Pennsylvania School-Wide Positive Behavior Support Initiative

2009-2010 Executive Summary

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Background

The Pennsylvania Department of Education (PDE) and Bureau of Special Education initiated the implementation of a School-Wide Positive Behavior Support (SWPBS) framework in a selected group of schools across the Commonwealth beginning in spring 2007 under the direct guidance and support of the National Center on Positive Behavioral Interventions and Supports (PBIS). Initial training of the first SWPBS cohort began in summer 2007 with 33 schools and personnel from their respective intermediate units (IU). Additionally, all IUs were invited to send consultants to participate in the training even if they were not affiliated with a cohort school as a means to prepare for eventual scaling up of SWPBS across the Commonwealth. The initial 33 schools have received on-going training and technical assistance from Pennsylvania Training and Technical Assistance Network (PaTTAN) and IU consultants since summer 2007.

Overview of SWPBS

SWPBS is a three-tiered service delivery framework employing both prevention- and intervention-focused efforts to encourage positive student behavior while simultaneously reducing the amount of instructional time lost to disruptive behavior (Walker et al., 1996). Major components of Tier 1, universal SWPBS include targeting school environments that have, historically, been settings for significant misbehavior with increased prevention planning and adult supervision; designing behavioral curricula through which students are explicitly taught expectations and routines parallel to instructional approaches for academics; reinforcing prosocial, desirable behavior via praise and robust token economies; and utilizing multiple data sets to make informed decisions regarding students' behavior and SWPBS outcomes deemed relevant to the administration, staff, and community.

Secondary level of support within a SWPBS framework (i.e., Tier 2) includes interventions for those students identified as being at-risk for school failure. These interventions are typically contextually-based within the culture of the school and the unique needs of its students; however, common secondary levels of support include small group instruction and intervention; increased prompting and reinforcement of prosocial behaviors; and systematic, daily checks with important staff (Crone, Horner, & Hawken, 2004; Lewis & Sugai, 1999; March & Horner, 2002). The focus of secondary intervention efforts is to provide students with the academic, behavioral, social, and emotional skills to be more successful and responsive to the universal SWPBS framework.

Tertiary level of support within a SWPBS framework (i.e., Tier 3) is student-centered and family-focused, often resulting in Positive Behavior Support Plans (PBSP) and intensive wrap-around services designed to address the needs of the student and his / her family across multiple life domains (Eber, Sugai, Smith, & Scott, 2002). Such services are delivered by a host of community-based agencies but coordinated through an inter-agency school-based team. Students at this level of support are closely monitored by a team of professionals who have regular contact with the student and families.

Purpose of PA SWPBS Evaluation

No Child Left Behind Act of 2001 (NCLB) and Individuals with Disabilities Education Improvement Act of 2004 (IDEIA) mandate that behavioral interventions be (a) empirically-based; and (2) proactive and positive. SWPBS meets the first criterion given its rich history of empirical validation over the past 15 years. This second criterion is satisfied by the very orientation of universal SWPBS itself. The intent of universal SWPBS is to teach students the correct behavior before they have opportunities to chronically misbehave (i.e., proactive) with a significant emphasis placed on rewarding students for correct, prosocial behavior (i.e., positive).

Empirical support for the efficacy of SWPBS in other states has primarily focused on its effect on decreasing student referrals to the office, decreasing suspensions and expulsions, and improving school climate (Walker et al., 1996) with emerging evidence suggesting positive effects on academic outcomes (Bradshaw, Mitchell, & Leaf, 2010; Eber, Lewandowski, Hyde, & Bohanon, 2008). Pennsylvania's PBS Network places importance on these outcomes in addition to others that are particularly relevant to the Commonwealth. As such, researchers from the Indiana University of Pennsylvania have been under contract with the PaTTAN since fall 2008 to conduct annual program evaluations of SWPBS implementation in cohort schools. The present Executive Summary provides highlights of the second annual program evaluation conducted by Drs. Timothy J. Runge and Mark J. Staszkiewicz (2010).

A number of methodologies were employed to evaluate the PA SWPBS initiative including cross sectional and longitudinal analyses. The following is a review of salient outcomes related to implementation of SWPBS in cohort schools two years after initial training. The results and interpretations presented herein are those expressed by the authors and do not necessarily reflect the position of PDE, PaTTAN, or others involved in the SWPBS initiative.

PA SWPBS Implementation Efforts

Schools Receiving Training and Implementation Support

A total of 33 schools were selected to participate in the initial cohort of SWPBS in Pennsylvania representing the range of geographic locations and grades (see Tables 1 and 2, respectively). Some Local Education Agencies (LEAs) sent more than one school to the training; therefore, a report is provided regarding the number of participating LEAs in the initiative. Each of the schools also had an external coach assigned by the local IU to serve on the core team developing and implementing SWPBS. Since school buildings represent different grade arrangements, some buildings were counted more than twice for purposes of broadly summarizing implementation of SWPBS in elementary, middle, and high schools. These data indicate that schools selected for SWPBS implementation were distributed geographically across the Commonwealth with the most number of schools located in the eastern region. Implementation also occurred most frequently in elementary schools, although secondary schools were represented in the cohort.

Table 1
Participating Buildings / LEAs / IUs by Region

	West	Central	East	Total
Schools	12	4	17	**33**
LEAs	7	4	12	**23**
Collaborating IUs	4	4	7	**15**

Participating schools were also invited to collaborate with a community mental health agency at all tiers of SWPBS implementation. Many, but not all, schools either had existing relationships with collaborating mental health agencies and these agencies provided professionals to attend the trainings and be key collaborators with schools.

All cohort teams have been financially compensated by PaTTAN for a variety of activities related to training and implementation of SWPBS since 2007. Additionally, some schools were awarded, via a competitive application process, School-Based Behavioral Health (SBBH) Performance Grants in school years 2006-2007 through 2009-2010 to partially fund SWPBS efforts.

Content of the Training Series

The training series for the schools selected for the project spanned multiple regional- and site-based professional development days across the school years 2007-2008 through 2009-2010. The scope and sequence of these workshops were consistent with the Office of Special Education Program (OSEP) SWPBS Implementation Blueprint (Center on Positive Behavioral Supports and Interventions, 2004) and included development of Tier 1, universal SWPBS in Year 1 and development of Tier 2, secondary SWPBS in Year 2. Representative teams from each school participated in these trainings and on-site technical assistance provided by the PBS Network, PaTTAN, IUs, and collaborating agencies.

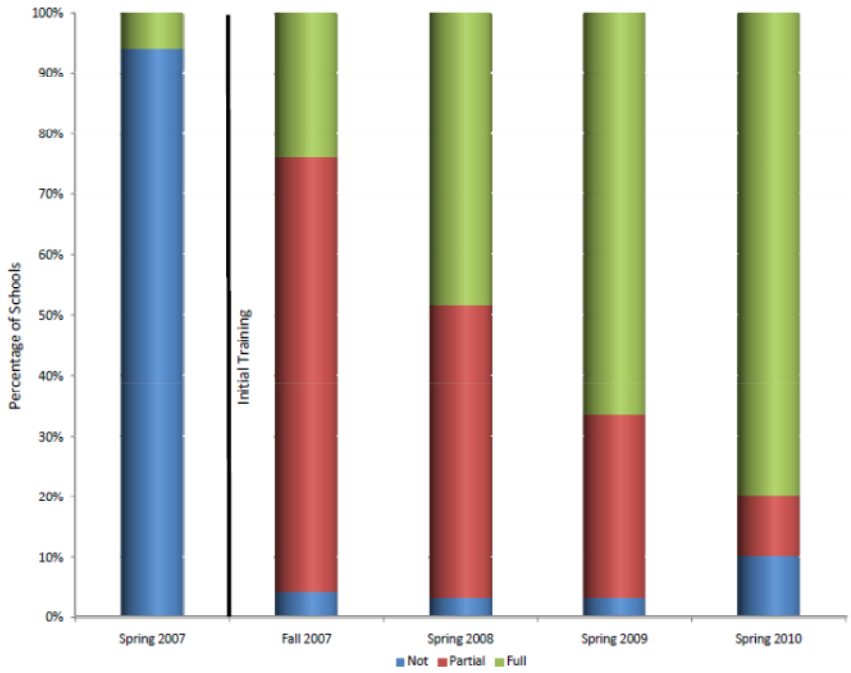
Level of SWPBS Implementation Across Participating Schools

According to the SWPBS Implementation Blueprint (Center on Positive Behavioral Supports and Interventions, 2004), implementation of the universal system of SWPBS is possible after the initial training of the building teams and turn around training and implementation within the respective school building. Fidelity of implementation was objectively measured using research-validated integrity checks (*School-wide Evaluation Tool* [SET], Sugai, Lewis-Palmer, Todd, & Horner, 2005; *School-wide Benchmarks of Quality* [BoQ], Kincaid, Childs, & George, 2005; *Effective Behavior Support: Team Implementation Checklist* [TIC], Sugai, Horner, Lewis-Palmer, 2002).

