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What are the Economic Costs of Implementing SWPBIS in Comparison to the Benefits from Reducing Suspensions?

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Out of school suspension is an exclusionary discipline practice that is intended to deter unwanted behavior, but has actually been associated with increases. For example, Massar, McIntosh, and Eliason (2015) showed that students receiving a suspension in the first three months of middle school had a 71.9% likelihood of receiving another suspension. In addition, damaging long-term consequences are experienced by both the individual and the community at large. The short-term, immediate consequences of exclusionary discipline practices include lost instructional time for the student and increased administrative time spent processing them.

Dropping out of school is a longer-term, well-documented effect of suspension for the individual student. Noltemeyer, Ward, and Mcloughlin's (2015) meta-analysis of 34 studies revealed not only a significant inverse relation between suspensions and achievement, but also a significant positive relation between suspensions and dropout. Balfanz and colleagues (2015) documented that even one suspension in ninth grade doubles the risk for dropping out, and Rumberger and Losen (2016) calculated that overall, being suspended is associated with a 6.5% decrease in the likelihood of graduating from high school.

The Costs of Suspension and Dropout

Rumberger and Losen (2016) provided a compelling analysis of the monetary costs of dropout in the United States, which include the losses and/or costs absorbed by federal, state, and local governments due to lower income tax revenues and government expenditures on health services, social services, and the criminal justice system. Thus measured, the fiscal cost of dropping out is estimated to be $163,340 per individual across her/his lifetime. They also estimated the social cost, or cost to the individual in diminished

earning potential, diminished productivity, and higher expenditures on health care due to lack of health insurance and resulting poorer health. Each person who drops out of school has a social cost of $527,695 in 2016 U.S. dollars.

Rumberger and Losen (2016) also calculated the fiscal benefits of reducing suspensions and the corresponding rate of dropout. Reducing the suspension rate by 1% in California would reduce the number of suspended students by 35,279 and reduce dropouts due to suspensions by 4,233 individuals. This 1% drop in suspensions would produce $691 million in fiscal benefits and $2.2 billion in social benefits. Cutting the suspension rate in half, or by 8%, would yield a fiscal benefit of $5.5 billion and a social benefit of $17.8 billion. Hence, there are both educational and financial reasons to implement school practices to reduce the use of suspensions.

School-wide Positive Behavioral Interventions and Supports

School-wide Positive Behavioral Interventions and Supports (SWPBIS) is a multi-tiered approach to implementing evidence-based practices to improve school climate and reduce unwanted behavior (Lewis et al., in press). More than 25,000 schools are currently implementing PBIS in the United States (www.pbis.org). A growing research base shows that when SWPBIS is implemented with fidelity, schools experience reductions in problem behavior (Bradshaw, Mitchell, & Leaf, 2010; Bradshaw, Waasdorp, & Leaf, 2010; Horner et al., 2009), bullying (Waasdorp, Bradshaw, & Leaf, 2012), illegal substance use (Bastable, Kittelman, McIntosh, & Hoselton, 2015), and teacher burnout (Ross, Romer, & Horner, 2015). Improvements in emotional regulation and other prosocial behaviors are also observed (Bradshaw, Waasdorp, & Leaf, 2012).

SWPBIS is associated with multiple benefits related specifically to suspension and dropout. In fact, results from a randomized controlled effectiveness trial showed that SWPBIS significantly reduced out of school suspensions (Bradshaw et al., 2010). Also, a large-scale evaluation showed higher high school graduation rates for schools implementing SWPBIS with fidelity (Freeman et al., 2015).

Purpose

As districts explore alternatives to reactive exclusionary discipline, administrative teams must consider the costs of implementation in relation to the benefits of those alternatives. The student-level benefits of implementing SWPBIS with fidelity are well documented; however, a formal assessment of SWPBIS costs of implementation and a comparison with the savings (i.e., cost/benefit analysis) has not yet been conducted. In this research brief, we provide an introductory overview of the cost of implementation of SWPBIS, as a school-wide approach to reduce suspensions, compared to the cost of school dropout. We also describe an estimate of potential fiscal savings based solely on improving that the student dropout outcome. The remainder of this brief will address a (a) cost benefit analysis of SWPBIS in process and (b) brief comparison of the costs of implementation of SWPBIS to the fiscal cost of preventing dropout.

