Pennsylvania Positive Behavior Support

12th Annual Executive Summary of the Pennsylvania Positive Behavior Support Network's Implementation of School-Wide Positive Behavioral Interventions and Supports

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⭐ Acknowledgements

Positive Behavioral Interventions and Supports (PBIS) within school settings is commonly referred to as School-Wide Positive Behavioral Interventions and Supports (SWPBIS). The Pennsylvania Positive Behavior Support (PAPBS) Network, a subgroup of the Community of Practice on School-Based Behavioral Health (CoP on SBBH) provides the advocacy, funding, visibility, training, and technical assistance necessary to reduce non-academic barriers to success in school.

Disclaimer

⭐ Preface

This report is an executive summary of the 12th year of the PAPBS Network's work of installing SWPBIS in PreK-12 schools across the commonwealth. As in prior years, the evaluation model utilizes the five domains recommended by Algozzine et al. (2010) for large-scale SWPBIS evaluation. The five domains are presented below.

Domain	Description
Context Domain	★ Goals and objectives of SWPBIS implementation and which individuals provided and received implementation support.
Input Domain	★ Funding support for SWPBIS, content of SWPBIS professional development, and recipients' satisfaction with professional development.
Fidelity Domain	★ Implementing SWPBIS as prescribed.
Impact Domain	★ Changes in behavioral and academic outcomes for students as a result of SWPBIS implementation.
Replication, Sustainability, and Improvement Domain	★ Sustaining and expanding SWPBIS to more schools.

Limitations

Consistent with SWPBIS evaluations conducted in prior years, the following limitations need to be taken into consideration when interpreting the results.

- Systems-level change, such as that aspired by implementing SWPBIS, takes many years for meaningful results to materialize (Castillo & Curtis, 2014). Given that the current program evaluation did not analyze data through a longitudinal perspective, results in this evaluation report may not necessarily mirror those in previous reports.

- Since schools that experience positive outcomes associated with SWPBIS implementation may be more likely to volunteer their data, whereas schools that experienced challenges or minimal success might have elected to withhold their data, there might be a selection bias within the dataset.

- PAPBS Network schools used any of the following fidelity measures: (a) *Effective Behavior Support: Team Implementation Checklist* (TIC; Sugai, Horner, & Lewis-Palmer, 2002, 2009); (b) the *School-wide Benchmarks of Quality* (BoQ; Kincaid et al., 2005, 2010); (c) the *School-wide Evaluation Tool* (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2005); and (d) the *School-wide PBIS Tiered Fidelity Inventory* (TFI; Algozzine et al., 2014). While all measure fidelity, the instruments themselves are not identical. Mercer and colleagues (2017), however, confirmed concurrent validity of these instruments, permitting the use of any of these measures to establish SWPBIS implementation.

- As schools are not randomly assigned to different treatment levels, an *ex post facto* research design was used in the evaluation implementation of SWPBIS in PAPBS Network schools. The more appropriate interpretation of significant results in an *ex post facto* design is to conclude that SWPBIS is associated with differences in the data.

Introduction

While it follows the general outline of the full report, this executive report provides only a brief summary of the 12th annual review of PAPBS Network schools' implementation of SWPBIS. A deeper review can be obtained by contacting PaTTAN – Harrisburg or the primary author of this report.

Overview and Historical Context of PA SWPBIS

SWPBIS is the application of PBIS within a school setting. In essence, PBIS is a Multi-Tiered Systems of Support (MTSS) which involves systematic assessments, preventative core instruction, and tailored interventions for those with strategic or intensive needs. When applied to behavior, it is referred to as PBIS; when applied to academics it is referred to as Response to Intervention.

There are three tiers of assessment, instruction, and intervention based on identified student needs. Sugai and Horner (2009) described the three tiers as:

- Primary tiered services – assessment and instructional practices provided to all students to prevent or minimize barriers to learning while concurrently promoting inclusive educational practices for all students.
- Secondary-tiered services – support layered on top of the primary-tiered services (needed by approximately 5-10% of students)
- Tertiary-tiered services – support layered on top of secondary-tiered services (needed by approximately 3 - 5% of students)

Purpose and Structure of Annual PAPBS Network Evaluation Reports

This report provides an executive summary of the 12th year evaluation and offers an update of all efforts and outcomes related to SWPBIS implementation across the PAPBS Network schools since the 2006-2007 academic year, with a specific emphasis on data from the 2018-2019 academic year.

⭐ Context of PA SWPBIS

Context is the first domain of the Algozzine et al. (2010) blueprint for the evaluation of SWPBIS and includes the leadership driving SWPBIS training and implementation, support for SWPBIS from stakeholder groups, participation in the affiliated PAPBS Network, and the goals and objectives of the statewide effort.

> **History of PAPBS**
>
> ★ 32 schools began implementation in 2006-2007 and were referred to as Cohort 1 schools.
> ★ Schools that began official implementation after 2006-2007 were referred to as Cohort 2 schools, regardless of specific year of implementation.

The CoP on SBBH has the responsibility to coordinate the SWPBIS implementation across the commonwealth of Pennsylvania. A complete membership listing, which includes of a broad range of stakeholder groups representing education, mental health, social services, labor and industry, law, families, youth, and advocacy groups, can be reviewed at the CoP on SBBH website: http://papbs.org/.

A cross-sectional review of the number of schools affiliated with the PAPBS Network is provided in Figure 1. These data are cross-sectional in nature and do not indicate the degree to which schools are implementing SWPBIS. Nonetheless, the data show that the number of affiliated schools continues to increase, with 2,701 maintaining active status with the PAPBS Network, representing nearly a doubling of affiliated schools during the 2019-2020 academic year.

Table 1 reports the number of PAPBS Network-affiliated schools, disaggregated by building type and grade-spans used by the U.S. Department of Education, Office of Special Education Programs Technical Assistance Center on PBIS. Affiliation with the PAPBS Network continues to be most prevalent in elementary schools, representing 50% ($n = 1,370$) of all

schools. High schools ($n = 582$) and middle schools ($n = 460$) represent 22% and 17% of all PAPBS Network schools, respectively. Schools with a grade represented in any of the categories were counted for each of those applicable grade spans. For example, a school with grades 4-6 would be counted as both an elementary and middle school. As a result, the cumulative schools listed in Table 1 do not align with the data in Figure 1.

Figure 1
Cross Sectional Review of the Number of Sites Affiliated with the PAPBS Network
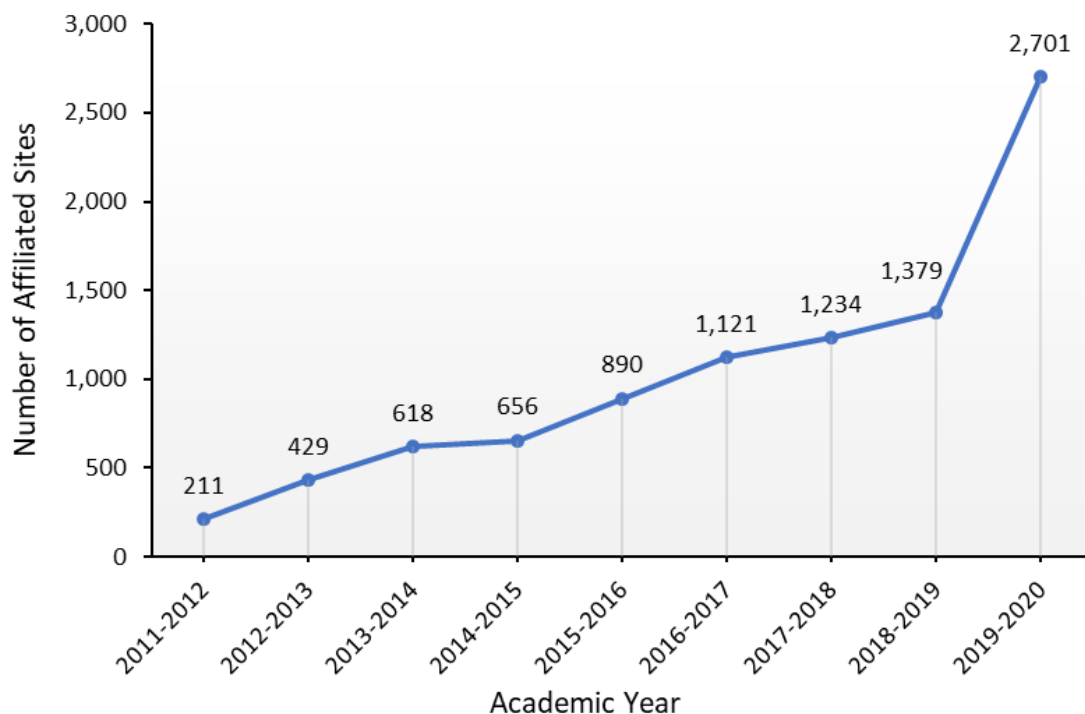
Table 1
Number of Participating Buildings by Grade Level

	Elementary (K-5)	Middle (6-8)	High (9-12)	K-8	K-12	Other	Alternative	PreK
2011-2012	137	48	24	n/a	n/a	n/a	n/a	n/a
2012-2013	300	208	63	n/a	n/a	n/a	n/a	n/a
2013-2014	424	299	118	n/a	n/a	n/a	n/a	n/a
2014-2015	368	131	107	25	3	n/a	21	n/a
2015-2016	517	160	152	23	14	n/a	24	n/a
2016-2017	613	203	200	49	21	n/a	35	n/a
2017-2018	677	227	212	52	26	n/a	40	n/a
2018-2019	763	252	226	63	29	n/a	46	n/a
2019-2020	1,370	460	582	195	51	8	24	20

Note. n/a = not applicable due to incomplete data reporting. It is likely that the PreK programs are embedded within an elementary school and do not reflect independent or stand-along PreK programs.

Schools affiliated with the PAPBS Network receive training and technical assistance from consultants known as PAPBS Network Facilitators. The need for more PAPBS Network Facilitators has increased as more schools become affiliated with the PAPBS Network and are supported in their implementation of the framework. Two hundred PAPBS Network Facilitators were active during the 2019-2020 academic year, representing the largest number in the seven years since such data were tracked. In just the past five years, the number of PAPBS Network Facilitators has increased by 77%.

SWPBIS implementation is enhanced by the participation of community mental and behavioral health providers given the expertise and resources those agencies offer to schools and their students (Putnam et al., n.d.). A total of 341 agencies were specifically named by PAPBS Network schools as offering substantive assistance in implementing SWPBIS since 2007-2008.

Input of PA SWPBIS

The second of the five domains to be considered in evaluating large-scale implementation includes the inputs provided to support SWPBIS (Algozzine et al., 2010). Specifically, these are the professional development and resource allocations provided "to meet the needs, address the problems, and manage the opportunities" (p. 2) of implementing SWPBIS.

RECOMMENDATIONS (Context Domain):

★ Given the significant increase in school participation, there is an obvious demand for schools to engage and such engagement should be continued.
★ It is critical that collaboration with community partners occur for desired student- and school-level outcomes to be achieved. It would be very beneficial to analyze the distribution of these partnerships across the range of social supports to assure that adequate coverage is present.
★ At the pace with which SWPBIS is growing, efforts definitely need to continue to assure that there are a sufficient number of PAPBS Network Facilitators to meet the demand for training and technical assistance.

Financial Support

Typically, financial support for SWPBIS implementation comes from federal, state, and local agencies and organizations. As data from local agencies and organizations are not collected, they are not summarized here.