The total number of participating schools implementing SWPBS by degree of fidelity across time is indicated in Figure 1. Note that two of the 33 participating schools were already fully implementing SWPBS before the initial professional development workshops provided in June 2007. Additionally, one school has failed to report any fidelity or outcome data.

As indicated in Figure 1, an increasing percentage of schools implemented SWPBS with a high degree of integrity across three years is observed. Nearly 49% (*N*=16) of all participating schools met criteria for designation as fully implementing universal SWPBS within one year of initial training. By the following spring 2009, 66.7% (*N*=22) of all participating schools met criteria for full implementation of SWPBS, ten schools (30.3%) continued to partially implement elements of universal SWPBS, and the one school remained as not implementing. Of the 17 schools reporting fidelity data after three years of initial training, 88.2% (*N*=15) were designated as fully implementing universal SWPBS. Sixteen of the participating cohort schools did not report implementation data for spring 2010 (48% of the entire cohort). It is anecdotally known that these 16 schools continue to implement SWPBS although objective fidelity data were not available.

Figure 1
Percentage of Reporting Cohort Schools Implementing Universal SWPBS Across Time



Sustainability of Universal Level SWPBS

> *Once a school is fully implementing universal SWPBS, multi-year sustainability is highly possible, if not also highly probable.*

An additional question of concern regarding implementation of SWPBS is the sustainability of universal SWPBS across time. Longitudinal implementation status data are presented in Table 2 and indicate that nearly all schools were able to maintain, if not improve, fidelity of universal SWPBS three years after the initial training. Moreover, 100% of schools that were designated as fully implementing universal SWPBS within one year of initial training were able to sustain full implementation status for three consecutive years (*N*=10). These data suggest that once a school is fully

implementing universal SWPBS, multi-year sustainability is highly possible, if not also highly probable.

Table 2
Schools that Maintained or Improved Implementation Status Across Time

	# of Schools with Fidelity Data	# of Schools That Maintained or Improved	% of Schools That Maintained or Improved	# of Schools That Did Not Maintain or Improve	% of Schools That Did Not Maintain or Improve
Across 2 Years	33	30	90.9%	3	9.1%
Across 3 Years	17	17	100%	0	0%

Impact of PA SWPBS on Behavioral Support Practices in Schools

Staff Perceptions of Status of Behavioral Support

Schools were asked to complete the *Effective Behavior Support: Self-Assessment Survey* (EBS: SAS; Sugai, Horner, & Todd, 2003) prior to initial training, in the fall of 2007 immediately after initial training, and each spring beginning in 2008. The EBS: SAS evaluates staff perceptions about the current status and need for improving behavioral support at the School-Wide level.

In the cross sectional approach presented in Figure 2, schools responding in one year are not necessarily the same schools responding in another year. For schools in their early years of implementation (planning and first year) the percentage of staff who indicated that School-Wide support systems were fully implemented was approximately 55% to 56%. As the years progressed, the percentage of staff reporting full implementation of School-Wide support systems increased. The cross sectional results suggest that internal publicity of universal SWPBS within the schools made respondents more aware of universal behavioral support.

As time progressed, school staff reported stronger implementation of universal SWPBS.

Longitudinal analyses could be conducted on the 13 schools that provided four years of EBS: SAS data. Results of this longitudinal comparison are found in Figure 3 and confirm the hypothesis described above. Statistically significant changes in the data over time indicate that that most elements of the universal SWPBS framework were fully in place, as reported by various school staff, and, as time progressed, more staff reported stronger implementation of School-Wide support systems (i.e., Tier 1).

Figure 2

Cross Sectional Comparison of Self-Report Pre- and Post-Implementation Level for "School Wide"

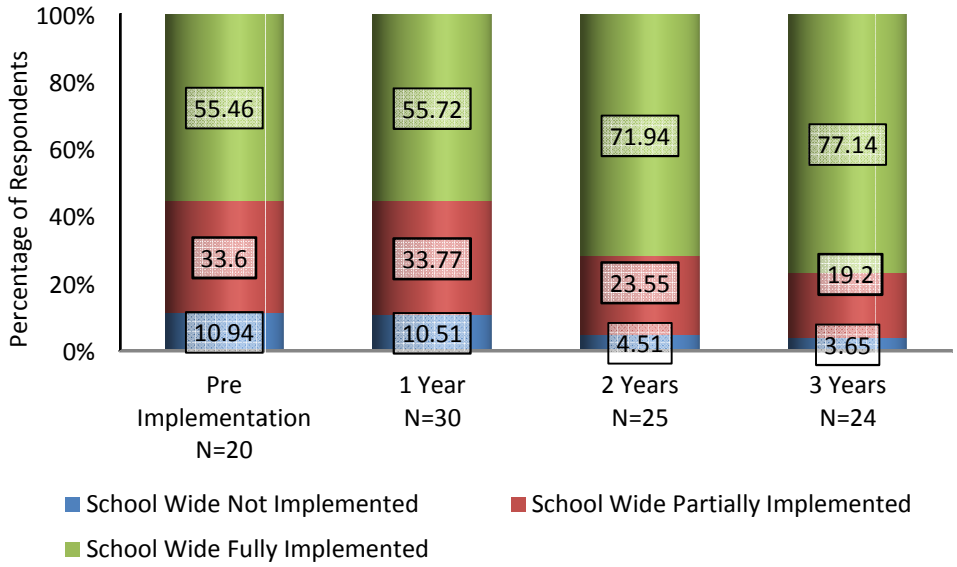
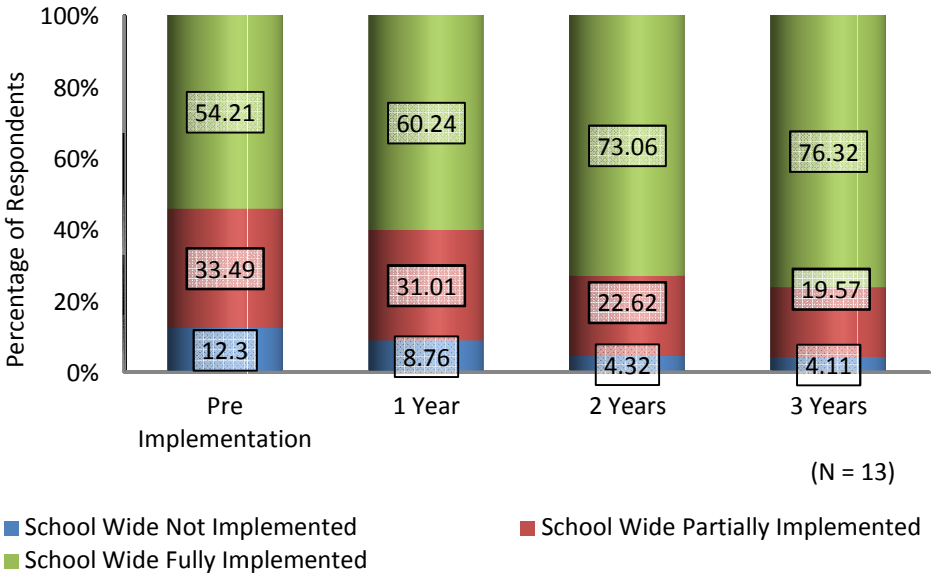


Figure 3

Longitudinal Comparison of Self-Report Pre- and Post-Implementation Level for "School Wide"

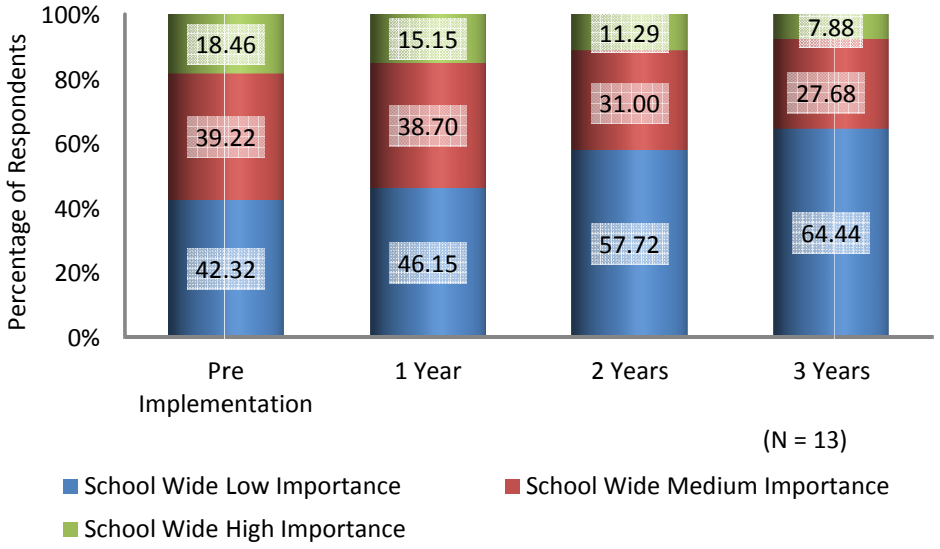


Staff Perceptions of Need for Improvement in Support at the School-Wide Level

In addition to providing perceptions of the extent of implementation of behavioral support, participating staff were also asked, via the EBS: SAS, the degree of importance that School-Wide systems of support were in need of improvement at their respective school.