Method

Conducting Cost Analyses

Cost analyses are complex and rely on certain assumptions for calculations. For context, this brief adheres to the following assumptions about costs associated with adopting SWPBIS. The cost to implement a school initiative includes both new costs and opportunity costs to schools (Blonigen et al., 2008). New costs are additional expenses that are related to adoption, such as the cost of a curriculum or materials. Opportunity costs include reallocation of existing resources to the new endeavor, such as redirecting existing funding and other resources from existing efforts to SWPBIS implementation. The following assumptions pertain to these calculations of the cost of SWPBIS:

- Schools and districts typically do not hire additional staff for SWPBIS implementation but rather repurpose existing professional development, school team time and functions, and responsibilities of school personnel for SWPBIS implementation.
- SWPBIS curricular materials are freely available online, but schools may incur duplication costs.
- Some costs of Tier 1 implementation should decrease each year, following an initial start-up period, as internal capacity is built and less "outside" training is required, whereas others (e.g., online data system subscriptions) remain relatively stable over time.

Results

What Is the Cost to Implement SWPBIS?

Implementing SWPBIS requires resource allocation that may include funding for training and coaching, personnel (full-time effort, or FTE) allocation or re-allocation, data management, and other related resources. Lindstrom, Johnson, and Bradshaw (2016) conducted a rigorous cost study that focused on assessing the cost of SWPBIS at the school, district, and state level, both at Tier 1 and when combined with Tier 2 and 3 evidence-based practices. Preliminary findings from these large-scale studies suggest that an upper end estimate of the school costs of SWPBIS to be $12,400. These estimates take into account the costs of existing resources and personnel reallocated to implementing SWPBIS. These staffing costs represent approximately a third of the total costs ($3,900), with training in SWPBIS costing an average of $5,100 per school.

Other main drivers of cost included time spent completing ODRs and money to support materials duplication and incentives. This estimate is similar but higher than previous, less rigorous estimates. For example, Horner and colleagues (2012) estimated the cost of piloting SWPBIS over a two-year period to be $5,400-$10,400 per school; however, they did not take into account redirecting existing resources and personnel to SWPBIS implementation activities that likely accounts for some of the difference in cost estimates with the more recent study.

Leveraging Lindstrom, Johnson, and Bradshaw's (2016) estimate of $12,400, we see substantial potential fiscal savings when extrapolating district-wide. For a district of 20 schools, the cost would be $248,000 to implement SWPBIS district-wide. However, this estimate assumes no cost-savings for implementing at scale that may overestimate the cost. In any case, preliminary results from district interviews suggest that the district may bear a substantial proportion of the cost burden possibly because of the understood importance of stakeholder cost distributions. More research is needed to examine the costs carried by the school, district, and state budgets.

What are the Costs Related to Dropout?

We used Rumberger and Losen's fiscal cost per student, $163,340, to estimate the fiscal costs for different school sizes based on the average rate of dropout in the U.S. in 2015 by race as reported by the U.S. Department of Commerce, Census Bureau (2016). For comparison, the average dropout rate for schools in the United States is also included. Since social costs are much higher, only fiscal

Table 1
Cost of Initial Implementation of SWPBIS (from Lindstrom Johnson & Bradshaw, 2016)

Cost per School, per Year			Cost per Student, per Year		
Training	Staffing	TOTAL	Enrollment 200	Enrollment 500	Enrollment 1000
$5,100	$3,900	$12,400	$62.00	$24.80	$12.40

Table 2
Costs of Dropout per School Based on U.S. Department of Commerce, Census Bureau Dropout Rates in 2015, and School Enrollment