Financial support from the federal level comes from a variety of sources including, but not limited to, the following: U.S. Department of Education, Office of Special Education Programs Technical Assistance Center on PBIS consultants; Substance Abuse and Mental Health Services Administration; and the U.S. Department of Education. The latter two agencies awarded

competitive grants to specific local and regional educational agencies to support SWPBIS implementation in the past decade. Dedicated state-level financial support to implement and expand SWPBIS in local schools was provided from 2007-2008 through 2017-2018 under competitive *School-Based Behavioral Health* mini-grants. Strong state level financial support for SWPBIS continued until 2017-2018, averaging $342,743 per year for a three-year span. State-level financial support, however, has not occurred since the end of the 2017-2018 academic year.

SWPBIS Training and Technical Assistance

PAPBS Network schools receive training and technical assistance support from approximately 200 PAPBS Network Facilitators, who use a standard set of training materials similar to those endorsed by the U.S. Department of Education, Office of Special Education Programs Technical Assistance Center on PBIS (Lewis et al., 2010). PAPBS Network Facilitators use a standard set of training materials and are regularly provided training to standardize, as much as possible, the training and technical support across the commonwealth. A state-wide reporting system was established to track training and technical assistance provided to PAPBS Network schools; however, this reporting system was used very infrequently by PAPBS Network Facilitators.

The fifth consecutive PAPBS Network Facilitators' Institute was held on September 18-19, 2019 and included 129 preschool and school-age facilitators. The inaugural state-wide Student Behavior Coalition and annual PAPBS Network Implementers' Forum to be held in March and May 2020, respectively, were cancelled due to the COVID-19 pandemic. Both of these will resume once the pandemic has ended.

RECOMMENDATIONS (Input Domain):

★ Given the significant increase in school participation, there is an obvious demand for schools to engage and such engagement should be continued.

★ The CoP on SBBH and PAPBS Network leadership should reconsider the use of the training and technical assistance reporting system. This could either be reminders to PAPBS Network Facilitators to enter these data on a regular basis or abandon the reporting system altogether.

★ Given the significant disruption to typical school operations in 2019-2020 because of the pandemic, there will be even greater need to restore support and training for 2020-2021 and beyond.

★ Resources at the state level should be reconsidered so that critical funds to support initial training, adoption, and implementation of advanced tiers of SWPBIS can occur.

★ The disruption to typical school operations and the movement to greater reliance on remote learning presents an opportunity to explore the manner in which SWPBIS training and technical assistance might be adjusted in response to such disruptions as well as potential efficiencies in delivering such support across the commonwealth.

Fidelity of PA SWPBIS

Fidelity of implementation is the third domain of the Algozzine et al. (2010) blueprint for the evaluation of SWPBIS. Only research-validated fidelity instruments were used to document fidelity of implementation at the Tier 1 level (i.e., TIC, BoQ, SET, TFI) or advanced tiers (i.e., TFI).

Tier 1 SWPBIS Implementation

Figure 2 provides a cross-sectional review of the number of PAPBS Network schools implementing tier 1 SWPBIS each spring since 2007. The number of schools achieving full implementation of tier 1 SWPBIS has steadily grown since spring 2007. Spring 2019 is the high-water mark for implementation, with 583 schools reaching this goal. These 583 schools represent a 48% increase over the previous spring. In addition to these encouraging increases is the number of schools that are categorized as partially adopting SWPBIS ($n = 121$ as of spring 2019), suggesting the possibility for the number of schools categorized as fully implementing tier 1 SWPBIS to continue growing in subsequent years.

In the spring of 2019, the largest proportion of schools implementing tier 1 SWPBIS were at the elementary level (63.3%; $n = 369$), a finding that is consistent with national data. Middle schools accounted for the second largest proportion of schools implementing tier 1 SWPBIS, with 84 (14.4%) achieving this goal. See Figure 3.

Figure 2
Cross Sectional Count of Combined Cohort Schools Primary-Tier SWPBIS Implementation Fid*elity 2007-2019*
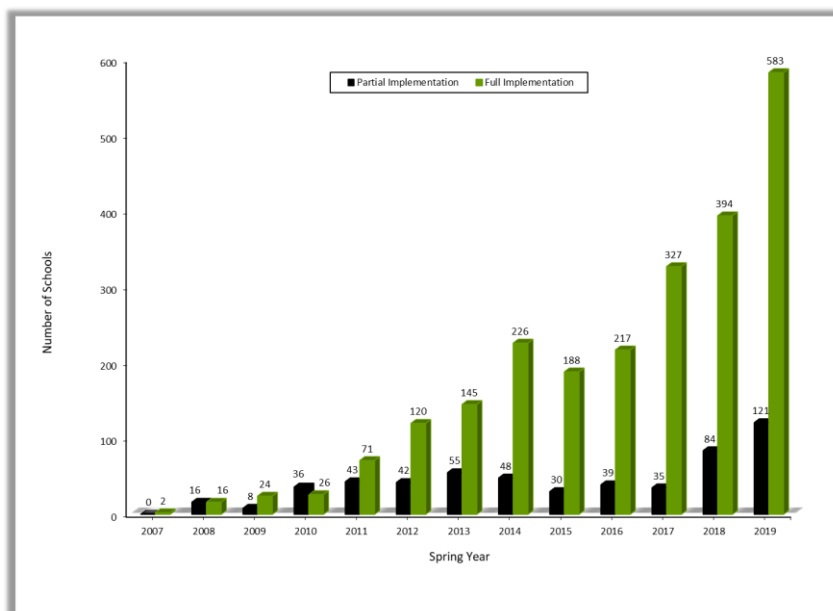
> **How is fidelity established?**
>
> Fidelity of implementation is categorized one of three ways for each academic year: (a) *fully implementing* if the fidelity measure score met or exceeded the minimum threshold for that instrument; (b) *partially implementing* if the fidelity measure was completed but the score fell below the minimum threshold for that instrument; (c) *not implementing* if no fidelity data were submitted at all.
>
> Categorization of *not implementing* is made cautiously given that a school could have completed a fidelity measure but failed to report their data.

Figure 3

Number of Schools Implementing Tier 1 SWPBIS by Building Type in Spring 2019
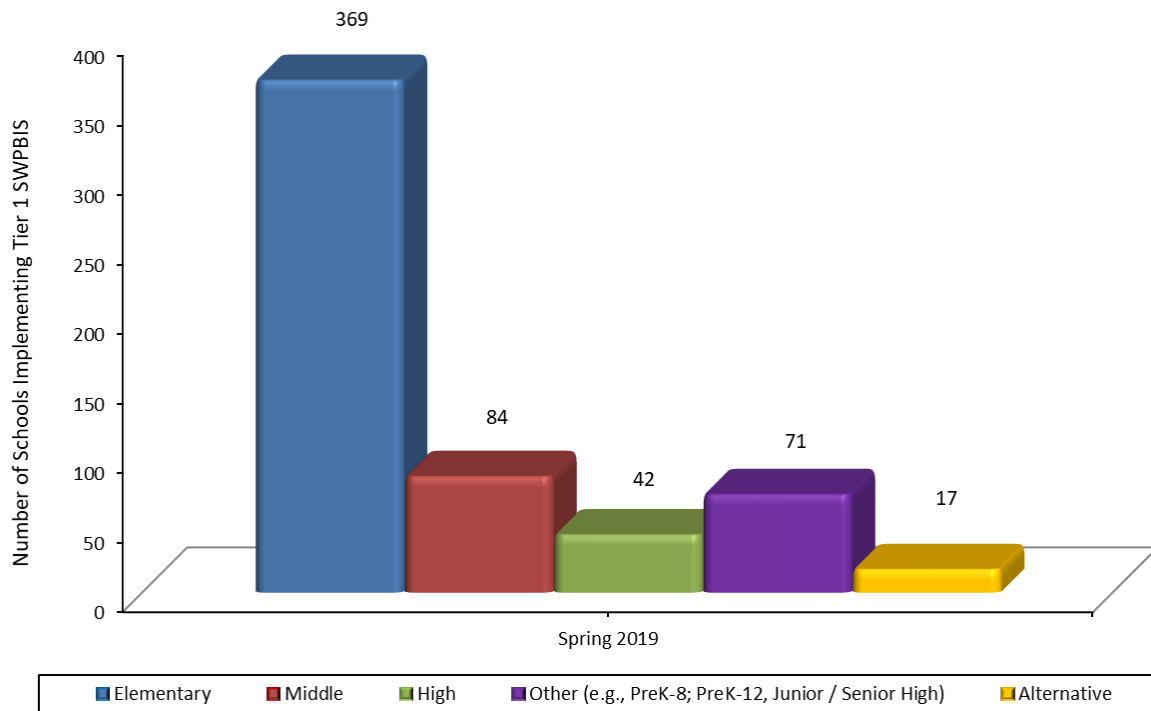
Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports

Advanced-Tier SWPBIS Implementation

Data regarding implementation of advanced tiers of SWPBIS has only been available over the past three years. Figure 4 details the number of PAPBS Network schools that achieved full implementation of tier 2 or 3 SWPBIS over the past three academic years. The largest number of schools implementing tier 2 ($n = 113$) and tier 3 ($n = 40$) SWPBIS with fidelity occurred in 2018-2019. This represents a 60% and 31% increase for tier 2 and tier 3 SWPBIS, respectively, from the 2017-2018 academic year.

Figure 5 provides a summary of schools implementing exclusively tier 1, tier 1 and 2, or tiers 1, 2, and 3 SWPBIS in spring 2019. Unlike the data presented in Figure 4 above, a school is only counted once in Figure 5. As of spring 2019, 470 PAPBS Network schools implemented tier 1 SWPBIS with fidelity. By spring 2019, 72 schools were implementing tiers 1 and 2 SWPBIS. It is hoped that these two categories of schools sustain their current level of implementation while concurrently installing tier 3 SWPBIS. Most encouraging is the 40 PAPBS Network schools achieved full implementation of all three tiers of SWPBIS by spring 2019, representing models to which all other schools aspire full implementation of the three-tiered SWPBIS framework.