Cross sectional results suggested a trend in the data that was confirmed by longitudinal analyses using the 13 schools for which complete data were available. As evident in Figure 4, the percentages representing the "low importance" response rose from 42.32% to 64.44% and represented a statistically significant change. These results suggest that as schools fully implement universal SWPBS, staff place a lower priority on improving universal SWPBS. That is, once staff perceive universal SWPBS to be implemented with integrity, they place a priority on improving other aspects of behavior support. It is hypothesized, although confirmation is not possible given presently available data, that staff begin to place a higher priority on improving behavioral support for at-risk students (i.e., Tier 2 and 3 supports) and / or in targeted areas (e.g., unstructured settings, settings lacking substantial adult supervision).

Figure 4
Longitudinal Comparison of Self-Report Pre- and Post-Implementation for Importance of Improving "School Wide"



Differences in Staff Perceptions on Status and Need for Improvement in Partially Implementing Schools Compared to Fully Implementing Schools

It was believed that staff perceptions of the level of universal SWPBS implementation and priorities for improvement would be correlated with the actual level of universal SWPBS implementation as measured by independent metrics such as the SET or BoQ. Longitudinal analyses across two years confirmed that staff from fully implementing SWPBS schools were well aware of the high degree of integrity with which SWPBS was implemented. Likewise, staff from schools independently designated as partially implementing universal SWPBS were equally aware of their school's incomplete level of implementation. As expected, once a school was independently designated as fully implementing SWPBS, its staff reported very little need for improving that level of support. Contrarily, schools that were independently designated as partially implementing universal SWPBS had staff that reported a higher degree of importance placed on maximally implementing universal SWPBS. It thus seems, based on statistically significant longitudinal analyses, that schools make it a high priority to fully implement universal SWPBS and then, once fully implementing universal SWPBS, shift priorities to other levels of behavior support within the SWPBS framework.

Schools prioritize improving other levels of behavior support within the SWPBS framework once universal SWPBS is fully implemented.

Staff Perceptions of School Climate

Personnel at participating schools were asked to voluntarily and anonymously complete the *School Safety Survey* (SSS; Sprague, Colvin, & Irvin, 2002) in fall 2007 (immediately after initial training) and each spring beginning in 2008. The SSS is used to measure relevant risk and protective factors associated with the school building and community. Theoretically, as universal SWPBS is implemented with integrity, risk factors should diminish and protective factors should increase.

Cross sectional data were available for up to 29 of the 33 participating schools. Means and standard deviations for Risk and Protective Factors at each year of implementation are presented in Table 3. It is interesting to note that in the first year after implementation Risk Factors were higher and Protective Factors were lower than the scores for the pre-implementation year. Schools in the second and third year, however, reverse that trend with Risk Factors below those of the pre-implementation year and the Protective Factors above those of the pre-implementation year.

After two years of SWPBS implementation, students' Risk Factors were lower than pre-implementation levels and Protective Factors were higher than pre-implementation levels.

Table 3
Cross Sectional Descriptive Statistics for Risk and Protective Factors

		Risk Factors		Protective Factors	
	N	*M*	*SD*	*M*	*SD*
Pre-Implementation	23	44.50%	13.1	74.07%	7.8
1 Year	29	45.21%	14.4	72.33%	8.0
2 Years	23	41.35%	12.5	77.25%	7.5
3 Years	23	38.86%	10.1	78.91%	6.7

Longitudinal tracking of Risk and Protective Factors could be accomplished via statistical analyses of complete data from 15 schools. These data are presented in Table 4.

Table 4
Descriptive Statistics for Risk and Protective Factors for Implementing Schools

	Risk Factors		Protective Factors		Protective to
	M	*SD*	*M*	*SD*	Risk Ratio
Pre-Implementation	42.4%	10.0	76.8%	6.2	1.94
1 Year	42.3%	10.6	76.5%	6.2	1.95
2 Years	40.6%	10.9	77.8%	8.5	2.11
3 Years	38.8%	7.4	79.4%	7.0	2.14

Note. $N = 15$.

Longitudinal results of Risk and Protective Factors are comparable to cross sectional analyses noted previously and suggest an encouraging trend that approaches statistical significance. Risk Factor scores for the 15 schools were 42.4, 42.3, 40.6, and 38.8% across the four years. This trend is in the expected direction, with the average Risk Factor score dropping by 8.5% from pre-implementation to year three of implementation. Mean Protective Factors for the 15 school were 76.8, 76.5, 77.8, and 79.4% across the four years. As with Risk Factors, the trend in Protective Factors was not statistically significant, but was clearly in the expected direction and approaching significance. To summarize Risk and Protective Factors simultaneously, a Protective to Risk Ratio was computed to represent the overall ratio of Protective to Risk Factors. It can be argued that as this ratio gets larger, the school becomes safer. A desirable trend of an increasing Protective to Risk Ratio was observed over the four years, although this increasing ratio was not statistically significant.

Additional analyses were conducted to evaluate the differences between schools that partially and fully implement SWPBS with regard to the Risk and Protective Factor scores. Data from schools two years after initial implementation are presented in Table 5. One interesting observation is that in each year, the schools that fully implement SWPBS became more homogeneous, as seen in the smaller standard deviations, compared to the schools that partially implement SWPBS.

Mean differences were significantly different across level of implementation two years after initial implementation. Schools identified as fully implementing SWPBS had significantly more Protective Factors and fewer Risk Factors than the schools identified as partially implementing SWPBS. It thus appears that the level of Protective Factors increases and Risk Factors decreases

as a function of the fidelity of SWPBS implementation. Overall, these results are consistent with findings from other states.

Schools that fully implemented SWPBS had students with significantly more Protective Factors and less Risk Factors than students from schools that only partially implemented SWPBS.

Table 5
Longitudinal Comparison of Partial and Full Implementing Schools at 2 Years

Variable	*N*	*M*	*SD*	*SEM*	*t*
Risk Factors					2.83*
Partial	8	50.15%	11.90	4.21	
Full	15	36.65%	10.33	2.67	
Protective Factors					-3.59*
Partial	8	71.04%	5.62	1.99	
Full	15	80.56%	6.26	1.62	

Note. $df = 22$
*$p < .01$

Impact of PA SWPBS on Behavior

Student and Staff Attendance

Cross sectional and longitudinal analyses of average daily student and staff attendance rates were not significantly different from pre-implementation to two years post-implementation. It is noted that the lack of statistically significant findings in either student or staff attendance may be a result of very high percentages prior to SWPBS implementation. With such high pre-implementation attendance rates, it is difficult to demonstrate statistically significant improvement.

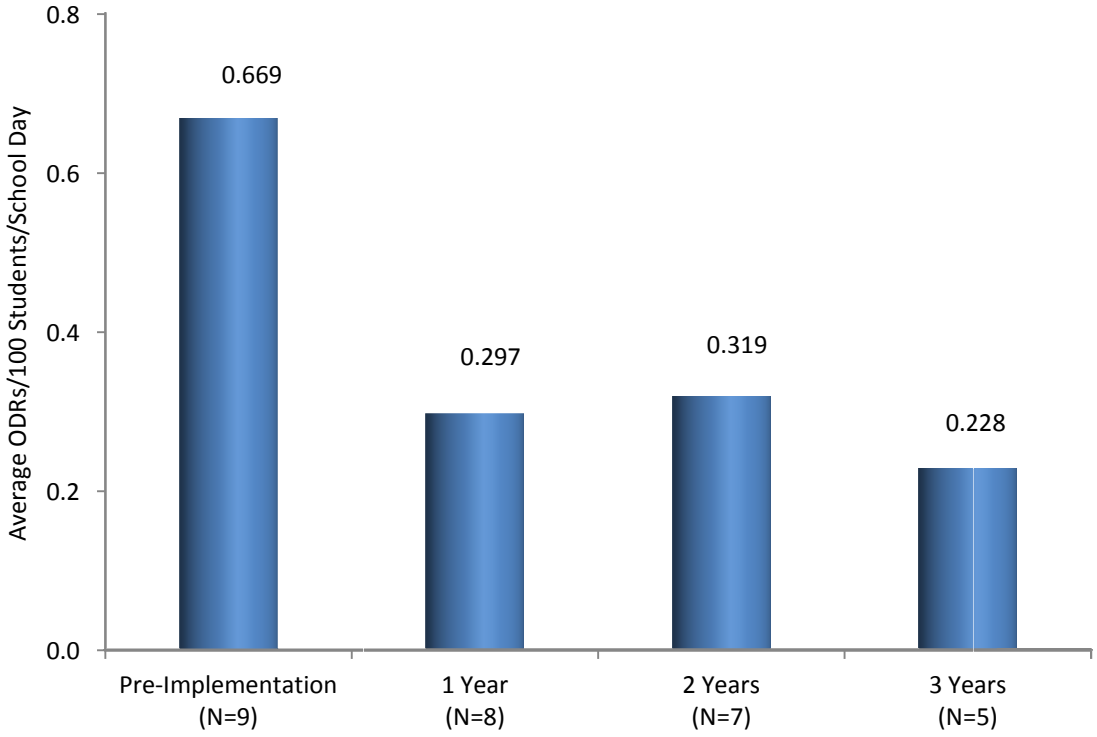
Office Discipline Referrals

A cross sectional view of office discipline referrals (ODRs) for all schools that submitted data is found in Table 6 and Figure 5. The number of schools providing ODR data ranged from five to nine, and raw ODR data were converted to a common metric (ODRs/100 Students/School Day) to allow for comparison across schools of different sizes. Average ODRs/100 Students/School Day before SWPBS implementation was .669 and .228 after three years of implementation. Interestingly, the standard deviations also reduced suggesting more homogeneity in the data across years.

