels of health risk across the student body. This counterfactual example suggests that duties to warn may depend on a survey's origins, sponsorship or objectives.

### **Social Duties of Health Professionals**

Duties to warn are based partly on health professionals' special knowledge, skills and social roles that might enable them to recognize preventable or mitigatable risks or harms laypeople might not recognize. In the current case, surveillance professionals had special access to information (i.e., statewide survey results) and analytic skills to determine that one school's students had statistically significantly high rates of suicidality risks. However, no consensus has established methods or thresholds for determining when special warnings are advisable or mandatory in such cases. Furthermore, surveillance professionals do not necessarily know how best to mitigate the risks they detect, nor how best to balance competing priorities facing at-risk groups or guardians, such as principals, who must decide whether and how to act. Most important, public health surveillance staff conducting statewide anonymous student health surveys, unlike clinicians caring for individuals, are not socially expected to provide follow-up services such as special warnings to participating schools. If such an expectation were to arise, it might lead principals to decline future survey participation for fear of being notified of issues they lack resources, knowhow, or bandwidth to address. Such an expectation might also suggest to

school administrators that no warning from the survey team means their school has no problem, a potentially hazardous assumption.

### **GUIDANCE FROM MEDICAL RESEARCH ETHICS**

Since the 1979 publication of the *Belmont Report* (NCPHSBBR 1979), three bioethics principles have remained fundamental with regard to research on human beings: respect for persons, beneficence, and justice. While public health surveillance is not research, these basic principles have been applied in at least two ways that might help inform the present case.

#### **Return of Research Results**

Based on beneficence and respect for persons, some scholars propose that medical researchers have a duty to return individual results to participants when knowing the results might help the participant.<sup>1</sup> In the current case, results could not be linked to individual students, but the surveillance team did return aggregate school-level results to the principal, who serves as a guardian for all students at the school.

#### **Community Involvement in Health Research**

Based on respect for persons and justice, some scholars have called for recognition and protection of community rights and needs in health-related research (Levine 1988; Weijer 1999). Others assert that individuals are inseparable from/dependent on community relationships and networks, and they argue that inviolable individual-community relationships are a basis for addressing community rights and needs in clinical research (Marshall and Berg 2006). Equal decision-making partnerships are a core value of community-based participatory research (CBPR) and related paradigms, which expect communities and researchers to jointly decide research questions, study designs, implementation of protocols, and dissemination of results (Glanz et al. 2009; Israel et al. 2008). Student health surveys do not easily lend themselves to CBPR-type paradigms, however, because surveillance is not research, student health surveys are unilaterally initiated and designed by public health entities, and fully collaborative relationships from the outset would require an intensity of engagement well beyond current resources and practices.

<sup>1</sup>Some go further, arguing for a duty to provide each research participant with a summary of results. See, e.g., Fernandez et al. (2003).



## GUIDANCE FROM PUBLIC HEALTH ETHICS

Public health is by nature a communal good whose benefits cannot be readily individuated, and it often involves government action that may raise ethical tensions with liberty, justice, security, and individual rights (Faden and Shebaya 2016). Five specific ethical justifications for public health action have been proposed (Faden and Shebaya 2016), and some may be useful in evaluating the current case: (1) collective action and efficiency are required to produce a benefit, (2) benefits and burdens are fairly distributed, (3) harm prevention, (4) paternalism, especially “soft,” “weak,” or “libertarian” paternalism, and (5) use of a “liberty-limiting continuum” (minimizing intrusion on liberty, recognizing that this consideration may also reduce benefits of the intervention).

1. The current case seems directly informed by three of these principles. *Harm prevention* is surely at issue, given that youth suicide is the ultimate self-inflicted harm. *Paternalism* may be appropriate given that children are at risk and in custodial care of school administrators and teachers, and concerns about infringing on autonomy can be mitigated if intervention methods respect students as persons. *Collective action* is the only way to prevent harm when students who are at risk cannot be individually identified from available information. The other two principles—fair distribution of benefits and burdens, and the liberty-limiting continuum—depend on potential benefits (burdens) that each stakeholder group gains (endures) under various action/inaction scenarios. With these principles in mind, we assessed the benefit/burden distribution of a few scenarios available to the surveillance team: (1) report results to the principal and take no additional action, (2) accompany reported results with explicit concern about the suicidality rate and information about resources to address the concern,<sup>2</sup> and (3) ask the local public health agency to engage with the principal. Based on our assessment (Table 1), the option of informing the principal and identifying relevant resources appears to maximize benefits, minimize burdens, and distribute both fairly among stakeholder groups.

<sup>2</sup>In the current case, the principal told the surveillance team he had resource information to address the concern.

