Update on PBIS Maryland and Collaborative Research Efforts

PBIS Maryland Management Team
Maryland State Department of Education, Sheppard Pratt Health System & Johns Hopkins School of Public Health
November 17, 2008
Overview

- Brief Overview of PBIS
- Update on National PBIS Activities
- Update on PBIS in Maryland
- Summary of Findings from Project Target
- Current and Future Directions
- Next Steps
Positive Behavioral Interventions and Supports (PBIS)

- Application of behavioral, social learning, & organizational behavioral principles
  - Clear behavioral expectations
  - Procedures for managing disruptions
  - Positive rewards

- Public health approach (universal / selective / indicated)
  - Requires a shift from punitive to preventive

- Focus on changing adult behavior
  - Team-based & data-based process
  - Emphasizes staff buy-in

- Can be implemented in any school level, type, or setting
  - Non-curricular model – flexible to fit school context

- Coaching to ensure high fidelity implementation

(Horner & Sugai, 2001; Lewis & Sugai, 1999; Sugai & Horner, 2006)
Positive Behavior Support

Supporting Staff Behavior

Supporting Student Behavior

Social Competence & Academic Achievement

OUTCOMES

SYSTEMS

DATA

PRACTICES

Supporting Decision Making
# Status Report

<table>
<thead>
<tr>
<th>Doing</th>
<th>Continuing</th>
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<tbody>
<tr>
<td>Center &gt;7500 schools</td>
<td>100,000 public schools</td>
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<tr>
<td>40 States</td>
<td>Regional Coordination</td>
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<tr>
<td>Demonstration &amp; Sustainability</td>
<td>Continuous Regeneration &amp; Scaling</td>
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<tr>
<td>Three-tiered Prevention Logic</td>
<td>Responsiveness to Intervention</td>
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<tr>
<td>Technical Assistance</td>
<td>Capacity Building</td>
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<tr>
<td>Positive Host Environments for All</td>
<td>Enhanced Outcomes for Individuals</td>
</tr>
<tr>
<td>Evaluation &amp; Training</td>
<td>Upgrades &amp; Refinements</td>
</tr>
</tbody>
</table>
This Year’s Forum…

930 Participants from:
- 43 States
- 4 Countries (Australia, Canada, Norway, United States)

Sample Session Topics:
- Achievement in Dropout Prevention and Excellence (APEX II): PBIS Implementation in High Schools in New Hampshire
- Bullyproofing your PBIS School
- Integrating Mental Health Services Across All Three Tiers of PBIS
- District Leadership Team Process
- Organization and Delivery of Tertiary Systems at the District Level
- RTI and PBIS
- Taking Evidence Based Practices to Scale: Capacity Building
- Establishing Sustainable Coaching Capacity at the District and State Level
- School to Prison Reform Project
7500 Schools across 44 states implementing school-wide positive behavior support—2007
Maryland’s Tiered Instructional and Positive Behavioral Interventions and Supports (PBIS) Framework

**Academic Systems**

**Intensive, Individually Designed Interventions**
- Address individual needs of student
- Assessment-based
- High Intensity

**Targeted, Group Interventions**
- Small, needs-based groups for at risk students who do not respond to universal strategies
- High efficiency
- Rapid response

**Core Curriculum and Differentiated Instruction**
- All students
- Preventive, proactive
- School-wide or classroom systems for ALL students

**Behavioral Systems**

**Intensive, Individually Designed Interventions**
- Strategies to address needs of individual students with intensive needs
- Function-based assessments
- Intense, durable strategies

**Targeted, Group Interventions**
- Small, needs-based groups for at-risk students who do not respond to universal strategies
- High efficiency/ Rapid response
- Function-based logic

**Core Curriculum and Universal Interventions**
- All settings, all students
- Preventive, proactive
- School-wide or classroom systems for ALL students and staff
Maryland’s Tiered Instructional and Positive Behavioral Interventions and Supports (PBIS) Framework
Where Are We In 2008?