Table 6
Cross Sectional Descriptive Statistics for ODRs/100 Students/School Day

	M	*SD*	*N*
Pre-Implementation	.669	.967	9
1 Year	.297	.369	8
2 Years	.319	.354	7
3 Years	.228	.256	5

Figure 5
Cross Sectional Comparison of ODRs/100 Students/School Day



Complete longitudinal data for ODRs were available for five of the fully implementing schools from 2006-2007 through 2009-2010 and are presented in Table 7 and Figure 6. Clearly the observed trend in these data is in the expected direction with a reduction from .672 to .228 from pre-implemention of SWPBS to the third year of full implementation. While this is not a statistically significant decrease, it does at least suggest that there may be movement in a positive direction and that this is a variable worth monitoring. The reduction of .444 ODRs/100 Students/School Day across three years can be

Schools that implement SWPBS reduce ODRs by 1.3 each day for every 300 students.

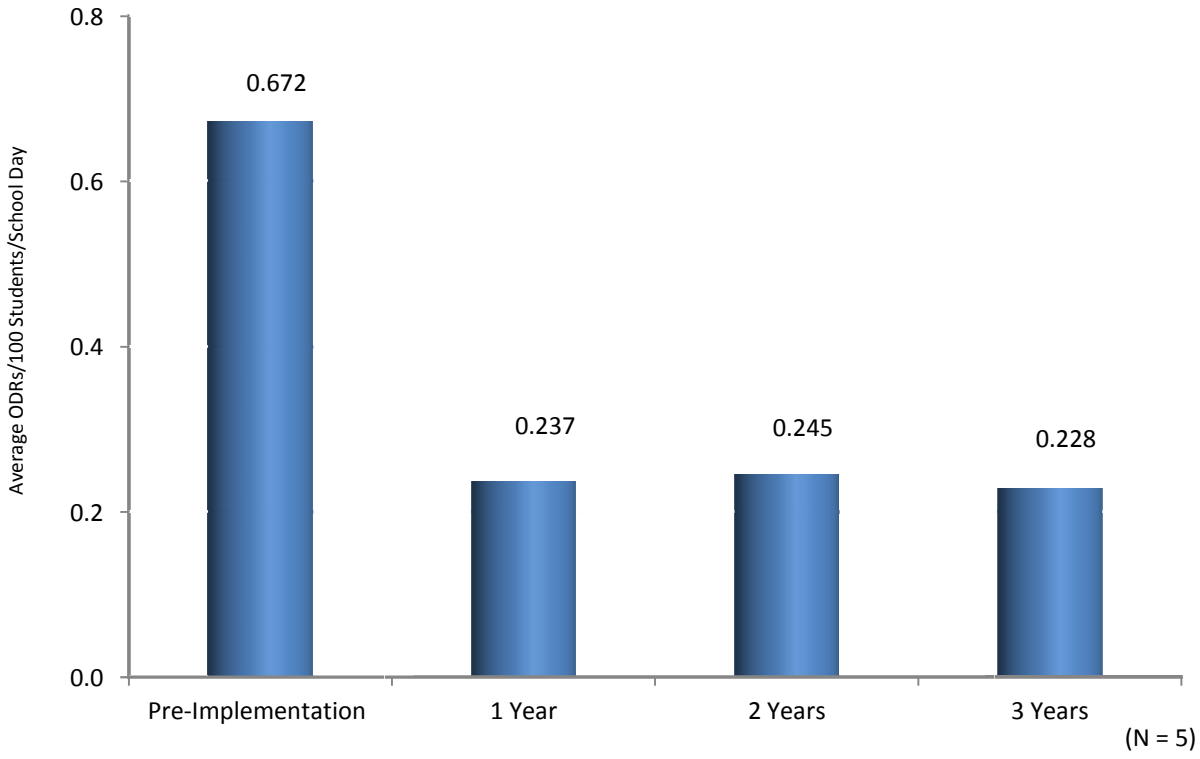
difficult to interpret given that the statistic is less than one. Put another way, this decrease represents, on average, a decrease of 1.3 ODR per school day per 300 students in a building implementing SWPBS. These decreases are consistent with national trends (Spaulding et al., 2010).

Table 7
Longitudinal Comparison Descriptive Statistics for ODRs/100 Students/School Day

	M	*SD*
Pre-Implementation	.672	.913
1 Year	.237	.233
2 Years	.245	.226
3 Years	.228	.256

Note. $N = 5$

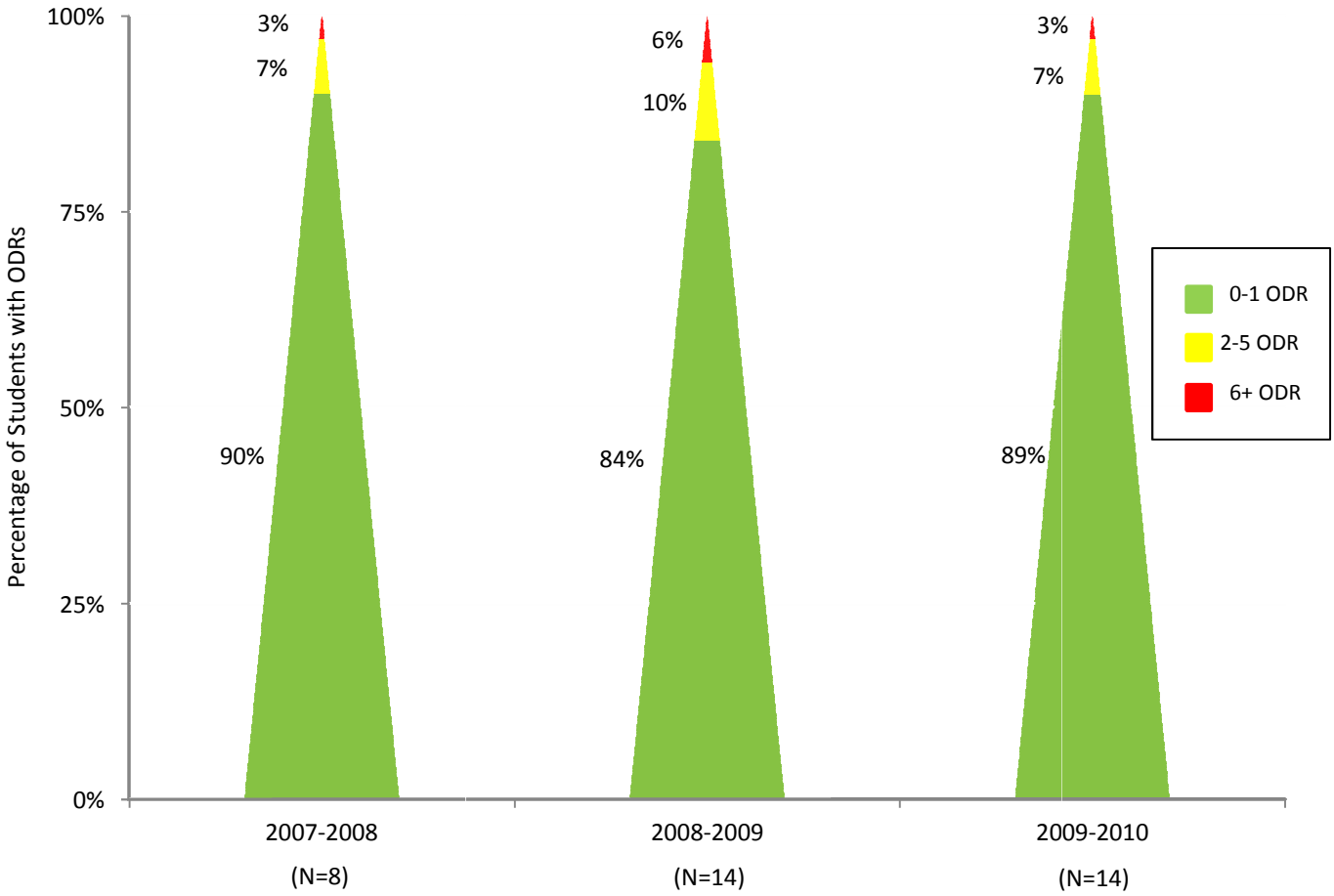
Figure 6
Longitudinal Comparison of ODRs/100 Students/School Day



ODR Triangle Data. The last set of analyses regarding ODRs is an analysis of the percentage of students who receive 6+ ODRs in a school year, 2-5 ODRs in a school year, and 0-1 ODRs in a school year. Commonly referred to in the SWPBS literature as the triangle data, results for schools utilizing SWIS™ (Educational and Community Supports, 2010) as the mechanism to track ODRs are presented in Figure 7 for ODRs.