We considered other options, including (a) informing parents, (b) following up with the principal to ensure that action had been taken and, if no action had been taken, (c) enlisting the local public agency to intervene. We concluded, however, that, unlike surveillance professionals, principals have training, authority, and duties to address student wellbeing and safety at school; the principal in the current case was given contact information for the local public health agency, and principals are accountable to boards and districts for actions as well as inactions. Given these parameters, we do not recommend that surveyors either monitor a principal’s response to survey results or independently notify an outside agency.

## GUIDANCE FROM EDUCATION ETHICS

Schools are efficient settings for obtaining health information from populations of children and adolescents, but permission to collect data requires negotiated agreement between surveyors and school administrators. Educators may be unwilling to shift class time away from academic instruction, may lack programmatic resources to address emergent health concerns, and may prefer not to risk “bad publicity” or parental criticism in response to controversial survey items (e.g., adolescent sexual practices) or high levels of risk-behaviors. Surveyors typically keep questionnaires as short as possible, may provide modest financial incentives for school participation, and may encourage principals to view school results as valuable information for needs-assessment and program planning. Educational research sites are usually anonymized (Kelly 2009; Walford 2005) to remove any threat of stigma and foster candor and openness; in school-based research, “the question is not only whether the individuals should be anonymized, but also the school itself; [principals] need to be asked directly as part of the consent procedure.” (Farrimond 2017, 83) We found no guidance regarding whether, when, or how such promises of confidentiality might be breached.

More broadly, social science research is generally expected to maintain confidentiality of communities, sites, and settings, as well as individual participants, “to protect those involved in the research from any potential possible harm or embarrassment deriving from publication of books or articles about them” (Walford 2005). Social science researchers, like medical researchers, may be obligated to breach individual confidentiality when an identifiable individual is at risk of harm (Wiles et al 2008), and some authors have challenged confidentiality as the default choice because a study

**Table 1.** Hypothetical scenarios, and examples of implications for stakeholder groups, when student health survey results are reported to the school principal.

Action	Implications	Stakeholder groups				
		suicidal students and their parents	non-suicidal students	school community (teachers, staff, parents, district, board) and affiliates (neighborhood, alumni, etc.)	principal	surveillance team
report results but do not call attention to elevated suicidality	<i>benefits</i>	dependent entirely on principal; see next scenarios for examples			full autonomy to choose action or inaction	no confusion or risk of liability due to absence of notification standards
	<i>burdens</i>				may not recognize cause for alarm; may lose opportunity to act responsibly	potential failure to prevent harm and to act on surveillance results
notify principal with appropriate warning and resource information; (principal presumably acts)	<i>benefits</i>	may prevent suicide(s); may lead to improved quality of life	may reduce suicide ideation/ other mental health issues	may reduce grief	autonomy, subject to ethical/legal responsibilities from awareness of risk	fulfillment of duty to prevent harm and to act on surveillance results
	<i>burdens</i>	suicide prevention activities may raise liberty concerns if student participation is required		may increase anxiety; may stigmatize school	must have knowledge, resources, bandwidth to act;	unclear how to determine warning is “appropriate”
ask local public health agency to engage with principal; (principal presumably acts)	<i>benefits</i>	may prevent suicide(s); may lead to improved quality of life	may reduce suicide ideation/ other mental health issues	may reduce grief	latitude to choose action; agency may provide resources;	fulfillment of duty to prevent harm and act on surveillance results
	<i>burdens</i>	suicide prevention activities may raise liberty concerns if student participation is required		may increase anxiety; may stigmatize school	school confidentiality breached, reduced autonomy	damaged trust at school, may refuse future surveys

population may want to benefit from publication of positive findings (Walford 2005). But again, we found no social science discussion of situations or principles that could require breaching group-, population-, or community-level confidentiality.

### A PRINCIPAL'S DUTIES

Principals are responsible for promoting values, leading instruction, and managing climate in the schools in which they serve (King 2017). Professional ethics

codes for principals obligate them to consider their students' wellbeing in all decisions and actions (NASP 2014) and to promote and protect student and staff welfare and safety (CCSSO 2008).

Principals and other school leaders also have legal responsibilities—to report child abuse, for example—including legal considerations related to suicide prevention. Twenty-seven U.S. states require that educators receive suicide-prevention training, and 15 more encourage such training (AFSP 2017). Lawsuits have been filed against schools and districts after students

died by suicide, alleging that school personnel knew the students were at risk of suicide and did not act appropriately. Some cases have been interpreted as obligating schools to have clear suicide prevention policies and procedures, including risk assessments, interventions and notification of parents (e.g., *Kelson v. City of Springfield*, 1985; *Eisel v. Board of Education of Montgomery County*, 1991; *Wyke v. Polk County School Board*, 1997). Online [Supplementary material](#) describes widely used school-based suicide prevention approaches and programs.