Figure 4

Number of Schools Implementing SWPBIS Tier 1, 2, or 3 in Spring 2017 through Spring 2019
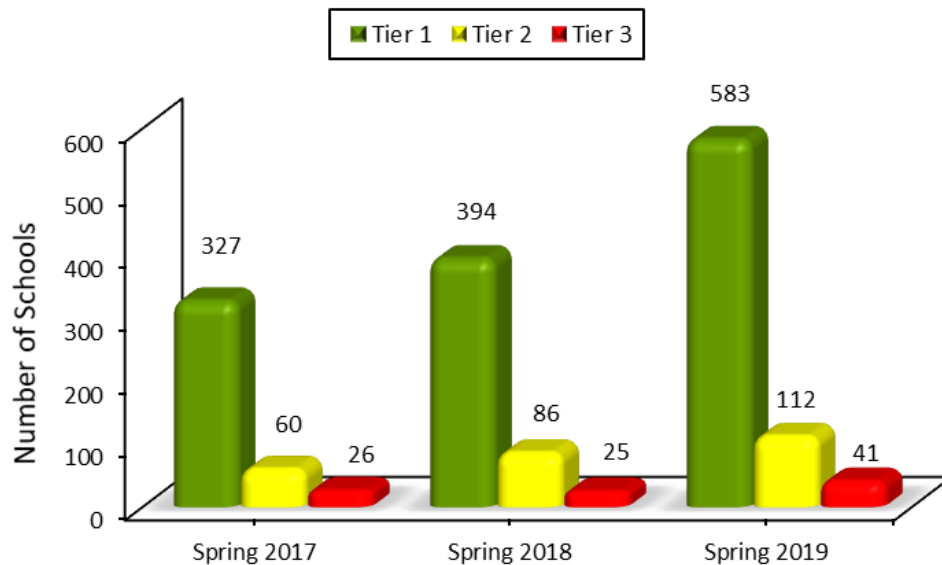
Figure 5

Number of Schools by Tiers of SWPBIS Implementation in Spring 2019
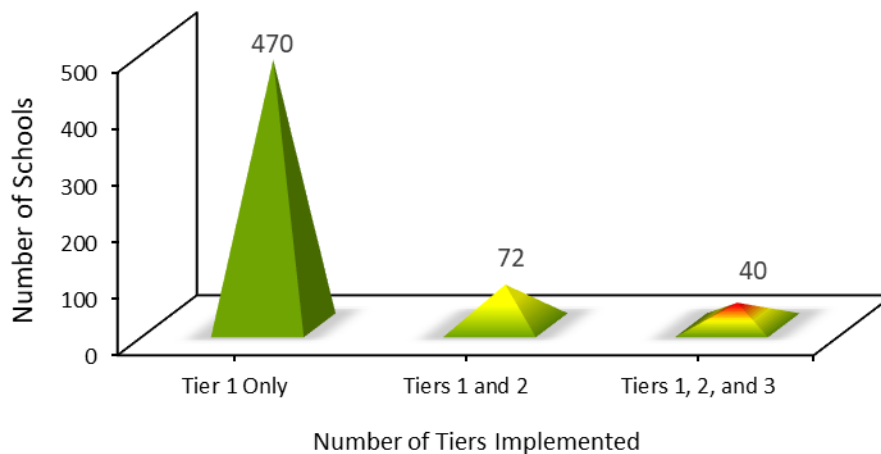
Note. Schools are counted only once, depending on the tier(s) of SWPBIS for which full implementation was secured.

An accounting of the number of schools implementing the comprehensive, three-tiered model of SWPBIS in spring 2019 disaggregated by building type is provided in Figure 6. Nearly three-fourths of all schools implementing the comprehensive SWPBIS model were elementary schools (*n* = 29). Schools categorized as Other (*n* = 5) were the second-largest contingent of schools implementing the comprehensive, three-tiered SWPBIS model. There were two schools

each at the middle school, high school, and alternative education setting that achieved full implementation of all three tiers of SWPBIS by spring 2019.

Figure 6
Number of Schools Fully Implementing Tier 1, 2, and 3 SWPBIS Disaggregated by Building Level in Spring 2019
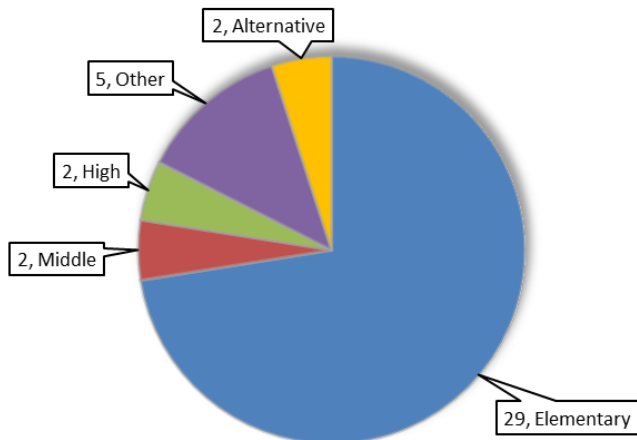
Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports. Other represents PreK-8, PreK-12, junior / senior high schools, and other non-traditional grade configurations.

RECOMMENDATIONS (Fidelity Domain):

★ There should be an increased emphasis on the implementing tier 1 SWPBIS in more middle and high schools. As noted last year, perhaps additional demonstration sites are needed across Pennsylvania.
★ More frequent reporting of the successes of schools that fully implement all three tiers of SWPBIS might be a useful strategy in growing the number of participating schools.
★ More middle and high schools implementing all three tiers of SWPBIS are needed.

⭐ Impact of PA SWPBIS

Impact on the behavioral and academic outcomes associated with schools and communities is the fourth domain articulated by Algozzine and colleagues (2010). These outcomes include staff perceptions of safety and behavioral support, student behavior, use of various disciplinary practices, educational placements for students with special needs, and academic performance.

Staff Perceptions of the Status of Behavioral Support

In addition to direct measures of the fidelity of SWPBIS implementation, there are also indirect measures of staff perceptions of implementation. The *Effective Behavior Support: Self-Assessment Survey* (EBS: SAS; Sugai et al., 2003, 2009) is one such measure to assess features across four broad environmental areas: School-Wide, Non-Classroom, Classroom, and Individual. It is important to point out that this is not considered a validated, objective measure although it is still helpful for understanding staff perceptions of implementation.

EBS: SAS data were available for 701 schools that could also be classified into one of four categories based upon their validated level of full implementation at each of the three tiers. There were 197 schools that had not fully implemented SWPIS at any tier, 402 schools that fully implemented at tier 1 only, 69 schools that fully implemented at tier 1 and tier 2, and 33 schools that had fully implemented SWPBIS at all three tiers.

Findings

As schools implement SWPBIS with fidelity, one would assume that staff would be more likely to perceive such implementation. Nonetheless, lower perception levels does not mean SWPBIS has not been implemented nor does a higher perception level indicate that SWPBIS is fully implemented. Figure 7 provides a visual display of these summary data.

Figure 7
Perceived Level of School-Wide Implementation by Actual Tier-Level Implementation
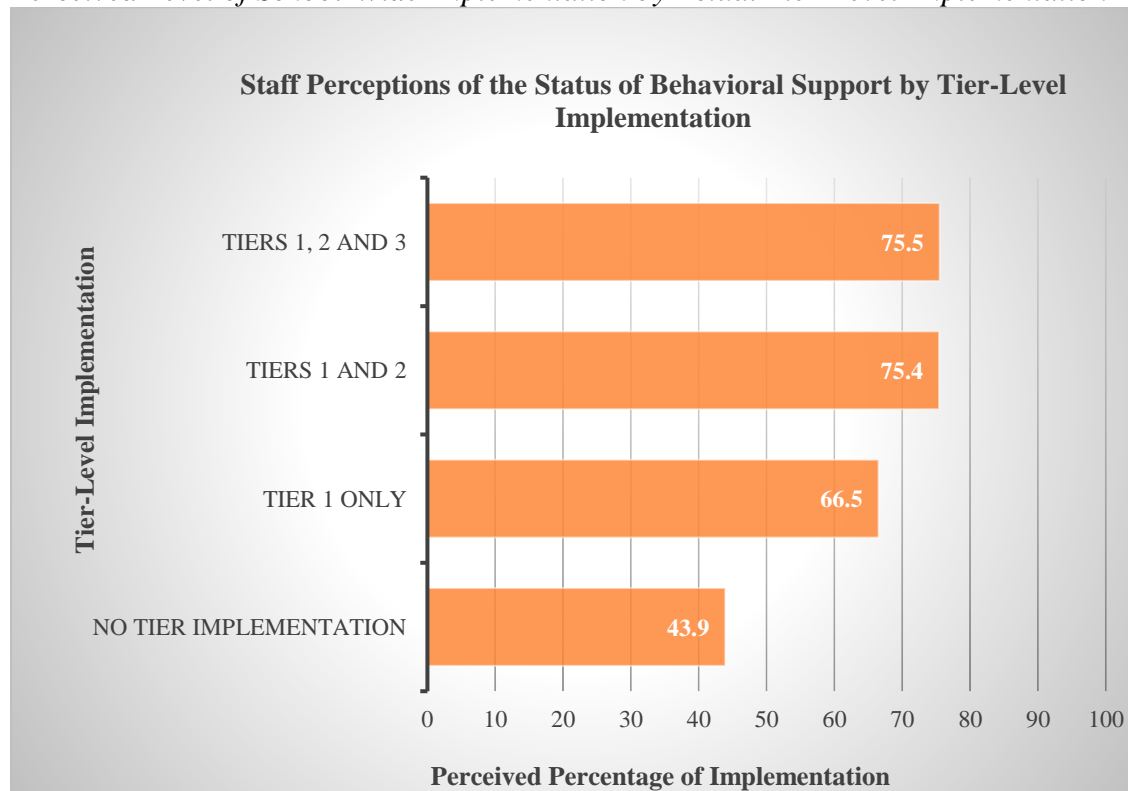
The differences among these four means were tested for significance using a one-way analysis of variance (ANOVA) and were subsequently by the Kruskal-Wallis H test for confirmation purposes. The schools with no implementation across the three tiers scored significantly lower with respect to staff perceptions of SWPBIS implementation than the other three categories. The schools with only tier 1 implementation scored significantly lower than both sets of schools with tier 1 and tier 2 implementation and schools with all three tiers of SWPBIS implementation. Finally, there was no significant difference between schools implementing tiers 1 and 2 as well as schools implementing all three tiers of SWPBIS

Conclusions

It is encouraging to report that staff perceptions of SWPBIS implementation, as measured by the EBS: SAS, mirrored the general level of implementation of tier services. Staff at schools that reported no tier 1, tier 2, or tier 3 SWPBIS implementation had significantlty lower self-perceived implementation. Given that all schools are part of the SWPBIS Network, it is not surprising that there was some level of perceived implementation even within these schools. As schools increased their participation by expanding it across tiers, perception of these increases followed.

> ### RECOMMENDATIONS (Impact Domain – Staff Perceptions of the Status of Behavioral Support):
>
> ★ While there is a confirmed link between actual implementation of SWPBIS and perceived implementation of SWPBIS, schools might be well-served by maintaining an ongoing program of internal communication among staff members to reinforce their commitment and understanding of SWPBIS implementation.

Staff Perceptions of School Safety

Expected outcomes of SWPBIS are that the creation of a safe and nurturing environment would enhance the learning environment for students which, in turn, would lead to fewer behavioral problems and greater academic success. The *School Safety Survey* (SSS; Sprague et al., 2002) asks respondents to assess the level of risk factors and protective factors that are present within the school and community environment. While not direct measures, these serve as a reasonable proxy measure of risks for and protections against violence.

School Safety Survey data were available for 698 schools that could also be classified into one of four categories based upon their validated level of full implementation at each of the three tiers. There were 195 schools that had not fully implemented SWPBIS at any tier, 401 schools that fully implemented at tier 1 only, 69 schools that fully implemented at tier 1 and tier 2, and 33 schools that had fully implemented SWPBIS at all three tiers.

Findings

Figure 8 contains the summary data for risk and protective factors for the four different levels of SWPBIS implementation. The general trend line for the protective factors increases as levels of implementation increase while the general trend line for risk factors remains fairly stable. No significant differences were found with respect to the risk factors. There are, however, significant differences with respect to staff perceptions of the school's protective factors. Schools that have not implemented any of the tiers score significantly lower than schools implementing tier 1, schools implementing tiers 1 and 2, and school implementing all three tiers of SWPBIS. Further, staff in schools implementing tiers 1 and 2 perceived themselves as having more protective factors than schools implementing only tier 1 SWPBIS. Beyond that, staff at schools implementing tiers 1 and 2 SWPBIS perceived statistically similar levels of protective factors as staff at schools implementing all three tiers of SWPBIS.