Results presented do not include pre-implementation ODR rates, thus efficacy of SWPBS cannot be evaluated via triangle data. Data for partially and fully implementing schools were combined due to small and insignificant differences in ODRs (<2% differences) between schools. That is, comparison of ODR triangle data for partially implementing schools was similar to ODR triangle data for fully implementing schools. Analyses could not be conducted differentiating separate ODR rates for elementary, middle, and high schools due to limited numbers of schools in secondary levels and the need to maintain school anonymity.

Figure 7
Cross Sectional Analysis of ODR Triangle Data for Schools Using SWIS™ from 2007-2010



Inspection of the data from Pennsylvania's cohort suggests similar results for ODRs as those reported by other states (e.g., Bradshaw et al., 2010). The percentage of students across all eight schools in 2007-2008 who had zero or one ODR was 90%. Seven percent of students received two to five Major ODRs, and three percent received more than five Major ODRs.

Six more schools began using SWIS in 2008-2009. Again, the ODR triangle data were comparable to national trends. Eighty-four percent of all students in the 14 schools received no or one ODR. Ten percent of all students received two to five ODRs, and six percent received six or more ODRs. Fourteen schools were using SWIS in 2009-2010, although these were not the

same 14 schools that used SWIS™ in the previous year; thus, longitudinal analyses could not be conducted while maintaining school anonymity. Results from 2009-2010 mirror those of the previous year and from national trends: 89% of students received no or one ODR, seven percent of students received two to five ODRs, and three percent of students received six or more ODRs.

Similar to national trends, 89% of students in SWPBS schools receive 0-1 ODR in a year. Seven percent of students receive 2-5 ODRs, and 3% receive 6+ ODRs.

Overall, these ODR data are comparable to national trends and indicate that the vast majority of students in schools implementing SWPBS present few or no behavioral challenges to teachers, staff, and administrators. In fact, it is only a very small percentage of students who exhibit the vast majority of significant behavioral challenges in schools.

Suspensions / Expulsions

Previous research in other states has documented that SWPBS implementation decreases the use of exclusionary disciplinary practices such as out-of-school suspensions (OSS) and expulsions (Bradshaw et al., 2010; Luiselli, Putnam, Handler, & Feinberg, 2005; Muscott, Mann, & LeBrun, 2008). Cross sectional and longitudinal comparisons of average OSS days served are presented in Figures 8 and 9, respectively. These comparisons do provide some indication that average number of days of OSS may have declined over time. Data from cross sectional comparisons indicate the pre-implementation average was slightly higher than 350 days of OSS served. Two years post-implementation, reporting schools noted 89.73 days of OSS served. Longitudinal analyses mirrored the cross sectional approach (see Figure 9). Initially, the average number of days served in OSS was 288.5 prior to implementation of SWPBS. After two years of implementation, the average dropped to 186.88 days of OSS served. Although this trend is not statistically significant, this lack of significant findings is most likely due to the small sample size. Despite the lack of statistically significant findings, the downward trend is in the desirable direction and equates to more time students spend in the instructional setting.

Schools that implement SWPBS report fewer days of out-of-school suspension served compared to days of OSS served before implementation of SWPBS.

Cross sectional analyses of average number of expulsions are presented in Figure 10. Similar trends were noted in the longitudinal analyses for four schools that submitted complete data. After an initial increase in expulsions after one year of implementation, the trend reversed. These data, however, are difficult to interpret with great confidence given the relatively low occurrence of student expulsions.

Figure 8
Cross Sectional Comparison of Average Number of Out-of-School Suspension Days Served

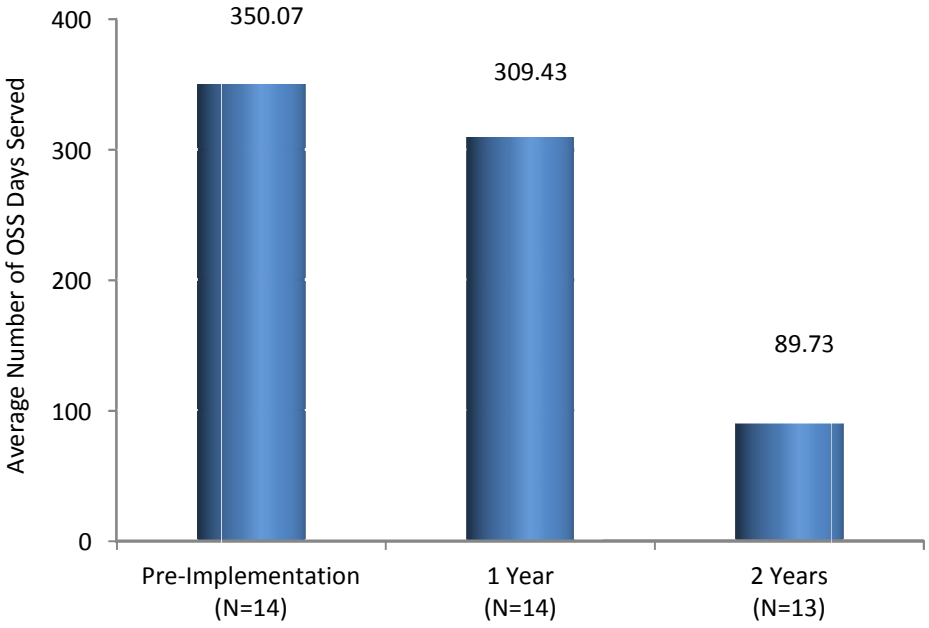


Figure 9
Longitudinal Comparison of Average Number of Out-of-School Suspension Days Served

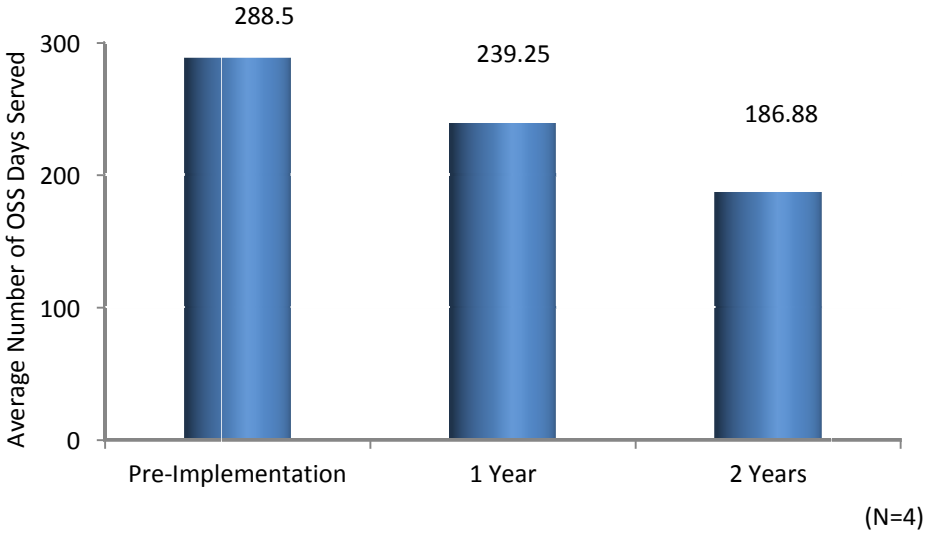
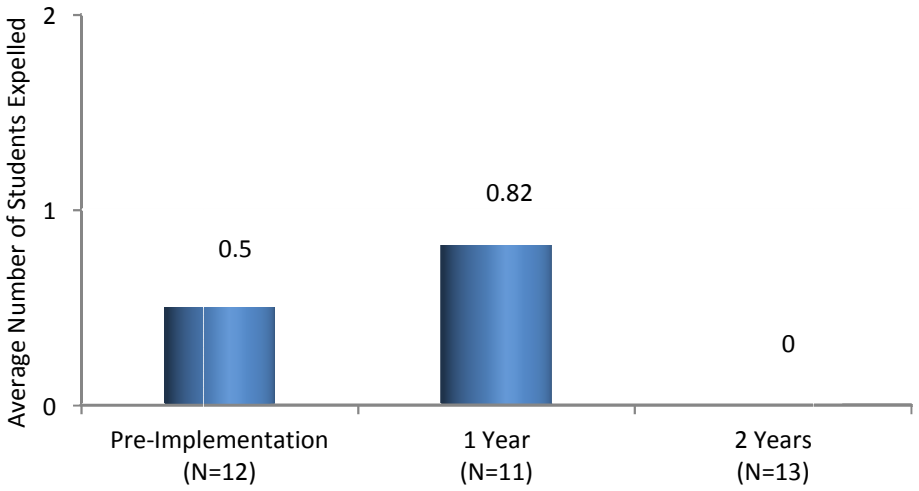


Figure 10
Cross Sectional Comparison of Average Number of Expulsions



Referrals to / Eligibility for Special Education

It is perceived that implementation of a SWPBS framework will have an effect on the number of students referred for an evaluation to determine eligibility for special education and the number of students newly identified for special education services. Cross sectional comparison of the average number of referrals for special education eligibility evaluation and, subsequently, number of students newly identified for special education services was completed across the three years for all available data. These results are represented in Figures 11 and 12, respectively.