		Fiscal Cost per Student (*$163,340 per student*)					
		Enrollment 200		**Enrollment 500**		**Enrollment 1000**	
Student Group	**Drop Out %**	**# Students**	**Total Fiscal Cost**	**# Students**	**Total Fiscal Cost**	**# Students**	**Total Fiscal Cost**
Avg. School	5.9%	11.8	$1,927,412	29.5	$4,818,530	59	$9,637,060
White	4.6%	9.2	$1,502,728	23	$3,756,820	46	$7,513,640
Black	6.5%	13	$2,123,420	32.5	$5,308,550	65	$10,617,100
Hispanic	9.2%	18.4	$3,005,456	46	$7,513,640	92	$15,027,280

cost are included in this table. Social costs are absorbed by the larger community around the school through federal, state, and local programs based on the noted dropout rates per school.

Costs of Implementing SWPBIS Compared to Cost Savings of Reducing Dropout

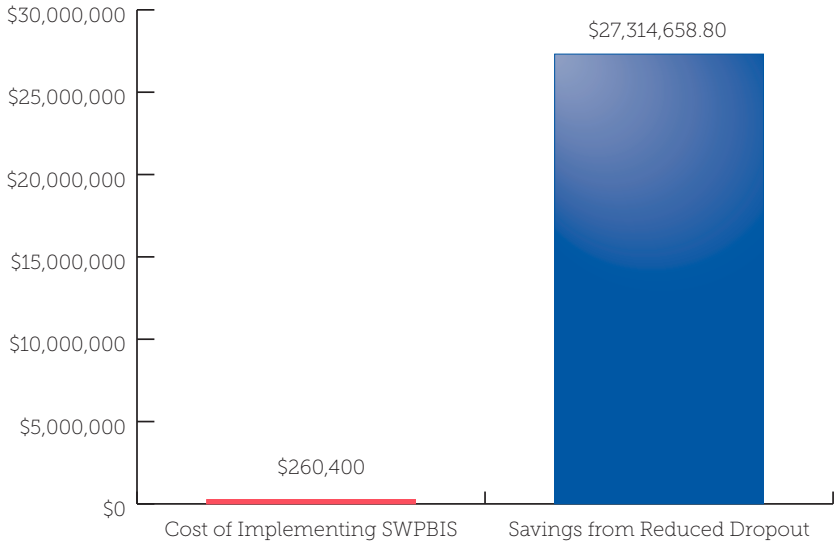
To illustrate the potential cost to implement SWPBIS to the fiscal cost per student of dropout, we have generated an example using previously published outcomes related to SWPBIS implementation. Bradshaw and colleagues' (2010) randomized controlled trial (N=37 schools) documented the impact of training in SWPBIS on several school-level outcomes, most notably, the impact on student suspensions. A Wilcoxon signed ranks test was non-significant for the comparison schools ($Z = -1.54$, $p = .12$), but was statistically significant for the SWPBIS schools ($Z = -2.17$, $p = .03$, $d = .27$). This test indicated that the percentage of students receiving suspensions significantly declined over time for SWPBIS schools, but not for comparison schools. Schools in the SWPBIS condition had a baseline rate of 7.7% students with out-of-school suspensions decreasing to a 6% rate for Year 4 of implementation (Bradshaw, Mitchell, & Leaf, 2010).

Using the mean enrollment (M=471.76, range 233–270) for the 21 schools in the SWPBIS condition, we estimated an approximate enrollment of 9,906.96 students total in the SWPBIS condition. Baseline rate of out-of-school suspension for the SWPBIS condition was 7.7%, which represents 762.84 students. In Year 4, following SWPBIS implementation, this rate decreased to 6.0%, representing 594.42 students. This 1.7 percentage point reduction decreases the total number of students with a suspension event by 168.42. A suspension event increases the dropping of dropping out by 6.5% (Rumberger & Losen, 2017). If we look at risk only accrued due to out-of-school suspension, and do not include the other factors related to drop out, we can grossly estimate that we have reduced the risk of dropout by 6.5% for 168.42 students.

