

INFORMATION CAPSULE

Research Services

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Preventing Violence in Schools

At a Glance

This report provides information on the causes and incidence of youth violence and summarizes violence prevention strategies used in schools across the country. Particular attention is devoted to the use of metal detectors in schools. It would cost an estimated \$32.5 million to implement a metal detection program in all of the District's schools. Disadvantages of metal detectors and issues districts should consider when deciding whether or not to use them are summarized. Programs and policies that can provide an alternative to or supplement the use of metal detectors are also reviewed. It was concluded that no single security system can guarantee that school violence will be completely eliminated. Research shows that the implementation of early violence prevention and social skills programs and the establishment of trusting relationships between staff and students can increase safety in schools.

High-profile incidents of school violence generally lead to impassioned responses on the part of district stakeholders. The media attention and school-community politics which ensue can lead to knee-jerk solutions to very complicated problems. A variety of interventions have been offered to secure schools over the years, from architecturally redesigning schools, to installing security cameras and metal detectors, to implementing conflict resolution programs.

In general, very little evidence exists to confirm the efficacy of any of these strategies since few interventions have been based upon rigorous scientific investigation. Frequently, "get tough" strategies are recommended which appear to have almost universal appeal and include metal detectors, armed guards, etc. However, according to many experts the advantages of these strategies are over shadowed by their cost and deleterious effect they can have on the learning environment at schools. Such "reactive measures" fail to address the underlying causes of violence and rarely promote positive prosocial behavior (Noguera, 2004; Northwest Regional Educational Laboratory, 1998).

The purpose of this Information Capsule is to provide background information to school officials given the responsibility of deciding which security measures to implement. Particular attention has been devoted to the use of metal detectors.

Incidence of Youth Violence

The consensus in the literature is that the cause of youth violence is multidimensional and not restricted to a few personality characteristics or risk factors nor to specific subgroups of students. Rather the increase in the number of violent crimes committed by young people can be attributed to learned behavior reinforced by families through punitive and abusive child-rearing practices and promoted in the media and in popular culture (Noguera, 1996 and 2004).

Indicators of School Crime and Safety: 2008 constituted the eleventh in a series of reports produced since 1998 by the Center for Education Statistics (NCES) and the Bureau of Justice Statistics (BJS). These reports present the most recent national data available on school crime and student safety. The number of homicides and suicides among youth between the ages of 5 - 18 while at school has decreased over the 15-year period from 1992-93 to 2006-07 (Figure 1). However, a substantial increase (i.e., 22 to 35) occurred from 2005-06 to 2006-07.

There were 35 school-related violent deaths in the nation's schools from July 1, 2006 through June 30, 2007 with 27 homicides and eight suicides. In fact, 9 percent of male students admitted to carrying a weapon during the previous 30 days on school grounds compared to 3 percent of female students. In addition, 10 percent of U.S. male and 5 percent of female students in grades 9 - 12 reported being threatened or injured with a weapon on school grounds in the previous 12 months. In urban schools, 10 percent of teachers were threatened with injury by students compared to 6 percent of teachers in suburban schools. There were six times as many public school teachers as private school teachers who reported being threatened with injury (12 vs. 2 percent).

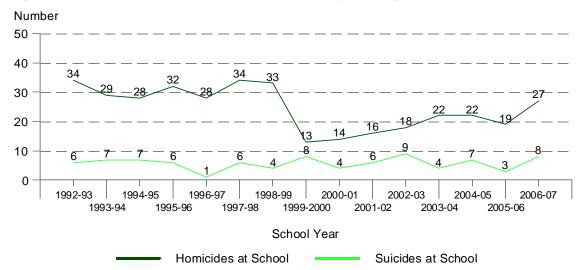


Figure 1. Number of homicides and suicides of youth ages 5–18 at school: 1992–2007

Although even one student killed at school is a great tragedy, data in Figure 2 provide some degree of perspective on a harsh reality. In 2005-06, a total of 3,054 youths between the ages of 5 - 18 died nationally as a result of homicide or suicide. Of this number, 22 or 0.7 percent of the students were either victims of homicide or committed suicide while on school property or attending a school-sponsored event.