Given the nature of cross sectional approaches, statistical analyses could not be conducted to determine the presence or absence of significant results. Longitudinal comparisons from the four schools that submitted complete data were not statistically significant but mirror the cross sectional analysis. In any event, the cross sectional data are interesting. Schools reported a slight increase in new referrals and identification of students for special education after one year of implementation. The trend appears to reverse in the second year of implementation. A possible explanation for the initial increase in both outcomes for year one may be that school staff are more aware of, and thus more sensitive to, students' needs. As SWPBS is sustained over time and schools are better able to educate students with special needs with less reliance on intensive interventions, then a downward trend in both referrals for evaluation and students newly identified for special education may occur. These conclusions are merely speculative given the limited data in both

After an initial increase in year one of implementation, a decrease was observed in year two for the number of evaluations for special education eligibility determination and students newly identified for special education.

number of schools in the analyses and duration of SWPBS implementation, but it will be important to continue to monitor these trends in subsequent years.

Figure 11
Cross Sectional Comparison of Average Number of Referrals to Special Education

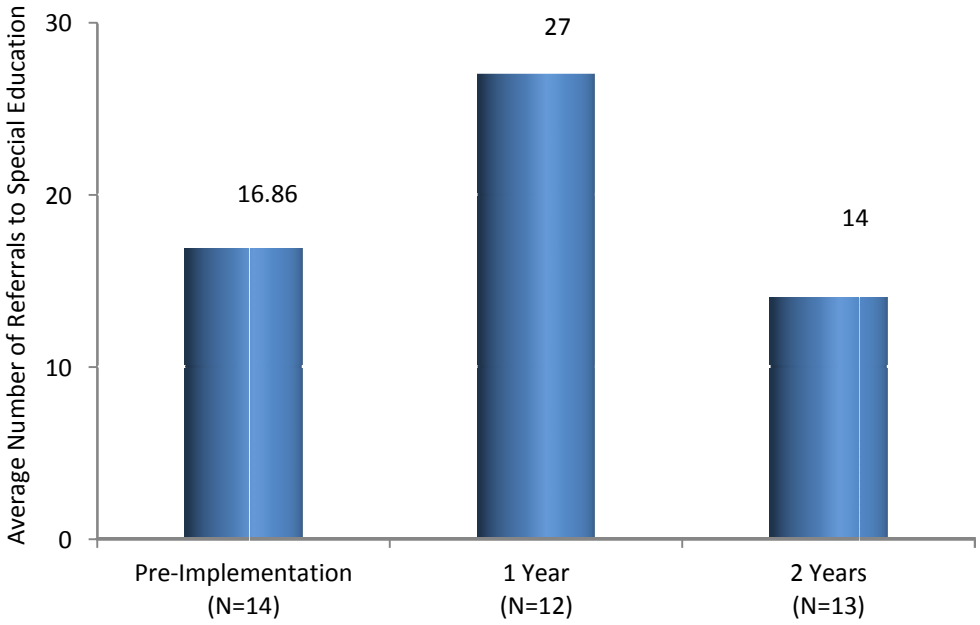
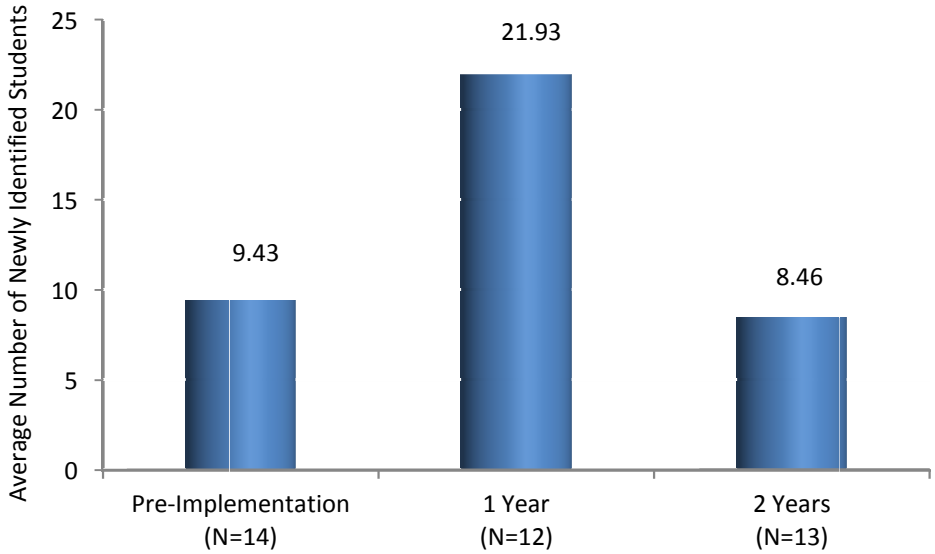


Figure 12
Cross Sectional Comparison of Average Number of New Students Identified for Special Education



Special Education Placements in the Least Restrictive Environment

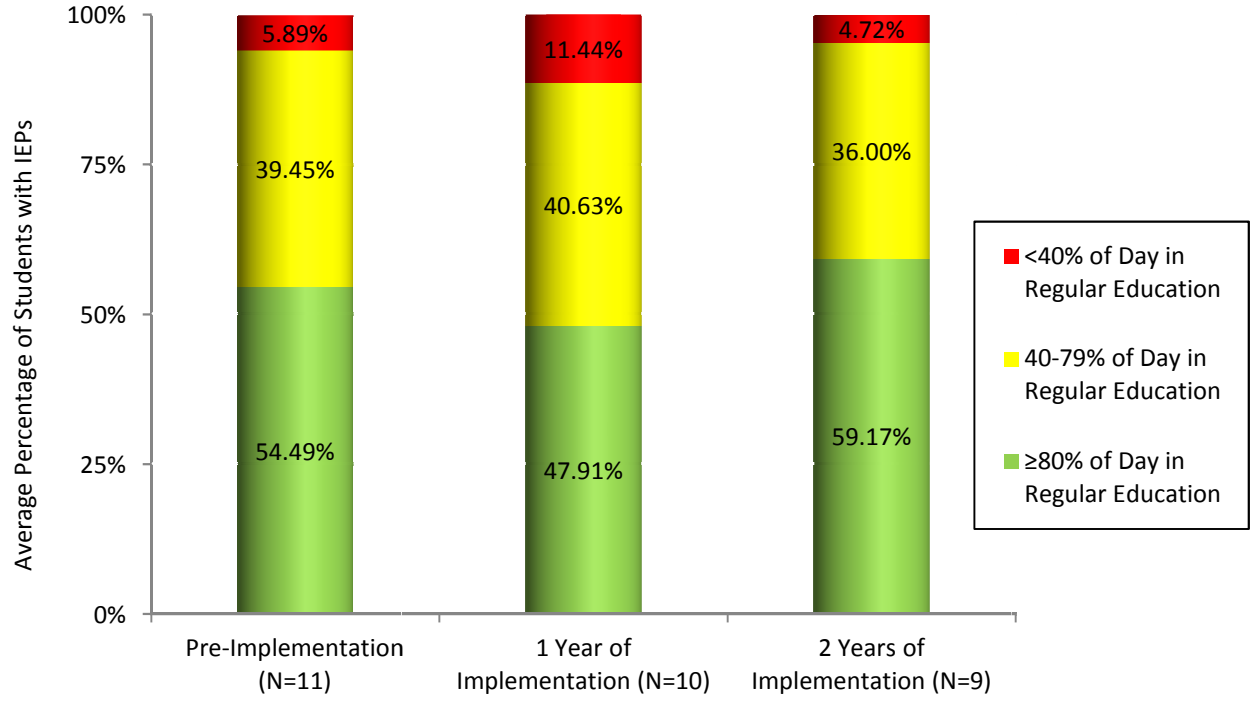
Cross sectional comparison of the percentage of students with disabilities in three broad levels of special education placement in the least restrictive environment (LRE) were averaged across all schools for which data were available in each year. LRE metrics reported by schools changed beginning in 2009-2010, thus conversions were conducted to compare data prior to 2009. The least restrictive placement (≥80% of the school day in Regular Education), moderately restrictive placement (40-79% of the school day in Regular Education), and most restrictive placement (<40% of the school day in Regular Education) are represented in Figure 13. Data indicated in this report reflect the percentage of time students with disabilities spend in inclusionary settings with non-disabled peers.