Fiscal Benefits of Investing in SWPBIS

Every $1 invested in SWPBIS resulted in a fiscal savings of $104.90.

Figure 1
Fiscal Costs and Savings of Implementing SWPBIS



Following this estimation, we can multiply the total difference in number students with an out-of-school suspension between baseline and Year 4, 168.82 by the amount per student lost to dropout, $163,340.00 for a total of $27,575,058.80 recovered fiscal savings. By reducing the out-of-school suspension rate by 1.7 percentage points in the treatment schools the estimated local and regional savings are $27,575,058.80. For comparison, based on cost per school of $12,400 (Lindstrom Johnson et al, 2016, the total cost to implement SWPBIS in the 21 intervention schools for the four-year duration of the study could be estimated at $260,400.00. After subtracting the cost of implementation, a fiscal savings of $27,314,658.80 results (See Figure 1). In other words, every $1 invested in SWPBIS resulted in a fiscal savings of $104.90, solely from reducing dropout by way of reducing suspensions.

Limitations

We used (a) already published empirical evidence to examine the impact of SWPBIS on reducing out-of-school suspension and (b) emerging information on the true cost of SWPBIS implementation (Lindstrom Johnson & Bradshaw 2016) as a crude, initial comparison to the cost of dropout for policy implications. Based on the Bradshaw et al. (2010) data, estimations of dropout risk are insular treatments of risk and were presented as an inherently restricted example. A true benefit-cost analysis of SWPBIS over time is warranted and requires deeper treatment than provided by this policy brief. In particular, more data are needed on the potential longitudinal impact of SWPBIS including gains in achievement, reductions in suspension and drop out, reductions in drug use, and deterrence of criminal activities.

In addition to examining the social and fiscal savings from SWPBIS implementation, districts might benefit from having a metric for potential savings realized from robust implementation at each tier of SWPBIS. For example, district leadership might examine how much is saved from implementing with fidelity at Tier 1, or how much additive savings, or costs, might be realized from fidelity implementation at Tiers 2 and 3. These estimates require that a district evaluate the cost of many components or "ingredients" of implementation.

The ingredients method (Levin & Belfield, 2015; Levin & McEwan, 2001) allows teams to ascertain costs that goes beyond line items in a budget and includes all components (i.e., personnel, facilities, materials, equipment) needed for program success. One way to accomplish this task is to include questions about cost in annual fidelity and implementation assessments of SWPBIS (e.g., SWPBIS Tiered Fidelity Inventory, or School-wide Evaluation Tool). An additional important component is assessing costs to support SWPBIS at the district and state level. These can best be accomplished through personal interviews with key stakeholders.

In addition, this brief compared the cost of implementing SWPBIS, as a way to reduce out-of-school suspensions, to

the cost of dropout, and does not address other potential benefits related to SWPBIS. Additional areas of SWPBIS implementation cost savings may be associated with (a) keeping students with higher levels of need within districts rather than sending them to an out-of-district placement and (b) re-capturing administrative and instructional time previously lost to disciplinary processing. To estimate current "cost" in lost instructional time and administrative paid time allocated to exclusionary discipline, districts can use metrics suggested by Scott and Barrett, 2004): (a) 45 minutes of administrative and instruction time per student per office discipline referral event and (b) local administrative pay rate.

Conclusion

Multiple rigorous studies have documented that fidelity implementation of SWPBIS is associated with decreases in out-of-school suspensions, which is a strong risk factor for school dropout. In addition, the fiscal costs of suspension and dropout have been calculated and are substantial.

In this brief, we provide initial evidence that SWPBIS is less expensive to implement than the longer-term costs related to suspensions and dropout. This finding is important as the benefits of reducing suspensions and dropout go far beyond simple fiscal savings. An analysis of the available data suggests that SWPBIS may be an economical alternative to not only ineffective approaches, like suspension, but also traditional dropout prevention programs. We expect increased analysis precision and intervention decision making as future research is conducted related to calculation formula and methods, fiscal cost and benefit line items, procedural time efficiency, tiered support systems, and distal fiscal impact elements.

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