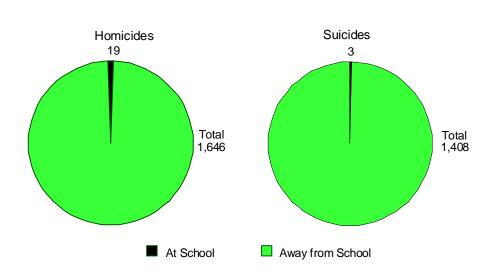


Figure 2. Number of homicides and suicides of youth ages 5-18, by location: 2005-06

Violence Prevention Strategies

Table 1 provides national data regarding the percentage of public schools reporting the use of selected violence prevention strategies for school years 1999-00, 2003-04, and 2005-06 (NCES, 2009). The majority of students reported their school had a student code of conduct (96%) and required visitors to sign in (94%). Metal detectors were the least frequently reported security strategy since only 10 percent of the students reported such detectors being used at their school. In 2005-06, only 1.1 percent of the students reported having to pass through a stationary metal detector and 4.9 percent reported random checks or sweeps using some form of metal detection.

Table 1. Percentage of public schools that used safety and security measures: Various school years, 1999–2000, 2003–04, and 2005–06

School safety and security measure	1999-2000	2003-04	2005-06
Controlled access during school hours			
Buildings (e.g., locked or monitored doors)	74.6	83.0	84.9
Grounds (e.g., locked or monitored gates)	33.7	36.2	41.1
Closed the campus for most students during lunch	64.6	66.0	66.1
Drug testing and tobacco use			
Any students	4.1	5.3	_
Athletes	_	4.2	5.0
Students in extracurricular activities other than athletics	_	2.6	3.4
Any other students	_	_	3.0
Prohibited all tobacco use on school grounds	90.1	88.8	90.3
Required to wear badges or picture IDs			
Students	3.9	6.4	6.1
Faculty and staff	25.4	48.0	47.8
Metal detector checks on students			
Random checks	7.2	5.6	4.9
Required to pass through daily	0.9	1.1	1.1
Sweeps and technology			
Random dog sniffs to check for drugs	20.6	21.3	23.0
Random sweeps for contraband	11.8	12.8	13.1
Used security cameras to monitor school	19.4	36.0	42.8
Provided telephones in most classrooms	44.6	60.8	66.8
Provided two-way radios	_	71.2	70.8
Visitor requirements			
Sign-in or check in	96.6	98.3	97.6
Pass through metal detectors	0.9	0.9	1.0
Dress code			
Required students to wear uniforms	11.8	13.8	13.8
Enforced a strict dress code	47.4	55.1	55.3
School supplies and equipment			
Required clear book bags or banned book bags on			
school grounds	5.9	6.2	6.4
Provided school lockers to students	46.5	49.5	50.6
Enforced a strict dress code	47.4	55.1	55.3

Metal Detectors Explained

A metal detector is an electronic instrument used to locate specific types of metal. Metal detectors are used for recreational purposes (hand-held "beachcomber"), for airport and building security, archaeological exploration, and geologic research. Metal detectors come in hand-held wand variety and stand alone mounted variety. The mounted or "walk-through" detectors are quite large but less invasive than hand-held models since they require less close personal contact. The latter are more expensive than other types of metal detectors but they are built to tolerate the demands of high traffic areas. Garrett Security Metal Detectors of Garland, Texas represents the single largest manufacturer of metal detectors in the country.

Cost Considerations in the Use of Metal Detectors in Public School Districts

According to a 2006 Orlando Sun Sentinel interview with Jim Debra (VP of Sales at Garret Security Metal Detectors) conducted by Claudia Zachary, selling metal detectors to schools in January 2006 was more difficult than it was in the past. Although one-third of Garrett's sales were to schools after the 1999 Columbine shootings in Colorado, sales to schools in January 2006 represented only 5 percent of the company's business. According to an NCES report, the number of schools reporting use of metal detectors doubled from 4 percent to 8 percent from 1999 to 2002; however, frequency of use has since declined. The number of schools reporting use of metal detectors in Florida declined 40 percent from 970 schools in 2000-01 to 696 schools in 2003-04 (Zequeira, 2006).

Some school districts in other states have turned to metal detection for purposes of securing schools. In New York, city schools will conduct random and unannounced metal detector screenings at middle and senior high schools during the 2009-2010 school year. The mobile scanners will detect weapons such as firearms, knives, and box cutters and the program will be supervised by the New York City Police Department.