Cross sectional data were available for nine to 11 schools across the three years, although it is important to note that different schools reported data for any given year; in other words the 9 schools reporting in 2008-2009 did not necessarily report data for previous years. After an initial trend in the undesirable direction after one year of SWPBS implementation, data trends reversed in year two of SWPBS implementation. After two years of SWPBS implementation, it appears that fewer students with disabilities were placed in more restrictive settings. Described alternatively, more students with disabilities were educated in inclusive settings (i.e., ≥80% of the day in Regular Education) after two years of SWPBS implementation.

Data trends suggest that higher percentages of students with special needs are educated in more inclusive educational settings after two years of SWPBS implementation. Such trends, however, are not statistically significant.

Longitudinal analyses were conducted with data from the three schools that submitted complete data. Although omitted from this Executive Summary, longitudinal analyses were not statistically significant; however, data trended in the same manner as the cross sectional analyses.

Figure 13
Cross Sectional Comparison of Average Percentage of Students with Disabilities Educated in Regular Education Settings



Differential Impact of Partial versus Full Implementation on Behavioral Outcomes

Even though there did not appear to be any statistically significant changes from pre-implementation to post-implementation, it was useful to compare whether there were significant differences between partially implementing schools and fully implementing schools. These analyses could be performed at one year and two years post implementation. No statistically significant differences were observed between partially- and fully-implementing SWPBS sites on any of the behavioral outcome measures. Given the limited duration of implementation of SWPBS in schools and low number of schools reporting longitudinal data, however, lack of statistically significant findings is not surprising.

Secondary Level of Support in SWPBS – Check-In Check-Out

A school that has adopted a SWPBS framework and is implementing universal behavioral support with integrity is then ready to begin implementing interventions at the secondary, or Tier 2, level. Although many different interventions can be implemented that are unique to the specific school setting and students' needs (e.g., small group counseling, functional behavioral assessment), SWPBS schools typically implement a standard protocol intervention such as Check-In Check-Out (CICO; Crone et al., 2004). In this intervention, a student is paired with an adult mentor who meets with the student twice a day, before and after school. The student travels throughout the day with a tangible behavior card that is used by classroom teachers and the student to monitor behavior and adherence to the school-wide rules and expectations.

Previous research has documented that CICO is an effective method by which to positively and proactively address the behavior of students who are typically at-risk for academic and/or behavioral challenges.

Effects of a Tier 2 intervention, Check-In Check-Out, were positive for a large majority of students selected for the intervention.

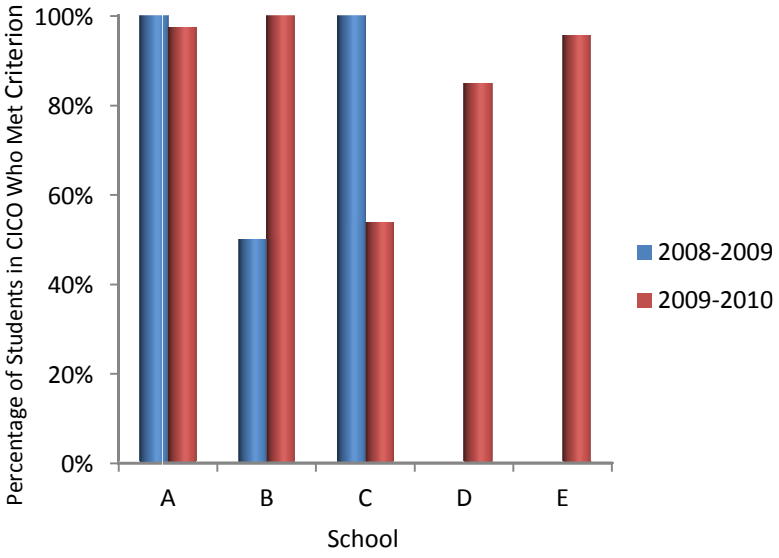
Student outcomes related to the SWPBS sites implementing CICO are presented in Table 8 and visually represented in Figure 14. These data suggest that CICO is effectively addressing the behavioral needs of the vast majority of students included in the CICO program (86.6% of all students successful by 2009-2010). Additionally, these data suggest that, as more schools implement CICO, more students are positively affected by the intervention.

Table 8
Number of Students Involved in and Effectiveness of CICO Across Time

		2008-2009			2009-2010		
School	Level	*N*	# Met Goal	% Met Goal	*N*	# Met Goal	% Met Goal
A	Elem.	7	7	100%	13	12	97.3%
B	Elem.	4	2	50%	9	9	100%
C	MS	6	6	100%	13	7	53.8%
D	Elem.	-	-	-	46	39	84.8%
E	Elem.	-	-	-	23	22	95.7%
Total		17	15	88.2%	104	89	86.6%

Note. Level = grade range for the particular school; Elem. = elementary (K-5); MS = middle school (6-8); *N* = number of students enrolled in CICO; # Met Goal = number of students who met the goal of ≥80% points over a pre-specified period of time; % Met Goal = percentage of students in CICO who met the pre-specified goal of ≥80% points.

Figure 14
Percentage of Students in CICO Who Reached Established Behavioral Goals



Impact of PA SWPBS on Academic Performance

Reading Performance

Complete longitudinal data on the *Pennsylvania System of School Assessment* (PSSA) in Reading were available for 26 schools that were not implementing SWPBS in spring 2007 and began implementing SWPBS in fall 2007 and for which their students are assessed on the PSSA. Data from the participating schools parallel very closely the results of all schools across Pennsylvania. After two years of implementation, the participating schools' percentage of students performing Below Basic or Basic dropped to 30.12% and the State-level schools' decreased to 29%. The gap between SWPBS cohort schools and State-wide averages was reduced from 2.27% to under one percent (.88%). This would, of course, also be seen at the higher performance levels. Prior to implementation, the percentage of students in SWPBS cohort schools who performed at the Proficient or Advanced levels was 66.75% compared to 69% for the State-wide comparison group. By year two, that difference between SWPBS participating schools and the State-wide average of 2.25% had decreased to 1.16%. While the results of this comparison were in the desired direction, they were not statistically significant. In summary, SWPBS cohort schools performed as well as all Pennsylvania schools on the PSSA Reading.

Math Performance

Similar to the PSSA Reading data, PSSA Math data were also available prior to implementation (i.e., spring 2007) as well as at the end of the first two years of implementation (i.e., spring 2008 and 2009). The data trends show that performance of the SWPBS cohort schools very closely paralleled the trend of all schools across Pennsylvania. Schools implementing SWPBS had slightly lower percentages of students performing at Below Basic and Basic levels and larger percentages of students performing in Proficient and Advanced levels in each year when compared to the State-wide data. As found in the PSSA Reading analyses, none of the comparisons were statistically significant. In other words, the overall PSSA Math results from the SWPBS schools mirrored that of all schools across Pennsylvania across three years.

Comparison of PSSA Reading and Math in Partial and Full Implementing Schools.

A comparison within the participating schools was also performed for both Reading and Math. As noted in earlier sections of this report, data regarding the level of implementation were available during the first and second years of implementation. In each of those years, participating schools could be categorized as either partially implementing SWPBS or fully implementing SWPBS. Longitudinal comparisons were completed using the analysis of covariance (ANCOVA) statistical procedure, which statistically equated the schools based upon their PSSA performance in 2007. The results of these analyses of covariance for Reading and Math two years after initial implementation appear in Tables 9 and 10, respectively.

Table 9

Analysis of Covariance Between Partial and Full Implementing Schools on Reading at Year Two

Variable	*N*	2007 Actual Mean	2009 Means Actual	2009 Means Adjusted	*F*	*p*
Percent Below Basic + Basic Reading					5.29	.031
Partial	9	41.0%	39.1%	32.4%		
Full	17	29.2%	25.4%	28.9%		
Percent Proficient + Advanced Reading					4.02	.057
Partial	9	59.0%	61.0%	67.6%		
Full	17	70.8%	74.5%	71.0%		

Note. df = 1, 23

Table 10

Analysis of Covariance Between Partial and Full Implementing Schools on Math at Year Two

Variable	*N*	2007 Actual Mean	2009 Means Actual	2009 Means Adjusted	*F*	*p*
Percent Below Basic + Basic Math					2.58	0.12
Partial	9	43.2%	40.4%	29.8%		
Full	17	23.7%	19.7%	25.3%		
Percent Proficient + Advanced Math					4.65	0.04
Partial	9	56.8%	59.4%	69.0%		
Full	17	75.5%	80.3%	75.2%		

Note. df = 1, 23

Schools fully implementing SWPBS had significantly fewer students performing at Basic and Below Basic levels on PSSA Reading compared to schools that only partially implemented SWPBS.

Two years after initial SWPBS implementation, schools designated as fully implementing SWPBS had significantly fewer students performing in Basic and Below Basic levels on the PSSA Reading. This difference between partial and full implementing schools was statistically significant. The differences in adjusted means after two years of implementation on the percentage of students performing in Proficient and Advanced levels between partial and fully implementing schools were approaching statistical significance.