Trained Schools by LSS

- Allegany: 14
- Anne Arundel: 69
- Baltimore City: 74
- Calvert: 19
- Caroline: 5
- Carroll: 25
- Charles: 13
- Dorchester: 31
- Frederick: 27
- Garrett: 5
- Harford: 13
- Howard: 51
- Kent: 5
- Montgomery: 60
- Prince George’s: 32
- Private/Independent: 10
- Queen Anne’s: 8
- Somerset: 14
- Special: 15
- St. Mary’s: 18
- Talbot: 2
- Washington: 10
- Wicomico: 10
- Worcester: 10
Where Are We In 2008?

Trained Schools by Cohort

- 1999: 7
- 2000: 23
- 2001: 53
- 2002: 104
- 2003: 160
- 2004: 237
- 2005: 327
- 2006: 443
- 2007: 552
- 2008: 650
## Where Are We In 2008?

<table>
<thead>
<tr>
<th>School Type</th>
<th>Count</th>
</tr>
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<tbody>
<tr>
<td>Elementary</td>
<td>334</td>
</tr>
<tr>
<td>Elementary/Middle</td>
<td>14</td>
</tr>
<tr>
<td>High</td>
<td>81</td>
</tr>
<tr>
<td>K-12</td>
<td>2</td>
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<tr>
<td>Middle</td>
<td>177</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
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<tr>
<td>Special</td>
<td>33</td>
</tr>
<tr>
<td>Special/Alternative</td>
<td>8</td>
</tr>
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</table>
Office Discipline Referrals (ODRs)
Per 100 Students Per School Day

Data from the School-Wide Information System (SWIS)
Preliminary Findings from Project Target: A Randomized Controlled Effectiveness Trial of School-Wide PBIS in Elementary Schools

Catherine Bradshaw, PhD & Philip Leaf, PhD

Johns Hopkins Center for the Prevention of Youth Violence
In Collaboration With
PBIS Maryland Management Team

Supported by NIMH (1R01MH67948-1A) & CDC (1U49CE 000728 and K01CE001333-01)
Group Randomized Trial of SWPBIS: *Project Target*

**Funding**
- Centers for Disease Control & Prevention (CDC; Leaf, PI)
- National Institute of Mental Health (NIMH; Leaf PI)

**Sample**
- 37 voluntary elementary schools across 5 school districts
  - Enrollment 227-983; 60% Caucasian; 48% suburban; 41% urban fringe; 49% Title I

**Design**
- Group randomized effectiveness trial
  - 21 PBIS & 16 “Focus/Comparison”
- Baseline plus 4 years (spring 2002 - spring 2007)
  - Data from 29,423 students & 3,563 staff
## School Characteristics

<table>
<thead>
<tr>
<th>School Characteristics</th>
<th>PBIS (n = 21 schools)</th>
<th>Comparison (n = 16 schools)</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>School Enrollment</td>
<td>471.76</td>
<td>132.78</td>
</tr>
<tr>
<td>Student to Teacher Ratio</td>
<td>18.48</td>
<td>4.33</td>
</tr>
<tr>
<td>Free/Reduced Meals (%)</td>
<td>42.93</td>
<td>19.22</td>
</tr>
<tr>
<td>Special Education Students (%)</td>
<td>13.24</td>
<td>4.27</td>
</tr>
<tr>
<td>Caucasian Students (%)</td>
<td>53.81</td>
<td>33.16</td>
</tr>
<tr>
<td>Student Mobility (%)</td>
<td>25.88</td>
<td>8.24</td>
</tr>
<tr>
<td>Suspension (%)</td>
<td>7.73</td>
<td>7.43</td>
</tr>
<tr>
<td>Math Performance (%)</td>
<td>47.20</td>
<td>22.37</td>
</tr>
<tr>
<td>Reading Performance (%)</td>
<td>50.66</td>
<td>19.32</td>
</tr>
</tbody>
</table>

Note. No overall significant difference between PBIS and comparison schools at baseline, Wilks’ $\Lambda = .89$, $F (5, 31) = .76$, $p = .58$
Data Collected