As of February 2008, each public middle and senior high school in Memphis, Tennessee had one "stand-up" walk-through metal detector for every 500 students and one metal-detection wand for every 300 students (Aarons, 2008). Memphis public schools are required to conduct screenings at least nine times per year. The district has a total student membership of 115,000 and it is also planning to purchase X-ray machines for each middle and high school at a cost of approximately \$2.3 million. It was estimated to cost approximately \$4.5 million in equipment and staffing to conduct metal detector screenings daily in all 56 middle and senior high schools.

In 2000, all 69 public high schools in Chicago used walk-through metal detectors that cost from \$2,500 to \$3,000 to purchase at the time (Cook and Ludwig, 2000). The system also employed 994 full-time security personnel at a cost of approximately \$25,000 per year and 445 off-duty Chicago police officers who were hired on a part-time basis at a cost of approximately \$15,500 each. An additional 140 full-time Chicago Police Department officers patrolled public schools in Chicago for a cost of \$67,000 each per year. Therefore, the Chicago Public Schools spent approximately \$41 million each year for school security personnel and metal detectors during the 2000-01 school year.

Estimated expenditures to establish a districtwide metal detection program in M-DCPS have been calculated. These ballpark figures are provided in Table 2 and use the industry standards recommended by Garrett Security Metal Detectors. Implementation of a metal detection program in every M-DCPS school (excluding Charter Schools) would cost the district approximately \$32.5 million. During the initial year, cost for the equipment and personnel to manage the use of metal detectors at all middle and senior high schools alone would be approximately \$18 million. These estimates only include the bare essential start up equipment costs and do not include continued maintenance and/or servicing of the equipment or costs associated with installation and training of staff.

Table 2. Preliminary estimate of cost for school metal detectors in M-DCPS

Level (Does not include Charters)	No. of Schools	Est. No. of Students	No. of Monitors*	Cost of Monitors**	No. of Walk-thru Detectors***	Cost of Detectors	No. of Wand**** Detectors	Cost of Wands	TOTALS
Elementary	193	103,243	414	\$9,740,592	207	\$807,300	207	\$47,610	\$10,595,502
K-8	24	30,296	122	2,870,416	61	237,900	61	14,030	3,122,346
Middle	60	84,119	336	7,905,408	168	655,200	168	38,640	8,599,248
Senior	51	93,258	374	8,799,472	187	729,300	187	43,010	9,571,782
Other	13	1,635	26	611,728	13	50,700	13	2,990	665,418
TOTAL	341	312,551	1,272	29,927,616	636	2,480,400	636	146,280	32,554,296

NOTE: Estimates were based on:

- * Two monitors per detector;
- ** Midpoint of salary range \$23,528 (not including fringe benefits);
- *** One walk-through detector per 500 students (minimum 1 per school);

Price of Garrett walk-through detectors start at \$3,900 plus accessories.

Currently, Miami-Dade County Public Schools (M-DCPS) uses video surveillance but not metal detectors (Mazzei 2009). Previously, a private company was contracted by M-DCPS to conduct random metal detections at schools but this service is no longer used. Broward County Public Schools uses security cameras and also uses hand-held metal detectors which are available should principals suspect a student is carrying some kind of weapon.

Effectiveness of Metal Detectors

Although the number of schools using metal detectors has declined subsequent to the tragic shootings in Columbine, Colorado in 1999, experts claim this should not be interpreted as a decline in the use of metal detectors over time but rather a correction for the unusually high demand for the units immediately following the Columbine incident.

Although violence in schools is never preventable 100 percent of the time, some experts contend metal detectors in conjunction with other strategies can decrease the number of weapons in schools (Johnson, 2000). Little evidence exists confirming the effectiveness of metal detectors or other security measures in reducing school violence. However, a survey reported by Zequeria (2006) and conducted by the School of Public and Environmental Affairs at Indiana University indicated that only 32 percent of school-security personnel reported that "weapons-detection devices" were effective.

Disadvantages of Metal Detectors

Metal detectors, when used in conjunction with other types of surveillance and school-wide intervention programs, can be a helpful tool for increasing student safety. Although proponents of metal detectors in schools believe they create a safer environment and reduce students' fears about violence in their schools, most experts agree that they will not solve all of a school's security problems (Mettler, 2008; Davis et al., 2001). Critics cite a long list of disadvantages associated with the installation of these systems, including:

Metal detectors create a false sense of security. For example, an electronically secured main entry will
do little to deter students from bringing weapons to school if the back door remains uncontrolled (Mazzei,
2009; National School Safety and Security Services, 2008; Schneider, 2007).