As found with the PSSA Reading scores, schools designated as fully implementing SWPBS had a significantly higher percentage of students in the Proficient and Advanced performance levels on PSSA Math compared to schools partially implementing SWPBS after two years. No statistically significant differences were observed after two years of implementation on the percentage of students

Schools fully implementing SWPBS had significantly more students performing at Proficient and Advanced levels on PSSA Math compared to schools that only partially implemented SWPBS.

performing in the Below Basic and Basic levels. These data suggest that, after two years of implementation, fully implementing SWPBS schools produce a higher percentage of students who perform in the Proficient and Advanced levels in Math compared to schools that partially implement SWPBS.

Summary and Conclusions

Thirty-three schools were selected in spring 2007 to participate in the initial PA SWPBS initiative. Schools and IUs were selected from across the Commonwealth to represent a broad range and size of elementary and secondary schools from rural, suburban, and urban settings. At least 13 mental health agencies and providers were subsequently invited by these schools to be key collaborators for implementing SWPBS. Within one year of initial training, approximately half of all cohort schools were fully implementing SWPBS and nearly two-thirds were doing so within two years. Most schools that reported complete longitudinal data regarding implementation fidelity support the conclusion that schools can improve and subsequently sustain universal SWPBS over multiple years.

Cross sectional comparisons were typically reviewed with longitudinal analyses employed when complete data were available. Data trends of various outcomes were all in the desired direction and, at times, statistically significant results were obtained indicating that SWPBS had a direct and positive effect on some outcomes.

Overall, teachers' perceptions of implementation status of universal SWPBS mirrored that of independent assessment of treatment fidelity. Similarly, as schools implemented SWPBS with a higher degree of integrity, staff was less interested in improving universal school-wide systems of support. This is expected and it is believed that staff would then be interested in prioritizing improving the quality of other behavioral support systems (e.g., individual students).

Schools that implement universal SWPBS have staff reporting fewer Risk Factors associated with school violence, delinquency, and community disintegration while simultaneously reporting higher Protective Factors associated with resiliency, positive expectations for student learning, and safe and stimulating academic climates. Moreover, perceptions of Risk and Protective Factors were significantly different between partially- and fully-implementing schools. These results suggest that high fidelity SWPBS will result in a school that is more responsive to the diverse needs of the students and community which is, in turn, conducive to productive teaching and learning.

It does not appear that implementation of SWPBS significantly affected student or staff attendance rates. Inspection of ODR data suggests a downward trend over one, two, and three years after implementation; however, again, statistical significance across years was not achieved. Analysis of the percentage of students receiving office discipline referrals mirrored national trends with approximately 85-90% of all students receiving zero or no office referrals, 7-10% receiving two to five office referrals, and 3-6% receiving six or more office referrals in a given academic year. This important finding has implications for re-allocation of saved time for administrators to provide instructional supervision and perform other duties, teachers regaining valuable instructional time, and, most importantly, students having more opportunities to learn academic content.

Similar downward trends, although not statistically significant, were observed for student suspensions and expulsions over a two-year post-implementation period. Expulsion trends are interpreted cautiously given the extremely low frequency of expulsions across all schools.

Referrals for special education eligibility evaluation and the number of students newly declared eligible for special education initially trended upward after one year of implementation. In the second year of SWPBS implementation, the trends reversed. Neither of these trends was statistically significant, but they are noteworthy given the observed reversing trends after one year of implementation. A possible explanation for the initial increase after one year of implementation may be that staff is more sensitive to students' needs and thus desiring to provide a maximum level of behavioral and academic support. As SWPBS is sustained in subsequent years (e.g., two years of implementation), schools and staff may be better prepared and equipped to meet the needs of some students without the provision of special education services. These hypotheses are merely speculative and would need to be investigated in future studies of SWPBS.

Cross sectional comparisons of provision of special education services in the least restrictive environment demonstrated desirable trends over a two-year post-implementation period, although the trends were not statistically significant when longitudinal trends from three schools were calculated. Such trends suggest that schools are able to support students with special needs in less restrictive environments when SWPBS is implemented over a multi-year period. Slightly more students were educated in the least restrictive environment (≥80% of the school day in Regular Education) after two years of implementation and, conversely, a smaller percentage of students were educated in the most restrictive environment (<40% of the school day in Regular Education) after two years of SWPBS implementation.

Review of the CICO data from participating schools across two years is consistent with existing literature regarding CICO efficacy. Nearly 86% of the 121 students selected for CICO across the five schools met pre-established behavioral criteria regarding compliance with school-wide rules and expectations. These data are encouraging not only for schools currently using CICO as validation of efforts, but should also be shared with other schools that are considering initiating CICO. It is clear that, when CICO is implemented as designed, desirable outcomes can be obtained for a large majority of students.

Combined percentages of students performing at Below Basic and Basic levels on PSSA Reading for SWPBS schools decreased slightly over the course of two years of implementation, although the decrease was not statistically significant. Moreover, this slight decrease mirrored that of all schools across Pennsylvania. A slight upward trend was observed for the combined percentage of students performing at Proficient and Advanced levels on PSSA Reading after two years of implementation, although the trend was not statistically significant. Additionally, these trends were comparable to the trends for all schools in Pennsylvania. Schools implementing SWPBS produced students who performed similar to all Pennsylvania students on PSSA Reading.

Similar to PSSA Reading, SWPBS schools demonstrated a slight decrease in the percentage of students performing in Below Basic and Basic levels on PSSA Math after two years, although this decrease was not statistically significant. After two years of SWPBS implementation, slightly more students performed in the Proficient and Advanced levels on PSSA Math. These differences were not statistically significant and were comparable to trends in all schools across

Pennsylvania. It thus appears that after two years of SWPBS implementation, statistically significant improvements on PSSA Reading and Math were not observed. Trends in SWPBS schools, however, were comparable to state-wide trends.

Comparison of PSSA performance as a function of the integrity with which schools implement SWPBS revealed that schools implementing SWPBS with a high degree of integrity produced better academic outcomes for students. Schools fully implementing SWPBS had statistically fewer percentages of students performing at Below Basic and Basic on PSSA Reading over a two-year period of implementation compared to schools that only partially implemented SWPBS. Schools designated as fully implementing SWPBS also had statistically more students performing in the combined Proficient and Advanced range for PSSA Math. These results indicate that there is a differential effect on student PSSA performance as a function of the integrity with which schools implement SWPBS. General conclusions suggest that schools will witness stronger academic outcomes for the lowest- and highest-performing students, in Reading and Math, concurrent with high-fidelity SWPBS.

Implications for Further Investment

A number of implications are noted regarding data collection and analysis for future program evaluations. Firstly, more complete and comprehensive data need to be submitted from the participating schools to draw conclusions about the efficacy of SWPBS. For schools that had not previously submitted data, it is still helpful to the principal investigators if data are submitted in the future. Submission of even incomplete data sets would be useful. The more complete the data, the more statistically powerful the analyses.

As PDE, PaTTAN, and the PA PBS Network move forward with scaling up SWPBS, it is imperative that additional cohorts of schools be required to submit baseline and post-implementation data every year for this program evaluation. Thorough consideration of how to accomplish this, albeit, very challenging task is critical to sustaining the program evaluation and, subsequently, SWPBS in Pennsylvania.

Some statistical analyses included in this report may not have achieved statistical significance simply due to small sample sizes. Therefore, as previously noted, cross sectional comparisons were highlighted as a means to provide a more complete a picture of SWPBS effects on various outcomes.

Future evaluations of SWPBS would be improved with analysis of other data sets, some of which are publicly-available. Most notably, Pennsylvania Safe Schools Online (https://www.safeschools.state.pa.us) will be used in future program evaluations. Other data that are not available to the public may provide additional insight into some of the more encouraging results from the present program evaluation regarding PSSA performance in Reading and Math. In particular, *Pennsylvania Value-Added Assessment System* (PVAAS) data provide value-added, or growth data, on the PSSA for cohorts of students across time. Access to these data would be extremely helpful in providing a deeper analysis of the academic growth SWPBS schools produce in their students.

The most important implication of the current program evaluation is that one needs to consider the length of time it takes to significantly affect major academic and behavioral outcomes for entire school systems (Curtis, Castillo, & Cohen, 2008; McGlinchey & Goodman, 2008). The majority of the outcomes reported in this program evaluation were for data two years post-implementation. Existing research clearly indicates that substantive changes do not appear for two or more years after initial implementation of a reform effort such as SWPBS. Specific to SWPBS, the existing literature notes that some initial changes are observed in the first year or two of implementation; however, the absolute benchmarks of school success, that is increases in academic performance, are not observed for the first two or three years (Bradshaw et al., 2010). Moreover, there is no precedent regarding when changes in other variables investigated in this program evaluation, LRE or referrals to special education for example, can be expected. Readers are, therefore, cautioned that some outcomes, although not statistically significant after two years, are trending in the desired direction and may reach statistical significance in one more year. Future program evaluations of the PA SWPBS initiative should be considered along with last years' findings to evaluate the overall impact of SWPBS on school practices and outcomes.

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