Figure 8
SSS Protective and Risk Factors by Level of Tier Implementation
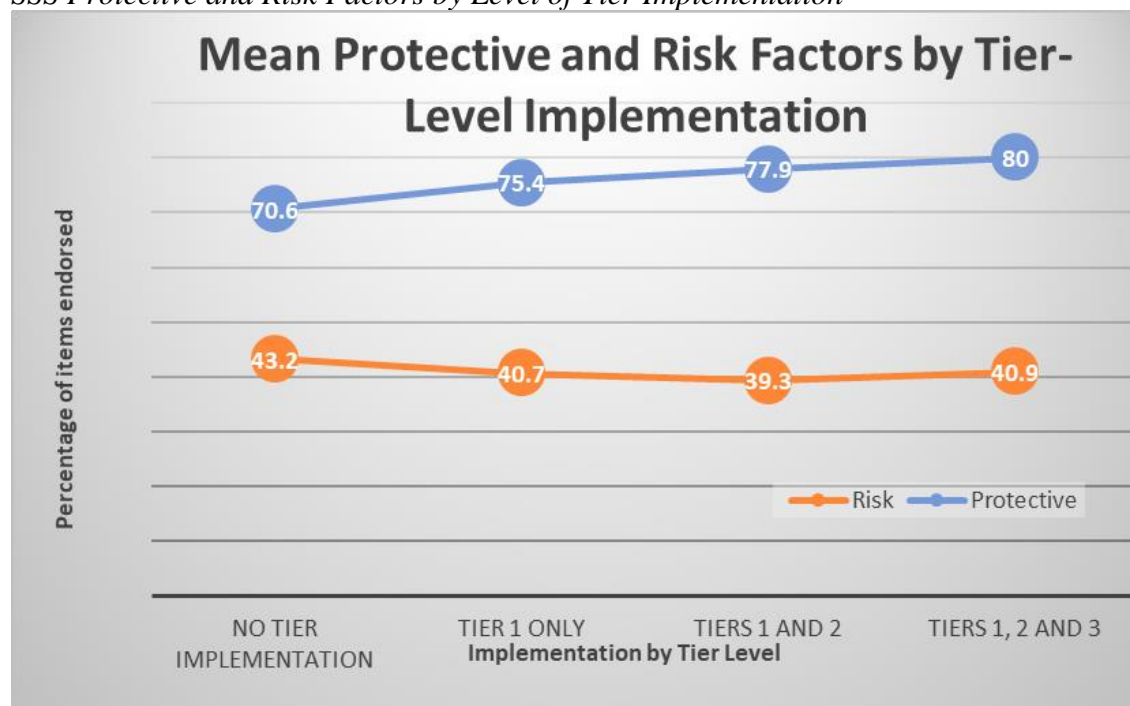
Note. SSS = *School Safety Survey*; Schools implementing tiers 1 & 2 SWPBIS and tiers 1, 2, & 3 SWPBIS reported statistically significantly higher ratings of protective factors compared to schools implementing tier 1 SWPBIS or no tiers at all.

Conclusions

SWPBIS implementation appears to be related to an increase in perceived protective factors but not related to a decrease of perceived risk factors. These findings make sense if one considers that risk factors typically are beyond the control of the school. However, protective factors are often initiated or made available within schools by school personnel, and schools implementing the comprehensive, three tiers of SWPBIS have likely installed many behavioral and emotional supports to help students appropriately deal with violence and trauma in their lives.

Office Discipline Referrals

Consistent with national studies and previous PAPBS Network annual reports, significant building-level differences in office discipline referrals (ODR) were found. Therefore, subsequent analyses were conducted using data disaggregated by building level.
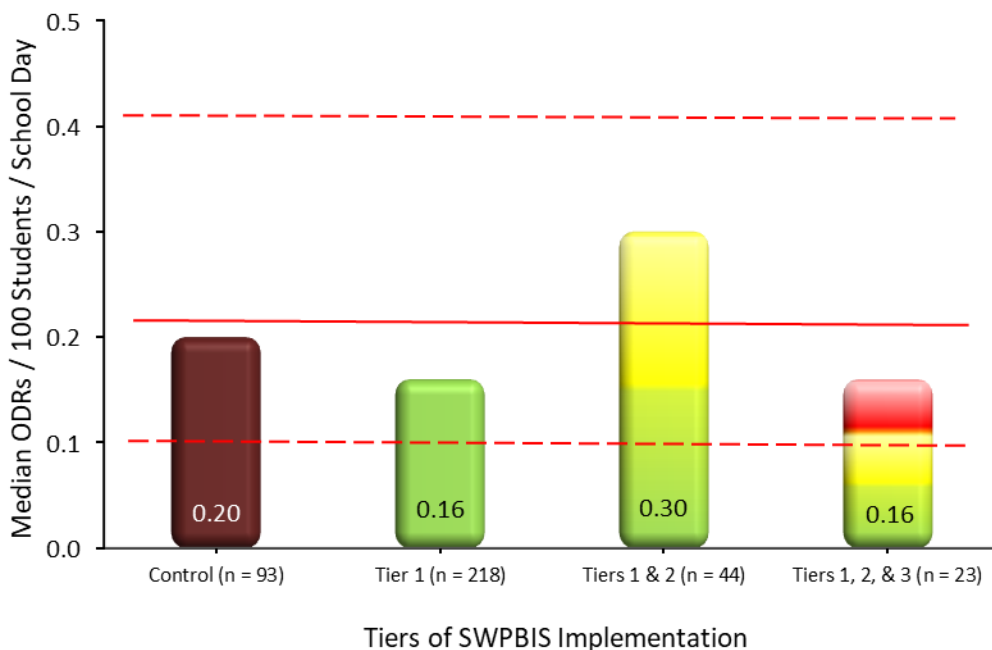
Elementary Schools

Data from PAPBS Network elementary schools during the 2018-2019 academic year were analyzed to investigate a potential association between ODR rates and the degree with which the full, three-tiered SWPBIS framework was implemented. Elementary schools were categorized as control (i.e., no implementation of any tier of SWPBIS), implementing only tier 1 SWPBIS, implementing tiers 1 and 2 SWPBIS, or implementing all three tiers of the comprehensive framework. A visual display of median ODR rates for these elementary schools is provided in Figure 9. Elementary schools implementing tiers 1 and 2 SWPBIS (*Median* = 0.30) reported significantly higher rates of ODRs compared to control schools (*Median* = 0.20), schools implementing tier 1 SWPBIS (*Median* = 0.16), and schools implementing tiers 1, 2, and 3 SWPBIS (*Median* = 0.16). ODR rates among control schools, schools implementing tier 1 SWPBIS, and schools implementing tiers 1, 2, and 3 were statistically similar.

These results are somewhat surprising. They suggest that elementary schools implementing tiers 1 and 2 SWPBIS experience substantially higher rates of ODRs than schools not implementing SWPBIS at all (i.e., control) and schools implementing either one or all three tiers of SWPBIS. It is not clear *why* this may be the case; therefore, further investigation should occur to confirm these results as well as understand why this phenomenon is occurring. Another relatively surprising finding is that there is no significant relationship between ODR rates and whether a school implements even tier 1 SWPBIS. Despite these unexpected findings, it is also concluded that PAPBS Network schools – regardless of whether SWPBIS is implemented at all

or the extent to which all three tiers are implemented – use ODR rates that are around the national average.

Figure 9

Median ODR Rates for Elementary Schools Disaggregated by Tiers of SWPBIS Implementation

Note. ODR = office discipline referral; SWPBIS = School-Wide Positive Behavioral Interventions and Supports; solid red line represents the national median; dashed red lines represent the 25th and 75th national percentiles for elementary schools (SWIS, 2019); statistically significant median differences were found between schools implementing tier 1 and 2 SWPBIS compared to all other schools; no other statistically significant median differences were detected among the remaining groups.

To facilitate meaningful and practical interpretation of these data, conversion of the medians to rates per 180-day school calendar is provided. These data reflect what the median rate of ODRs per 100 students would be for a typical, full academic year in an elementary school. Elementary schools not implementing any tier of SWPBIS, those implementing tier 1 SWPBIS, and schools implementing tiers 1, 2, and 3 SWPBIS would expect a median ODR rate in a given academic year to range from 28 to 36 ODRs per 100 students. Conversion of the median rates for schools implementing tiers 1 and 2 SWPBIS results in a median of 54 ODRs per 100 students in a typical, 180-day academic year.
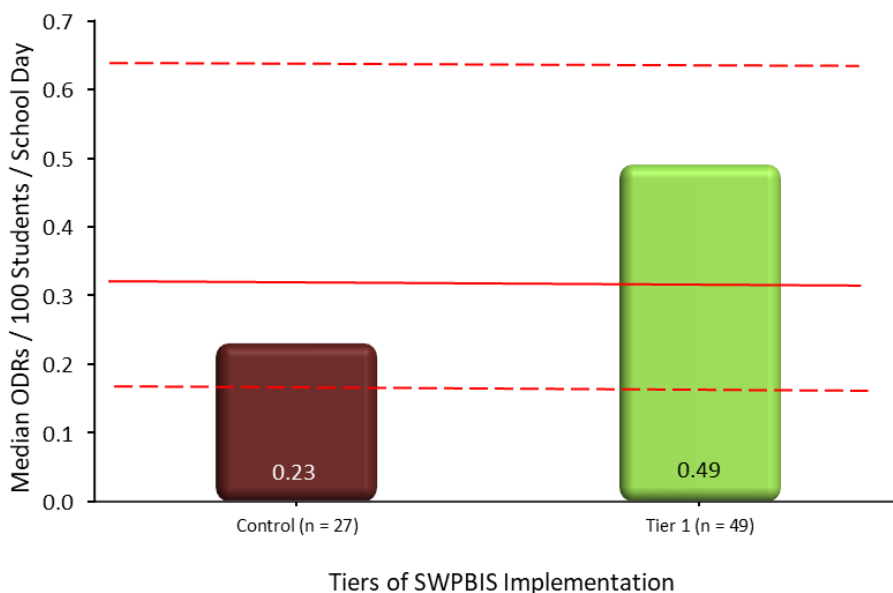
Middle Schools

As with the elementary schools reported above, middle schools were categorized as control (i.e., no implementation of any tier of SWPBIS) or implementing only tier 1 SWPBIS.

Only data from control schools and schools implementing tier 1 SWPBIS were analyzed due to limited data from middle schools implementing tiers 1 and 2 or all three tiers of SWPBIS.

A visual display of median ODR rates for control middle schools and middle schools implementing tier 1 SWPBIS is provided in Figure 10. Results were rather surprising: control middle schools – those not implementing any tier of SWPBIS – reported statistically lower rates of ODRs (*Median* = 0.23) compared to middle schools implementing tier 1 SWPBIS (*Median* = 0.49). This finding is contradictory to what was hypothesized and suggest that tier 1 SWPBIS is associated with more than a doubling of ODR rates over schools not implementing any tier of SWPBIS. Again, reasons for this surprising finding are not clear. It could be that school- and community-level variables known to be associated with ODR rates but not collected in the PAPBS Network data are mediating these findings. It could also be that the schools categorized as controls are assumed to be controls when, in fact, they may not be. Clearly, these results should be monitored in subsequent annual evaluations.

Figure 10
Median ODR Rates for Middle Schools Disaggregated by Tiers of SWPBIS Implementation

Note. ODR = office discipline referral; SWPBIS = School-Wide Positive Behavioral Interventions and Supports; solid red line represents the national median; dashed red lines represent the 25th and 75th national percentiles for middle schools (SWIS, 2019); statistically significant median differences were found between control and tier 1 SWPBIS schools.

When PAPBS Network middle schools' ODR rates are compared to national data, it is concluded that control schools in the PAPBS Network report rates that are around the 25th national percentile rank. PAPBS Network middle schools implementing tier 1 SWPBIS, however, reported rates somewhere in the 50th to 75th national percentile rank.