^{****} One wand per walk-through detector (\$230)

- Metal detectors do not completely eliminate school violence. Students still find ways to bring weapons into school, through unsecured doors or windows or over fences (Mazzei, 2009; Davis et al., 2001; Schneider, 2001).
- The presence of metal detectors at school entryways creates a prison-like environment that reinforces fear and distrust (Ofer et al., 2009; National School Safety and Security Services, 2008; Schneider, 2007).
- The equipment and staff needed to conduct searches would cost hundreds of thousands of dollars per school. Metal detector portals, hand-held scanners, and x-ray machines must be purchased and maintained. At least two security personnel must be hired to operate each metal detector, take aside students who trigger the alarm, monitor the remaining students, and respond to the discovery of weapons (Mazzei, 2009; National School Safety and Security Services, 2008; Schneider, 2001; Green, 1999).
- Metal detectors are only as effective as the operators overseeing their use. Screeners must be properly
 trained to conduct metal detector scans. For example, metal detectors alone can't distinguish between a
 gun and a large metal belt buckle; employees must be trained to make these types of determinations
 (Green, 1999).
- Use of metal detectors requires staggering students' arrival at school to avoid long lines and allow sufficient time for processing. In addition, students waiting in line to be scanned must be allowed to wait indoors, or at least under some type of shelter (Schneider, 2001; Green, 1999).
- Metal detectors are usually not effective when used on purses or book bags because they often contain
 metal structures that sound an alarm. Therefore, x-ray equipment must be used as part of a metal
 detection program. In addition, hand-held scanners are required for use on students who trigger an
 alarm when they walk through the metal detector portal (Green, 1999).
- If funding sources for specialists to operate the metal detectors decrease or disappear, the entire security plan may become unworkable (Schneider, 2007).
- Metal detector technology can quickly become obsolete. If manufacturers or vendors go out of business, schools may be left with expensive, non-working equipment that is difficult to repair or replace, with little or no resale value (Schneider, 2007).
- The public often believes the installation of metal detectors will guarantee students' safety. Most community
 members don't understand the complexities associated with operating a school metal detector program
 or that the system will not automatically eliminate all school violence (National School Safety and Security
 Services, 2008).
- Metal detectors and related body scans and bag searches increase student-police interactions, expand
 police involvement in the enforcement of school rules, and can create flashpoints for confrontation (Ofer
 et al., 2009).

Issues to Consider when Installing Metal Detectors

There are many implementation issues and questions to consider when deciding whether to install metal detectors in schools. Districts must determine the following (Ofer et al., 2009; National School Safety and Security Services, 2008; Davis et al., 2001; Schneider, 2001):

 Will all students be searched every day? If not, will searches be conducted on a random basis or only on the basis of suspicion?

- Which of the district's schools will implement the metal detector program?
- How will a policy that addresses methods of searching and the consequences of having weapons be disseminated so all students are notified of the policy prior to the commencement of searches?
- The costs involved in implementing a metal detector program, including:
 - · initial cost of the metal detector portals;
 - cost of supplementary equipment, such as hand-held scanners and x-ray machines;
 - cost of personnel needed to operate the metal detectors:
 - · cost of ongoing equipment maintenance and repair; and
 - costs associated with replacing the metal detectors over time.
- How will metal detectors be deployed to prevent weapons offenses in areas outside of the main school building, such as buses and school grounds?
- How much time will be required to screen thousands of students prior to their first class without disrupting educational programs?
- How many security professionals will be hired to operate the metal detectors when students arrive in the morning? How many will be needed to staff the detectors throughout the school day? How many will be needed to staff the detectors during after-school activities and evening events?
- What types of training will be provided to employees operating the metal detectors? Will they be given
 orientation training on the operation of the metal detectors? Will arrangements be made for them to
 receive specialized initial and ongoing training on recognizing concealed weapons and learning the most
 common ways students try to circumvent the detection systems?
- How often will the district's security leaders conduct inspections to evaluate the effectiveness and proper operation of the metal detector program?
- If metal detectors are stationed at schools' main entryways, how will all other doors at the school be secured and staffed to prevent unauthorized entry?
- Will ground-level windows be permanently secured at all times so weapons can't be passed through open windows?
- Will metal detectors operate on a 24-hour/7-day-a-week basis? If detectors are shut down after students'
 arrival time, they will miss tardy students; if detectors are shut down for after-school activities and evening
 programs, it creates an opportunity for persons to enter during non-detection operation times and store
 weapons in the building.
- How will staff determine the metal detectors' impact on the school environment? Data should be collected
 on the number of scans conducted each day, the wait time for each scan, the number of students
 subjected to a secondary scan, the number of students subjected to a body search, and the number of
 altercations and arrests that result from scans.