In summary, principals and certain other school personnel have legal and ethical obligations to recognize and respond to the mental health needs of students and to take steps to ensure student safety (Farrimond 2017), and these obligations are stronger when personnel are aware of a problem. However, the rationales for these duties do not seem to apply to surveillance personnel, who receive no suicide prevention training or related training and who have no quasi-parental relationship with students, as teachers and principals do.

### **STUDENT SUICIDE AND WEAPONS AT SCHOOL: SPECIAL RISKS THAT IMPOSE SPECIAL DUTIES?**

Although suicidality reported on a survey may not be imminent, suicide is the second leading cause of death nationally among individuals ages 10–24 (Heron 2019) and the leading cause of death among this age group in Colorado (Brummet et al 2017), where the current case arose. As described above, knowledge of suicide risk among students obligates school professionals to take steps to ensure safety. In addition, considerable evidence suggests that being exposed to a suicide or suicidal behavior can increase the risk for suicide, especially among youth (Abrutyn and Mueller 2014; Bearman and Moody 2004; Liu 2006; Swanson and Colman 2013; Thompson and Light 2011). Such clustered suicides account for approximately 5% of all youth suicides (Gould et al 1990). This effect appears to be consistent across gender and racial/ethnic identities. Youth whose peers exhibit suicidal behavior should be assessed and provided with support as early as possible. High levels of suicidality in a school represents an increased risk of contagion (Chan et al 2018).

Weapons at school also pose potentially grave risks. For this reason, the federal Gun-Free Schools Act requires schools that receive federal education funds to expel students who bring a firearm to school (20 U.S.C. § 7151(b)(1)) and refer them to

the criminal justice or delinquency system (20 U.S.C. § 7151(h)(1)). All but three states prohibit guns in K-12 schools (Giffords Law Center 2018). Colorado law (C.R.S. 24-10-106.3, known as The Claire Davis Act), establishes a statutory duty on school personnel to protect students from foreseeable harm caused by other persons. The Act waives governmental immunity for acts of school violence and requires districts to prove they used "reasonable care" to prevent "reasonably foreseeable" acts of school violence.

In the context of student health surveillance, we suggest that school-level clusters of highly prevalent suicidality or weapons at school—standard measures on many student health surveys—warrant special attention from surveyors. These risks have potentially grave outcomes, and although imminence cannot be established from survey evidence, neither can it be ruled out with any level of confidence.

### **RECOMMENDATIONS**

We found no ethical guidelines that directly address surveillance cases like the current one, but we believe existing guidelines offer some general principles, and we propose the following recommendations to surveillance professionals who identify a group-level safety concern:

- *Threat level.* How severe, immediate, certain, and prevalent is the danger? Surveyors could make better use of these four metrics if standards and thresholds were established for considering action based on threat level. The current case involved high prevalence and severity but lacked information about immediacy or certainty. A decision to inform the principal seems to have been warranted, and it was in fact welcomed by the principal, but was made in an ad hoc way.
- *Actionable information.* Can the at-risk group's leadership or others act on the information to prevent or mitigate the threat? Public health has identified appropriate strategies for addressing student suicidality (Granello and Granello 2007; Katz et al. 2013). More generally, student health surveys typically measure risk behaviors for which prevention and intervention programs exist, but school administrators may be unaware of them. Surveillance professionals typically are not intervention specialists, but they are in a position to obtain appropriate resource information from colleagues and



provide it to school administrators in the course of notifying them of concerning threats.

- *Special knowledge or skills.* Is the information available only from the surveillance activity? Almost by definition, survey results represent the only means of determining whether risk behaviors are widespread and concentrated. This reality suggests that surveyors must at least grapple with potential duties arising from their unique acquisition of threat information that potentially affects clustered populations.

In sum, we believe these three factors can generate an ethical, if not legal, duty to warn among public health surveillance professionals

But the current case also uncovered important, unaddressed ethical questions about the duties of health surveillance teams to warn school leaders or others when student health surveys reveal worrisome findings. Participating schools and students anonymously (and altruistically) provide their health data to help guide population-level public health practice, not to find out their own risk levels. In the instant case, surveillance procedures included a report of school-level results to each participating school as an incentive to motivate school participation. But the U.S. Youth Risk Behavior Survey (CDC 2018) and some other student health surveys do not analyze or report results at school or district levels, thus leaving worrisome school-level results unrecognized even by surveillance personnel, which may raise other ethical issues and complicate the formation of surveillance agreements with randomly selected schools. Our analysis is based on a single case, so we cannot say how often surveyors face ethical challenges like this.