Practical interpretation of these data might be facilitated by conversion of the medians to rates per 180-day school calendar. These data reflect what the median rate of ODRs per 100 students would be for a typical, full academic year in a middle school. Middle schools not implementing any tier of SWPBIS would expect a median ODR rate in a given academic year to be 41 ODRs per 100 students. Conversion of the median rates for schools implementing tier 1 SWPBIS results in a median of 88 ODRs per 100 students in a typical, 180-day academic year.

PreK-8 Schools

Insufficient numbers of PreK-8 schools were implementing tiers 1 and 2 SWPBIS or all three tiers of SWPBIS; therefore, data from these schools were neither analyzed nor reported for statistical and privacy reasons. Consequently, only data from PreK-8 schools not implementing any tier of SWPBIS and those implementing tier 1 SWPBIS were analyzed and reported below.

A visual display of median ODR rates for these PreK-8 schools is provided in Figure 11. Results supported the underlying hypothesis that tier 1 SWPBIS is associated with lower rates of ODRs, with PreK-8 schools implementing tier 1 SWPBIS (*Median* = 0.18) reporting significantly lower ODR rates compared to control PreK-8 schools (*Median* = 0.45).

Comparison of PreK-8 schools' data from the PAPBS Network with those from a national perspective indicate that PAPBS Network control schools report ODR rates near the 75th national percentile rank. Conversely, PAPBS Network PreK-8 schools implementing tier 1 SWPBIS report ODR rates between the 25th and 75th national percentile rank.

Practical interpretation of these data is further made by converting the medians to rates per 180-day school year. These data reflect what the median rate of ODRs per 100 students would be for a typical, full academic year in a PreK-8 school. PreK-8 schools not implementing any tier of SWPBIS would expect a median ODR rate in a given academic year to be 82 ODRs per 100 students. Conversion of the median rates for schools implementing tier 1 SWPBIS results in a median of 33 ODRs per 100 students in a typical, 180-day academic year.

High Schools

High schools were categorized as control (i.e., no implementation of any tier of SWPBIS) and implementing only tier 1 SWPBIS. Insufficient numbers of high schools were implementing tiers 1 and 2 SWPBIS or all three tiers of SWPBIS; therefore, data from these schools were neither analyzed nor reported for statistical and privacy reasons.

A visual display of median ODR rates for these high schools is provided in Figure 12. Results indicated that ODR rates were statistically similar: ODR rates among high schools not implementing SWPBIS (*Median* = 0.58) are statistically comparable to ODR rates among high schools implementing tier 1 SWPBIS (*Median* = 0.82).

Comparison of PAPBS Network high schools' data to those from a national perspective indicate that PAPBS Network control and tier 1 SWPBIS schools report ODR rates above the 75th national percentile rank. Practical interpretation of these data is further made by converting

the medians to rates per 180-day school year. These data reflect what the median rate of ODRs per 100 students would be for a typical, full academic year in a high school. High schools not implementing any tier of SWPBIS or implementing tier 1 SWPBIS would expect a median ODR rate in a given academic year to range from 104 to 148 ODRs per 100 students.

Figure 11
Median ODR Rates for PreK-8 Schools Disaggregated by Tiers of SWPBIS Implementation
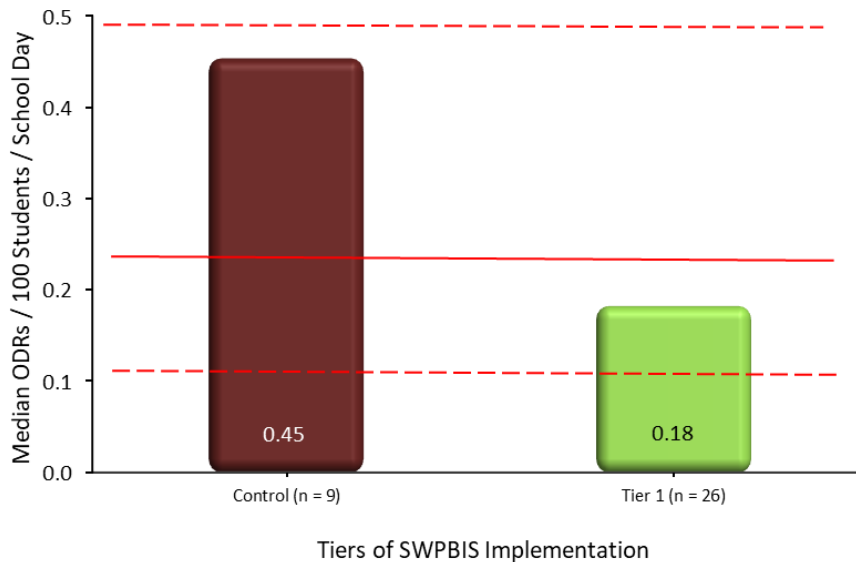
Note. ODR = office discipline referral; SWPBIS = School-Wide Positive Behavioral Interventions and Supports; solid red line represents the national median; dashed red lines represent the 25th and 75th national percentiles for PreK-8 schools (SWIS, 2019); statistically significant median differences were found between control and tier 1 SWPBIS schools.
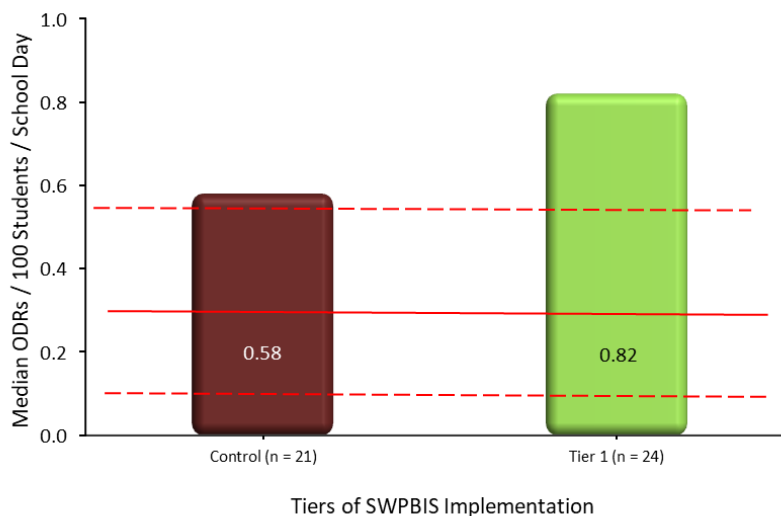
Figure 12
Median ODR Rates for High Schools Disaggregated by Tiers of SWPBIS Implementation

Note. ODR = office discipline referral; SWPBIS = School-Wide Positive Behavioral Interventions and Supports; solid red line represents the national median; dashed red lines represent the 25th and 75th national percentiles for high schools (SWIS, 2019); no statistically significant median differences were found between the two groups of schools.

Conclusions

- The fact that elementary schools implementing tiers 1 and 2 SWPBIS reported significantly higher ODR rates than all other schools, even those not implementing SWPBIS at all, is surprising.
- Despite the above, PAPBS Network schools utilized ODRs at rates below national averages.
- Another surprising finding is that middle schools implementing tier 1 SWPBIS reported significantly higher ODR rates than control schools.
- The hypothesized association between SWPBIS implementation at tier 1 and decreases in ODRs was substantiated in PreK-8 schools.
- PAPBS Network PreK-8 schools use ODRs at rates below the 50th national percentile rank.
- PAPBS Network middle and high schools use ODRs at rates above the 50th national percentile rank.
- When taken together, there appears to be, at best, a weak relationship between SWPBIS implementation and lower rates of ODRs. This finding, however, was substantiated only in PreK-8 schools.

RECOMMENDATIONS (Impact Domain – ODRs):

★ Perhaps a qualitative approach to determine why elementary and middle schools implementing SWPBIS reported, at times, higher ODR rates compared to other schools, even control schools, might be illuminating and offer insights toward improving this surprising finding.

★ Similarly, a qualitative approach in high schools and alternative schools might inform reasons for the lack of any association at all between tier 1 SWPBIS and decreases in ODRs.

★ A quantitative approach with a focus on classroom management might be helpful in understanding the surprising results. Given that many ODRs are initiated from classrooms as the result of inappropriate classroom behavior, it may be important to more deeply understand classroom management strategies and their impact on overall ODRs.

ODR Triangle Data

ODR Triangle Data offer the proportion of students who receive 0-1, 2-5, and 6+ ODRs in an academic year. The amount of ODRs a student receives coincides with the ranges of

behavioral risk they possess, which can be labeled as low, moderate, or high (McIntosh et al., 2009; Pas et al., 2011). Therefore, to estimate the proportion of students in SWPBIS schools that display these ranges of behavioral risk, descriptive analyses of ODR Triangle Data were completed. Initial results confirmed that further investigation should analyze data disaggregated by building level. Moreover, description of ODR data by tiers of SWPBIS implementation was necessary.

Tier 1 SWPBIS Implementation

ODR Triangle Data from schools with established tier 1 fidelity are presented in Figure 13. Elementary schools reported 92% of their population receiving 0-1 ODR, while middle schools reported 88%. Both demonstrated significant differences when compared to high schools ($M = 78\%$). Buildings of the PreK-8 format had an average of 86% of students receiving 0-1 ODR with tier 1 fidelity. With regard to students receiving 2-5 ODRs, significant differences were found between elementary schools ($M = 5\%$) when compared to middle ($M = 9\%$), PreK-8 ($M = 9\%$), and high schools ($M = 13\%$). Students receiving 6 or more ODRs had significant building level differences. Accounting for the highest percentage, high schools reported 9% of students receiving 6 or more ODRs. When compared to other groups, these results were significantly different than elementary ($M = 2\%$), middle ($M = 3\%$), and PreK-8 schools ($M = 4\%$).

Figure 13

ODR Triangle Data for SWPBIS Schools Implementing Tier 1 Disaggregated by Building Level
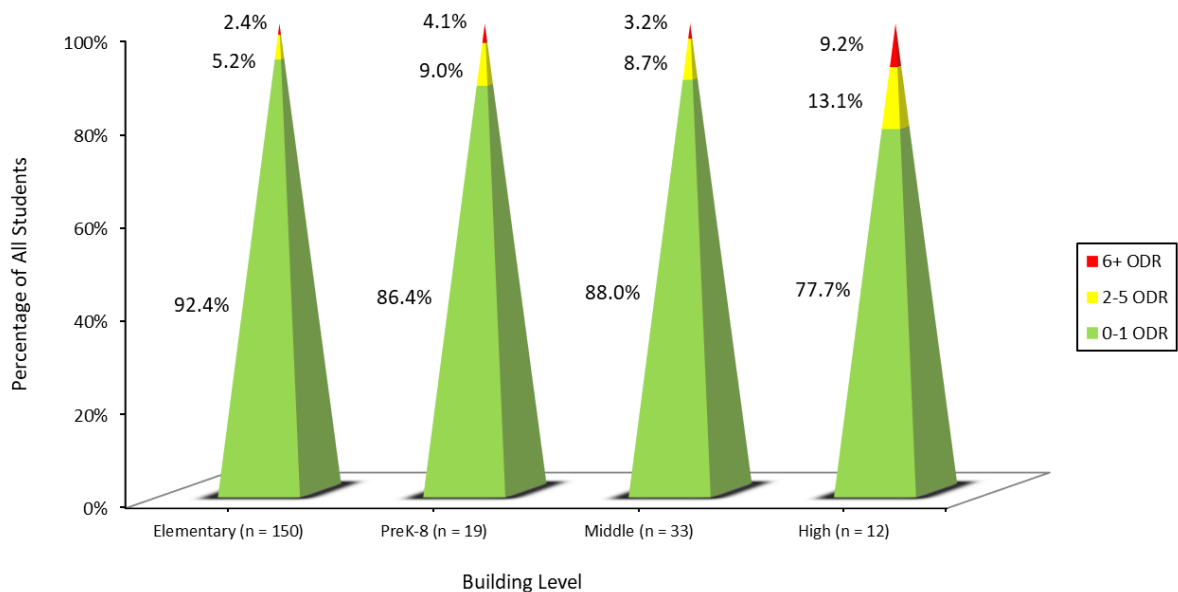
Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports; ODR = office discipline referral; Data are from the 2018-2019 academic year and represent the proportion of the student population with that number of ODRs.