Alternatives to Metal Detectors

Experts have concluded that other types of programs and policies can offer an alternative to or supplement the use of metal detectors to provide a safer learning environment for students. These programs and policies are summarized below.

- Surveillance cameras. School video surveillance systems consist of cameras placed in areas where they can monitor activity as it takes place. Most cameras are used with digital recording systems. The cameras may include features like pan, tilt, and zoom and may be placed in indoor or outdoor locations. Surveillance cameras can provide students and staff with an increased sense of security and their presence alone often deters acts of violence. However, premeditated crimes can be planned to avoid the cameras and school violence often occurs in areas where no cameras are located, such as bathrooms or locker rooms (Mazzei, 2009; Schneider, 2007; Sprague, 2007; Dedman, 2006; Davis et al., 2001; Green, 1999). Schneider (2007) stated that if districts can't afford expensive surveillance equipment, mirrored windows and convex mirrors can be installed to keep students guessing as to whether or not they are being observed.
- Communication devices. Experts agree that communication devices (telephones, radios, cell phones, intercoms, public address systems, and pagers) are the least controversial and some of the most affordable technological risk-reduction tools. All adults in a school should be equipped with devices that allow them to have dependable two-way communication with the front office without leaving the classroom (Schneider, 2007; Sprague, 2007; Green, 1999).
- Locker searches. Schools may choose to search student lockers for weapons and/or contraband on a regular basis. Staff must decide if they will search several or all lockers and how often the searches will be conducted. Experts agree that locker searches deter students from bringing contraband and weapons to school; however, students are likely to feel their privacy is being invaded. Furthermore, the process of students leaving their classrooms to open their lockers for inspectors is time-consuming and disruptive for both teachers and students (Davis et al., 2001).
- **Email monitoring.** Some districts have chosen to monitor students' email. All incoming and outgoing messages can be previewed or messages that contain certain words can be flagged and intercepted before they reach their destination (Davis et al., 2001).
- Increased patrolling. At many schools, police officers and school resource officers patrol schools and grounds, monitoring student behavior and intervening in conflicts. Some schools also use volunteers to assist with building supervision before and after school and during lunch (Mazzei, 2009; Schneider, 2007; Sprague, 2007). Schneider (2007) recommended that school staff increase patrolling specifically in high-risk locations, such as:
 - hallways that suffer from population explosion between every class, with lines of sight often blocked by lockers or vending machines;
 - stairwells that alternate between congestion and long periods of isolation;
 - outdoor grounds that are spread out over large areas and whose landscaping and outbuildings can hide illicit activity;
 - entryways, cafeterias, or any areas where large groups of students assemble; and
 - bathrooms that are frequently located in isolated corners of buildings and out of school staff's direct line of sight.
- Trusting relationships with students. Experts emphasize that teachers and administrators must establish trusting relationships with students so they are willing to tell them about potential threats (Mazzei, 2009; Dedman, 2006). Kenneth Trump, President of National Safety and Security Services (2008), stated: "The first and best line of defense against school violence is a well-trained, highly-alert school staff and student body, and the most common way we find out about weapons in schools is when students report such information to adults they have relationships with and trust." Sprague (2007) suggested that schools implement a confidential reporting system that can include Web site reporting or an anonymous "tip line." Ofer and colleagues' (2009) study of six New York City public schools that successfully reduced their levels of violence found that students in schools without metal detectors reported feeling more welcome at their schools and more committed to reporting violations of the code of conduct, including the presence of weapons in the school.