One conclusion seems apparent: Ad hoc decisions to breach normal public health surveillance protocols and warn at-risk groups are ethically, practically and legally problematic. We urge leading public health and education organizations, such as the American Public Health Association, the Association of State and Territorial Health Officers, and the National Association of County and City Health Officials, together with an education association like the American Educational Research Association, to convene a working group that can clarify the ethical and legal duties owed to schools and students that anonymously complete questionnaires for population health-risk surveillance. A working group could be created under the National Academies or other mechanism, and it could issue national guidance on duties regarding analysis of school-level data, return of

school-level results, and protection vs. breach of confidentiality when student wellbeing may be at risk. Student health surveillance unavoidably involves competing values and purposes of common good and privacy as well as practical considerations of school participation. A working group could provide a needed ethical framework for addressing duty-to-warn dilemmas in public health surveillance.

### **ONLINE SUPPLEMENTARY MATERIAL: SCHOOL-BASED SUICIDE PREVENTION APPROACHES AND PROGRAMS**

Principals often resist implementing school-based suicide prevention programs, especially at the elementary school level (Whitney et al. 2011), due to concerns about time and other resources; collection of accurate information; acceptance by teachers, parents, and students; potential stigma for students; and confidentiality (Whitney et al 2011). At the same time, bullying and other negative interactions at school are risk factors for suicidal ideation and behavior. The National Association of School Psychologists has issued guidelines that include clear school policies and procedures for addressing suicidal risk, trained school-employed mental health professionals, and crisis-response teams to intervene and support students as needed (NASP 2015).

The American Foundation for Suicide Prevention identifies two key tasks for schools to prevent youth suicide: (1) identify students at risk, and (2) refer at-risk students to a mental health professional for assessment and evaluation, consistent with school protocol and policy (AFSP 2017). A number of program options are designed for school settings. From a public health perspective, they can be conceptualized as corresponding to primary, secondary, and tertiary prevention (Granello and Granello 2007). Primary or universal prevention programs provide services or information to a general population (i.e., all students) and typically use education to increase awareness of suicide and teach appropriate responses and ways to access resources when someone is suicidal, and screenings to identify youth who may be suicidal or at risk of suicidal behavior. Secondary or selected prevention efforts are aimed at students considered at higher risk of suicidality, such as those with concerning screening results. Tertiary or indicated programs, for youth who have previously engaged in suicidal behavior, seek to reduce the risk of continued or future suicidality (Granello and Granello 2007).

Schools should have suicide prevention programs at all three levels to be optimally effective.

Commonly implemented school-based suicide prevention programs may include educational curricula, screening, and/or gatekeeper strategies. *Curriculum-based* approaches are the most widely used. They teach students to recognize symptoms of depression and warning signs of suicide, in themselves or others (Katz et al. 2013), and to refer peers who appear to be struggling in these areas (Whitney et al. 2011). Signs of Suicide<sup>®</sup> (SoS) is a promising program, with educational components for students, teachers and parents and separate versions for middle school and high school; some districts have adapted it for intermediate elementary grades (Crepeau-Hobson 2013). SoS and other educational programs, such as Sources of Strength, have been evaluated as effective in decreasing suicidal behavior and preventing deaths by suicide (Aseltine and DeMartino 2004). Potential barriers to adoption and implementation include cost and time required, decaying effectiveness of single-lesson interventions, competition for class time, insufficient teacher buy-in, and potential parental objections (Whitney et al. 2011).

*Screening programs* are intended to detect students at risk for suicide who might otherwise not be identified. Schools can screen all students or target those considered at risk. Research suggests that screening does not increase distress or suicidal ideation, but failing to ask at-risk youth about suicide may increase their distress (Gould et al. 2005). Columbia TeenScreen is a commonly used program; SoS also includes a screening component. Students identified as at-risk in screening must then be assessed by a team that includes a mental health professional to determine the level of risk and appropriate intervention (Miller 2007). Schools that screen thus must have in-school resources and/or community agency partners for referral to mental health support as appropriate (Katz et al. 2013). Potential barriers include limited access to necessary resources, referred students' nonuse of services (Katz et al. 2013), and challenges in designing and implementing protocols for handling false-positive and false-negative results.

*Gatekeeping programs* train school staff to identify warning signs and symptoms of suicidal and depressive behaviors and act as gatekeepers to refer students to appropriate professional support. Question, Persuade, Refer (QPR), a widely implemented school gatekeeper program (Katz et al. 2013), trains participants to recognize suicide risk factors in others and respond appropriately. Barriers include trainees' discomfort in

approaching at-risk students, referred students' nonuse of services (Katz et al. 2013), logistics of implementation, and sustained, long-term teacher investment.

## DISCLOSURE STATEMENT

Marilyn E. Coors serves on the Board of the PEMA Foundation, which owns shares in Taiga Biotechnology, Inc.

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