Tiers 1 & 2 SWPBIS Implementation

ODR Triangle Data from schools with established tier 1 fidelity are presented in Figure 14. Elementary schools ($M = 89\%$), middle schools ($M = 89\%$), and PreK-8 schools ($M = 81\%$) reported statistically similar proportions of students earning 0 to 1 ODR in an academic year. There were, however, significant differences between building types regarding students receiving 2-5 ODRs. Elementary schools ($M = 7\%$) reported statistically significantly lower proportions compared to PreK-8 schools ($M = 13\%$). Middle schools ($M = 8\%$) reported similar proportions as elementary schools. With regard to students receiving 6 or more ODRs, elementary schools ($M = 4\%$), middle schools ($M = 3\%$), and PreK-8 schools ($M = 6\%$) all reported statistically similar proportions.

Figure 14

ODR Triangle Data for SWPBIS Schools Implementing Tier 1 and Tier 2 Disaggregated by Building Level
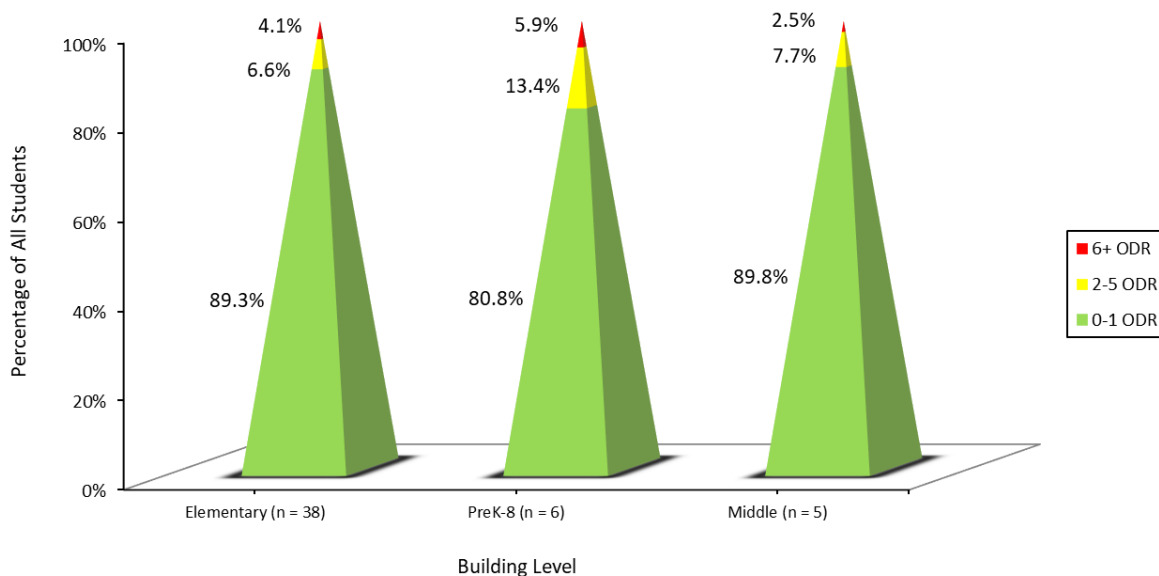

Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports; ODR = office discipline referral; Data are from the 2018-2019 academic year and represent the proportion of the student population with that number of ODRs.

Comparison Across Elementary Schools by Tiers Implemented

Data from 188 elementary schools were used to appraise the extent to which no, some, or all tiers of SWPBIS implemented with fidelity is associated with differences in ODR Triangle Data. Results supported no differences between schools implementing tier 1 SWPBIS, tiers 1 and 2 SWPBIS, tiers 1, 2, and 3 SWPBIS, and non-SWPBIS schools for students with few to moderate numbers of behavior challenges (0-1 ODRs and 2-5 ODRs). In other words, implementation of any tiers of SWPBIS resulted in similar proportions of students receiving 0-1 or 2-5 ODRs.

Results, however, supported significant between-groups differences in the proportion of students exhibiting chronic behavioral challenges (6+ ODRs). Schools implementing all three tiers of SWPBIS ($M = 6.4\%$) reported significantly higher proportions of students with chronic behavioral challenges compared to schools not implementing SWPBIS ($M = 1.7\%$) and schools implementing tier 1 SWPBIS ($M = 1.8\%$). This finding was not in the expected direction. Reasons for these unexpected findings are not clear, although future annual evaluations should monitor this to determine whether this is a statistical artifact or a conclusion that can be generalized to other schools. Figure 15 provides a visual representation of average proportions of student ODR rates disaggregated by SWPBIS implementation level.

Figure 15
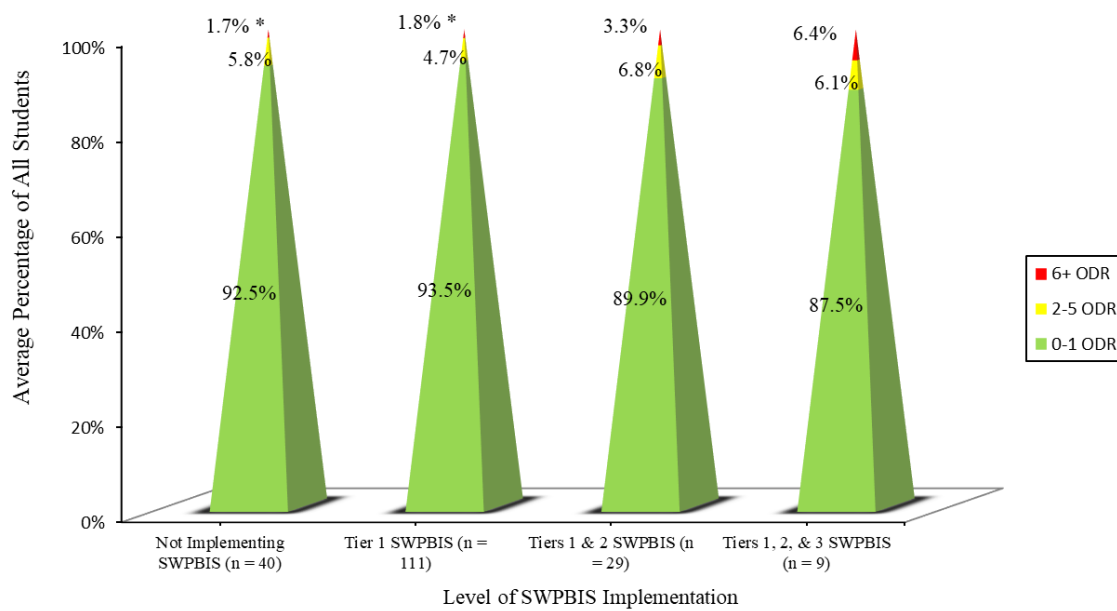*Average Proportion of ODR Rates by SWPBIS Implementation Level*

Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports; ODR = office discipline referral; Data are from the 2018-2019 academic year and represent the proportion of the student population with that number of ODRs; Percentages marked * are statistically significantly lower than the average proportions of 6+ ODRs for elementary schools implementing all three tiers of SWPBIS.

Conclusions

- Preliminary analyses suggest that implementing all three tiers of SWPBIS is associated with the lowest proportion of students evidencing chronic and / or severe behavioral challenges.
- Tier 1 SWPBIS provides sufficient behavioral support to meet the needs of large proportions of students in elementary, middle, PreK-8, and high schools.

> **RECOMMENDATIONS (Impact Domain – ODR Triangle Data):**
>
> ★ The finding that implementing all three tiers of SWPBIS in elementary schools is associated with the lowest proportion of students exhibiting chronic or severe problem behavior should be monitored and data from more schools analyzed in the future.
>
> ★ As more middle, PreK-8, and high schools implement advanced tiers of SWPBIS, ODR Triangle data should be evaluated to investigate potential positive associations similar to those found in elementary schools.

Suspensions

Students' inappropriate behavior is sometimes so chronic, disruptive, dangerous, or severe that administrators might use an out-of-school suspension (OSS) to address the behavior, which results in a student removal from school for a period of time. One of the aims of SWPBIS is to reduce the use of OSS given research has suggested it is typically ineffective (Arcia, 2006).

Findings

Elementary and Pre-K-K were combined into one *elementary* category, while middle and high schools were collapsed into the category entitled *secondary*. The consolidation of these categories maximizes statistical power and reduces the likelihood of making invalid interpretations of the data. Figure 16 includes median OSS days per 100 students between elementary and secondary schools. Significant differences were found between elementary and middle schools and elementary and high schools.

Additional analyses, however, found no relationship between elementary schools' implementation of the tiers of SWPBIS and OSS rates during the 2018-2019 school year. Further, data from PAPBS Network secondary schools do not support an association between the tiers of SWPBIS implemented and OSS rates during the 2018-2019 school year.

Conclusions

- Elementary and PreK-K schools used OSS at a significantly lower rate than middle school and high schools.
- The evidence suggests that implementation of tier 1, tiers 1 and 2, and all three tiers of SWPBIS implementation in Pennsylvania does not appreciably change OSS rates once the framework is implemented.

Figure 16
Median OSS Days Served per 100 Students in elementary and secondary schools.
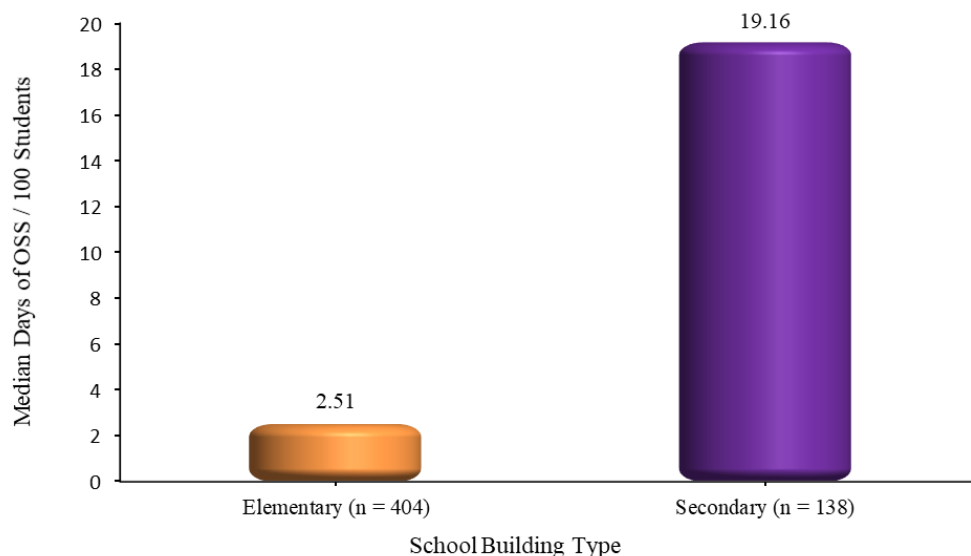
Note. OSS = out-of-school suspensions; elementary schools reported statistically significantly lower rates of OSS than secondary schools.