- Positive school climate. Many experts have concluded that the most important step a school can take
 in preventing violence involves the affective, rather than the physical, environment. School staff should
 promote a positive school climate and culture, teach and model prosocial behaviors, provide effective
 interventions when antisocial behaviors occur or when students demonstrate a propensity for violence,
 establish school-wide rules and behavioral expectations, and promote civility and respect for the rights
 of others (Schneider, 2007; Sprague, 2007).
- Violence prevention and social skills programs. Kutash and Duchnowski (2007) recommended
 that schools coordinate and implement an array of interventions that focus on reducing disruptive and
 aggressive behaviors and strengthening students' emotional and behavioral competencies. They detailed
 three levels of programs that should be offered:
 - Universal interventions. School-wide programs designed to address risk factors in the entire population of students. Universal programs usually include curricula delivered within the classroom that teach specific behaviors and include opportunities for students to practice newly acquired skills. According to Greenberg and colleagues (2003), the key strategies for effective school-based interventions include teaching and reinforcing students' skills; fostering supportive relationships among students, staff, and parents; starting programs before risky behaviors begin; including numerous program components; and continuing programs for multiple years. The two universal interventions most commonly implemented in U.S. schools are:
 - Promoting Alternative Thinking Strategies (PATH). This program has six curriculum sections that cover emotional literacy, self-control, social competence, positive peer relations, and interpersonal problem-solving skills (serves students ages 5-12 years).
 - Second Step. This program consists of in-school curricula, parent training, and skill development. Students learn social skills and socio-emotional skills aimed at reducing impulsive and aggressive behavior while increasing social competence (serves students ages 4-14 years).
 - Selective interventions. Programs that target groups of students identified because they are at-risk
 for or are beginning to exhibit signs of more serious behavior problems. Selective interventions are
 used with students who require more than universal programs but less than intense individualized
 interventions. Examples of commonly used selective interventions include:
 - First Step to Success. This program is implemented in the classroom with behavioral criteria set each day. The program also includes an in-home portion, in which parents are taught to reward appropriate behaviors (serves students ages 4-5 years).
 - Olweus Bullying Prevention Program. This program is designed to raise awareness, improve peer relations, intervene to stop intimidation, develop clear rules against bullying behavior, and support and protect victims. The program can also be implemented on a school-wide basis (serves students ages 6-18).
 - Individualized interventions. These interventions are aimed at students you have significant symptoms of a disorder but don't meet diagnostic criteria for the disorder. The *Incredible Years* program, for example, includes group therapy sessions, classroom lesson plans, weekly parenting groups, and teacher classroom management sessions (serves students ages 2-8 years).
- Mental health and social service referrals. Some students have serious problems that can't be
 handled by school staff. School violence can be reduced when troubled, antisocial, and depressed
 students are promptly referred to mental health and/or social service agencies to ensure they receive
 the professional attention they need before serious problems arise (Sprague, 2007).

- Parental involvement. Parents can have a strong influence on school safety. Experts have recommended that school staff involve parents in making schools safer by (Ofer et al., 2009; National School Safety and Security Services, 2008; Sprague, 2007):
 - Creating a parent advisory group devoted to school safety issues.
 - Consulting parents prior to the implementation of any security program and providing opportunities for their input. The capabilities and limitations of the system should be presented clearly and fairly.
 - Advocating that parents teach their children non-violent methods of responding to bullying, teasing, and harassment. Parents should be asked to avoid encouraging their children to fight back. In the vast majority of cases, fighting back is not effective and may escalate the situation to dangerous levels.

Conclusion

This report reviewed research on the causes of youth violence and the incidence of violence in U.S. schools and summarized violence prevention strategies used in schools across the country. Calculation of expenditures estimated it would cost Miami-Dade County Public Schools approximately \$32.5 million to implement a metal detection program in all of the District's schools. Disadvantages of metal detectors and issues school districts should consider when deciding whether or not to install metal detectors were also summarized. Finally, programs and policies that can provide an alternative to or supplement the use of metal detectors were discussed, such as installing surveillance cameras, conducting locker searches, developing trusting relationships with students, and implementing school-wide or targeted violence prevention and social skills programs.

Just as schools cannot hope to single-handedly solve the continuing dilemma of the academic achievement gap among students from various social, economic, and environmental backgrounds, they also cannot be expected to be exclusively responsible for solving the complex problems associated with violence in America. This must be considered a shared obligation between local community and national governmental institutions. The research reviewed in the production of this Information Capsule revealed that no school nor other social institution for that matter can ensure 100 percent safety of all students, teachers, and parents all of the time. Even the best security measures cannot prevent victimization of innocent people by a determined assailant. Research shows that early violence prevention and social skills programs and the establishment of trusting relationships between students and staff offer effective remedies for breaking the perceptual cycle of violence observed in America. Schools can provide an environment where young people can learn to solve interpersonal problems without resorting to violence. Teaching these skills to students in schools can benefit everyone.

All reports distributed by Research Services can be accessed at http://drs.dadeschools.net.

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