RECOMMENDATIONS (Impact Domain – Suspensions):

★ More secondary schools implementing advanced tiers of SWPBIS are needed to make stronger conclusions about the association between advance tiers implementation and OSS rates.

★ As with ODRs, qualitative and quantitative inquiry is needed to understand the extent to which the quality of classroom management is associated with OSSs given behaviors that often result in an OSS are initially exhibited in classrooms. It may be that the quality of classroom management is more directly related to OSS rates than the level of SWPBIS implementation.

Out-of-School Placements

A small percentage of students' academic, social, emotional, and / or behavior challenges interfere with their learning to the extent that their neighborhood school is not equipped to meet their needs. An out-of-school placement (OSP), including non-neighborhood public schools, private schools, day-treatment centers, public and private residential facilities, homebound instruction, or instruction within a hospital setting may be recommended in these situations.

OSP rates for elementary, middle, and high schools are presented in Table 2. These data reflect any PAPBS Network school that submitted OSP data, regardless of what tiers of SWPBIS were implemented with fidelity.

Table 2
Building-Level Differences in OSP Rates

Building Level	OSP Rate All Students			OSP Rate Students ED			Prop. of OSP Students ED		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Elementary	255	0.75	0.96	353	0.23	0.37	187	38.8%	40.0%
Middle	57	1.34[a]	2.02	80	0.48[a]	0.60	48	43.7%	35.1%
High	130	1.56[a]	1.21	42	0.48[a]	0.51	29	27.7%	18.8%

Note. OSP = out-of-school placement; ED = Emotional Disturbance; Prop. = Proportion; Means and standard deviations are reported as rates per 100 students enrolled. Proportions are reported as percentages of all students in an out-of-school placement; [a] = statistically significantly different from elementary school rates.

Comparison Across Elementary Schools by Tiers Implemented

Data from PAPBS Network elementary schools during the 2018-2019 academic year were analyzed to investigate a potential association between OSP rates and the degree with which the full, three-tiered SWPBIS framework was implemented. Elementary schools were categorized as control (i.e., no implementation of any tier of SWPBIS), implementing only tier 1 SWPBIS, implementing tiers 1 and 2 SWPBIS, or implementing all three tiers of the comprehensive framework. A visual display of average OSP rates for all students among PAPBS Network elementary schools is provided in Figure 17 disaggregated by these groupings. Results indicated OSP rates for all students were similar across buildings with varying implementation of the SWPBIS tiers. On average, elementary schools place 0.75 students per 100 students enrolled in OSPs. This metric converted to a typically-sized elementary school means that approximately 3 out of 500 enrolled students are educated in OSPs.

Additional analyses were conducted to determine if there was an association between fidelity of SWPBIS implementation and OSPs for students whose primary exceptionality is emotional disturbance. A visual display of these disaggregated data is provided in Figure 18. OSP rates for students identified as emotionally disturbed were similar across buildings with varying tiers of SWPBIS implemented with fidelity. On average, elementary schools place 0.23 students with a classification of emotional disturbance in an OSP per 100 total students enrolled. This metric converted to a typically-sized elementary school means that approximately 1 out of 500 enrolled students are identified as having an emotional disturbance and educated in an OSP.

Conclusions

- Generally, secondary schools use OSPs at higher rates compared to elementary schools.
- OSPs for all students and students identified as emotionally disturbed do not appear to differ when comparing schools not implementing SWPBIS and those implementing any of the SWPBIS tiers.

Figure 17

Average OSP Rates for All Students Among Elementary Schools Disaggregated by Tiers of SWPBIS Implementation
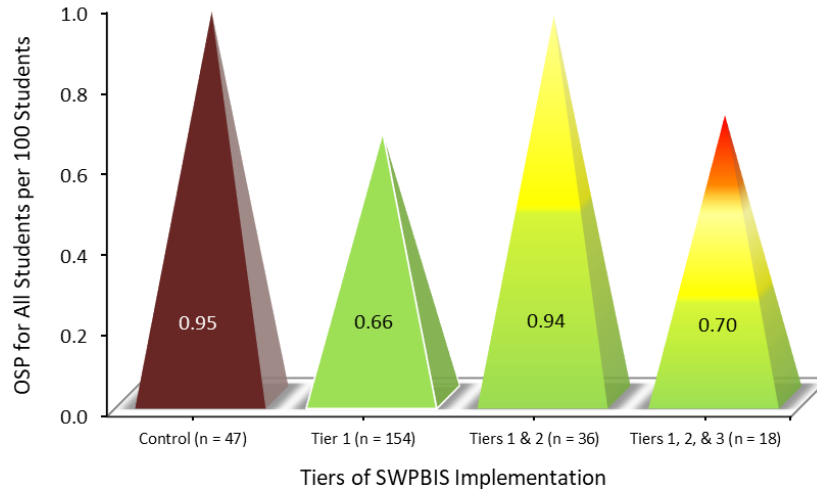
Note. OSP = out-of-school placement; SWPBIS = School-Wide Positive Behavioral Interventions and Supports; no statistically significant mean differences were detected among the groups.

Figure 18

Average OSP Rates for Students Classified as Emotionally Disturbed Among Elementary Schools Disaggregated by Tiers of SWPBIS Implementation
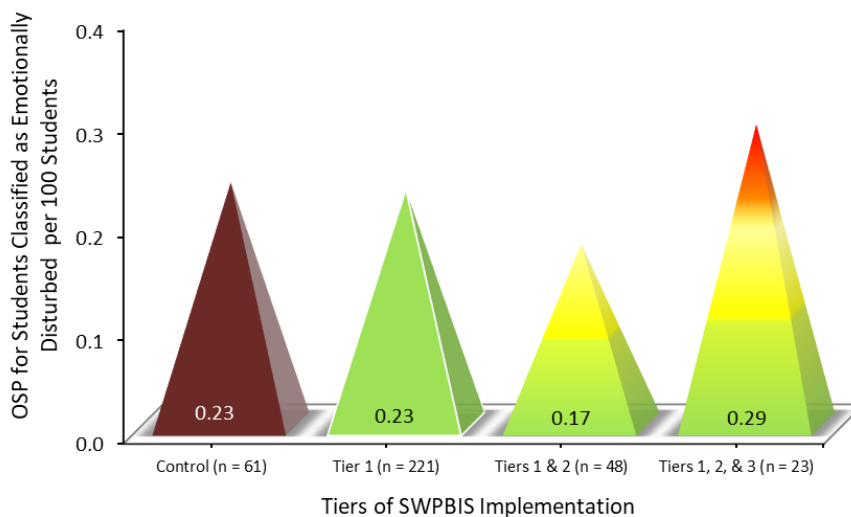
Note. OSP = out-of-school placement; SWPBIS = School-Wide Positive Behavioral Interventions and Supports; no statistically significant mean differences were detected among the groups.

> **RECOMMENDATIONS (Impact Domain – Out-of-School Placements):**
>
> ★ Future investigation should focus on the relationship between OSP rates and PAPBS Network schools that are implementing the multiple tiers of SWPBIS, not just tier 1 SWPBIS.

Check-In / Check-Out

According to Crone et al. (2010), Check-In / Check-Out (CICO) is a standard-protocol intervention often implemented at tier 2 in the SWPBIS framework. As one of the few standard-protocol interventions, reports of CICO data have been on the rise amongst PAPBS Network schools since 2008-2009.

Findings

The total number of PAPBS Network schools reporting CICO for the 2018-2019 academic year increased by 12 from the previous year, resulting in 77 total sites. Table 3 offers a review of the number of schools implementing CICO disaggregated by building type and their respective success rates using data from the 2018-2019 academic year. It is important to note that the fidelity with which CICO is implemented is unknown, and it is possible that some schools implement CICO but do not submit data for review. The overall success rate for PAPBS schools reporting CICO data were 86.9%, illustrating that over 1,600 students achieved successful criterion. In regard to increasing positive behavior, these data suggest that the implementation of CICO is promising in all levels of K-12 education.

Table 3
CICO Enrollments and Success Rates by Building Type

	n	Total Students Enrolled	Total Students Achieving Criterion	Success Rate
Elementary	54	1,160	972	83.8%
Middle	7	213	201	94.4%
High	3	116	105	90.5%
Alternative	2	119	97	81.5%
Other	11	312	293	93.9%
TOTAL	**77**	**1,920**	**1,668**	**86.9%**

Note. CICO = Check-In / Check-Out; Other = schools that did not have a grade configuration consistent with the other categories (e.g., PreK-8; PreK-12) or unknown grade configurations.

In comparing CICO effectiveness in schools that had fully implemented SWPBIS with fidelity at the different tiers, CICO appears to be effective for approximately 92% of students enrolled in the intervention. Further, success rates are statistically similar across all grade spans and the success rate of CICO does not appear to be associated with the fidelity with which tier 1 and / or tier 2 are implemented.

Conclusions

- CICO is equally effective across all grade spans in K-12 settings.
- CICO is a highly effective, low-cost intervention that can be situated within tier 2 of SWPBIS.

RECOMMENDATIONS (Impact Domain – Check-In / Check-Out):

- ★ Replication of CICO in more schools is recommended given its high efficacy and low cost to implement.
- ★ More secondary schools should implement CICO given its known efficacy with this population and its limited implementation in such schools across Pennsylvania.

Academic Performance

One expectation of SWPBIS is that establishing and maintaining a safe, nurturing environment would create an academic atmosphere in which students' academic performance would be enhanced. Unfortunately, the evaluations conducted over the past eleven years have yet to establish any direct relationship between SWPBIS and academic achievement. One consistent recommendation from prior years has been to incorporate an academic growth measure in addition to academic achievement, which has been measured by the *Pennsylvania System of School Assessment* (PSSA) examinations in Mathematics and English Language Arts. For this 12th year evaluation, academic performance was expanded to include academic growth data as measured by the *Pennsylvania Value-Added Assessment System* (PVAAS).

Achievement

PSSA data were available for 758 schools from which tier-level implementation data were also available. Of these schools, 246 had not fully implemented SWPBIS at any level, 415 had implemented at tier 1 only, 64 had implemented at tiers 1 and 2, and 33 had implemented at all three tiers. Figure 19 summarizes the Math and English Language Arts PSSA data for these four groups. For both the Math and English Language Arts scores, no statistically significant differences were found. It was not possible, therefore, to conclude that there were significant differences among schools not implementing SWPBIS and schools implementing SWPBIS on English Language Arts and math proficiency.

Figure 19
PSSA English Language Arts and Math Means by Level of SWPBIS Implementation
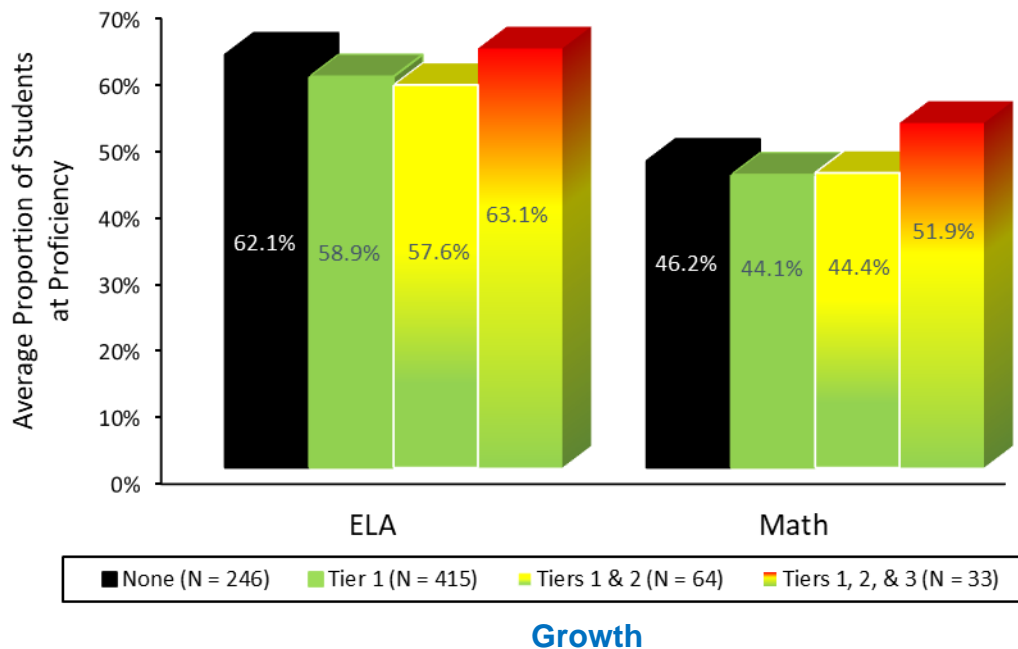

Growth

PVAAS is a statistical analysis used to measure a district's or school's influence on the academic progress rates of groups of students from year to year. A value-added growth measure is calculated in the following manner: Growth = Current achievement compared to all prior years' achievement, with achievement being measured by quality assessments, such as the PSSA and Keystone exams. PVAAS is not another test. It provides analyses based on existing student assessment data. PVAAS measures student growth from one year to the next using state assessments (PDE, 2019). Utilizing PVAAS measures, schools are classified into one of three categories:

- **BLUE** (80 – 100) for a school whose all student group exceeds the growth standard;
- **GREEN** (70 – 79.99) for a school whose all student group meets the growth standard; and
- **RED** (50 – 69.99) for a school whose all student group did not meet the growth standard.

Figure 20 and Figure 21 provide the graphic summaries of the cross-tabulation between the school's ELA PVAAS and Math PVAAS categories, respectively, and their level of SWPBIS implementation across the three tiers. Data analyses indicated Math or ELA academic growth measures were similar across the implementation levels.
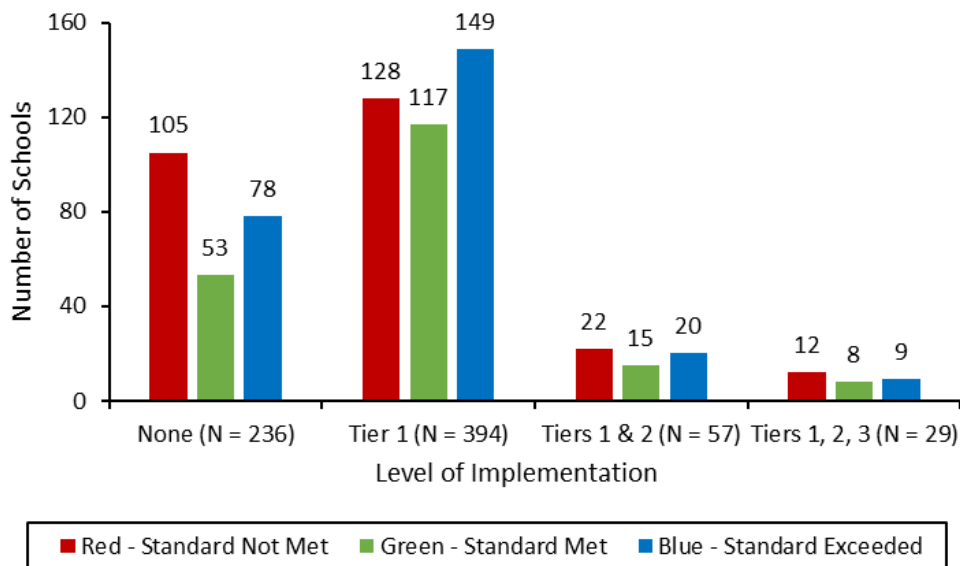
Figure 20
Graph of ELA PVAAS Category of Schools by Level of SWPBIS Implementation
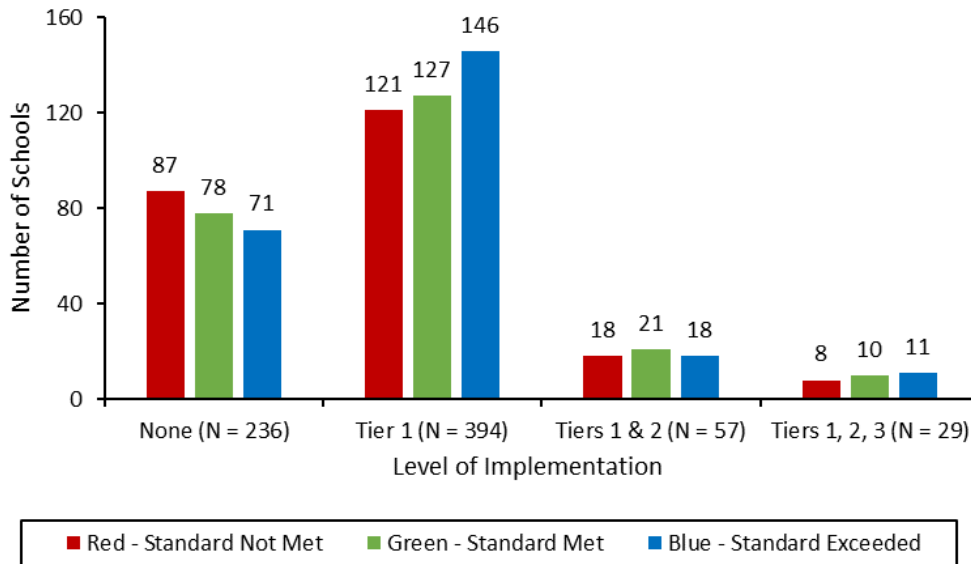
Note. ELA = English Language Arts; PVAAS = *Pennsylvania Value Added Assessment System*; SWPBIS = School-Wide Positive Behavioral Interventions and Supports.

Figure 21
Graph of Math PVAAS Category of Schools by Level of SWPBIS Implementation

Note. ELA = English Language Arts; PVAAS = *Pennsylvania Value Added Assessment System*; SWPBIS = School-Wide Positive Behavioral Interventions and Supports.

Conclusions

- Academic performance measures were expanded to include achievement and growth data. Unfortunately, in both cases there did not appear to be any significant statistical relationship between schools' level of SWPBIS implementation and either measure of academic performance.
- Having found no significant relationship between academic performance and SWPBIS implementation does not mean such a relationship does not exist. Rather, if the relationship exists, the measures used to date have failed to define it.

RECOMMENDATIONS (Impact Domain – Academic Performance):

★ The relationship between SWPBIS implementation and academic performance may exist; however, that relationship appears to be buried in the global assessments used to measure academic performance. PSSA and PVAAS data are very useful measures for teachers and administrators. These measures, as utilized for these evaluations, however, are building-level data and are not as useful in determining the extent to which SWPBIS has an impact on individual students. It would be beneficial to have the data (anonymously) at the individual student level to compare beginning and end of year growth.

Replication, Sustainability, and Improvement of PA SWPBIS

The extent to which SWPBIS is scaled-up across locations and sustained across multiple years is Algozzine and colleagues' (2010) final evaluative domain and addresses whether there are an increasing number of sites implementing SWPBIS. Cross-sectional data of the number of schools achieving full implementation of tier 1 SWPBIS each spring since 2007 are provided in Figure 22. By spring of 2019, 583 schools submitted fidelity data confirming full implementation of tier 1 SWPBIS. Consistent with state and national historical trends, elementary schools represent the largest proportion of PAPBS Network schools implementing tier 1 SWPBIS with integrity, as seen in Figure 23.

Figure 22
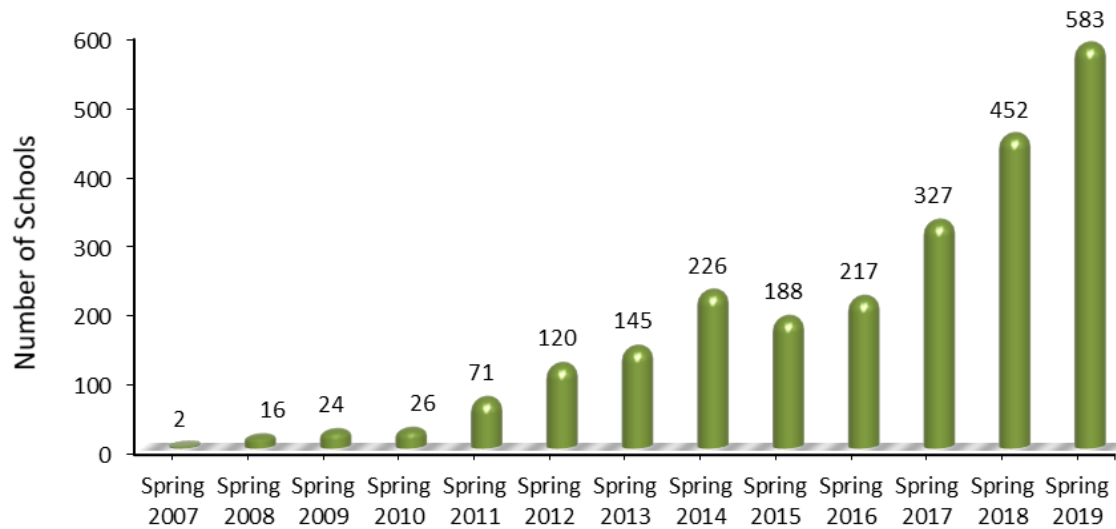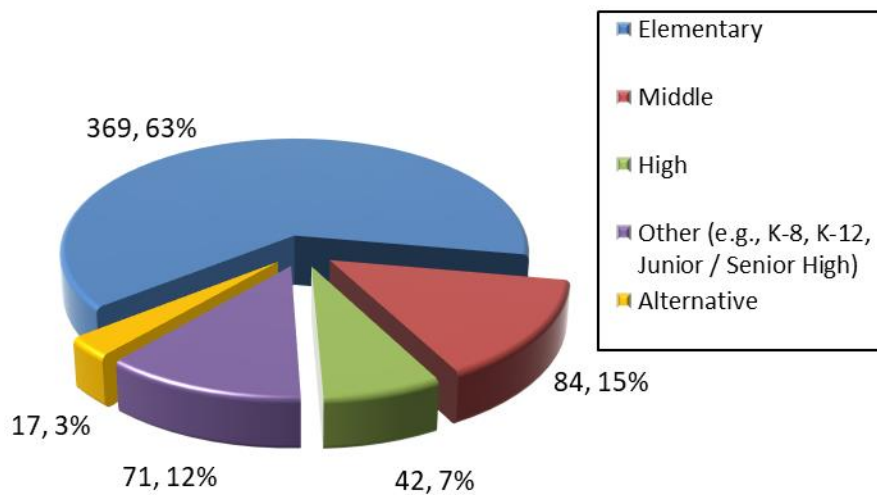*Cross-Sectional Review of Schools Fully Implementing Tier 1 SWPBIS*

Figure 23
Spring 2019 Tier 1 SWPBIS Implementation Disaggregated by Building Level

Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports.

RECOMMENDATIONS (Replication, Sustainability, and Improvement Domain):

★ Over time, and with competing resource needs for other programs and activities, it may be difficult for schools to continue to implement and expand SWPBIS activities. Additional resources to achieve increasing levels of implementation will certainly be required.

★ If the goal is to expand SWPBIS into more middle schools and high schools, additional strategies and resources will certainly be needed.

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