- **Implementation fidelity**
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
  - Effective Behavior Support Survey (Self-assessment; Sugai, Todd, & Horner, 2000)

- **Organizational health**
  - Organizational Health Inventory (OHI; Hoy et al., 1990)

- **School climate**
  - School Climate Survey (Haynes, Emmons, & Comer, 1994)

- **Disruptive behavior**
  - Teacher Observation of Classroom Adaptation (TOCA; Wertheramer-Larsson et al., 1991)
  - Office discipline referrals (SWIS; School-Wide Information System & teacher report)
  - Suspensions

- **Need for & use of services**
  - Special education, counseling

- **Academic information**
  - State standardized test scores (school-level)
Data Collected

- Implementation fidelity
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
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- Need for & use of services
  - Special education, counseling
- Academic information
  - State standardized test scores (school-level)
**SET: PBIS Implementation Fidelity**

![Bar chart showing PBIS Implementation Fidelity from Baseline to Year 4]

**Notes.** No significant differences between groups at baseline, but differences at all other years at $p<.05$. Overall SET score: Wilks’ $\Lambda = .38$, $F(4,32) = 13.36$, $p < .001$, partial $\eta^2 = .63$, $d = 3.22$. 

Significant improvement in PT PBIS sample
Staff Survey: Staff Reports of PBIS Fidelity

Significant improvement in PT PBIS sample

Repeated measures GLM, baseline vs. year 4, sig. intervention effect: F(1,28) = 14.36, p=.001; adj= controlled for student mobility, school enrollment, % Caucasian, % FARMs, student-teacher ratio, & cohort.
Data Collected

- Implementation fidelity
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
  - Effective Behavior Support Survey (Self-assessment; Sugai, Todd, & Horner, 2000)

- Organizational health
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- Need for & use of services
  - Special education, counseling

- Academic information
  - State standardized test scores (school-level)
Organizational Health Inventory (OHI)

- OHI: 37 item staff-report measure of 5 aspects of a healthy functioning school (Hoy et al., 1991)
  - academic emphasis - students are cooperative in the classroom
  - staff affiliation - warm and friendly interactions, commitment, trust
  - collegial leadership - principal’s behavior is friendly, supportive, open
  - resource influence - principal’s ability to lobby for resources for school
  - institutional integrity - protected from unreasonable community demands
  - overall OHI score (average of 5 subscales)

Analyses

- Longitudinal analyses conducted using a 3-level model
  - Adjusted for staff (sex, race, age) and school (FARMS, student mobility, faculty turnover, & school enrollment) covariates on intercept and slope
Effect of PBIS on Overall OHI

Note. Adjusted means from 3-level model.

* Intervention effect on slope of overall OHI significant at $p<.05$.

(Bradshaw et al., in press; SPQ)
**Effect of PBIS on Collegial Leadership**

- **Study Year**
  - 0
  - 1
  - 2
  - 3
  - 4

- **Collegial Leadership**
  - 2.25
  - 2.50
  - 2.75
  - 3.00
  - 3.25
  - 3.50

Note. Adjusted means from 3-level model. * Intervention effect on slope significant at $p<.05$. 

Sig. difference (.05)
Effect of PBIS on Other OHI Subscales

All sig. difference in the slopes (.05)

Note. Adjusted means from 3-level model. * Intervention effect on all slopes significant at $p<.05$. 
OHI and Fidelity

- Baseline SET score ("naturally occurring PBIS") did not predict speed of implementation or baseline OHI
- Schools starting with lower levels of OHI tended to take longer to reach high fidelity, but improved the most

(Bradshaw et al., in press, *Prevention Science*)
Data Collected

- Implementation fidelity
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
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  - Suspensions

- Need for & use of services
  - Special education, counseling

- Academic information
  - State standardized test scores (school-level)
Student School Climate Report \((Adj)\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Focus</th>
<th>PBIS</th>
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<tbody>
<tr>
<td>Year 1</td>
<td>54</td>
<td>55</td>
</tr>
<tr>
<td>Year 2</td>
<td>51</td>
<td>55</td>
</tr>
<tr>
<td>Year 3</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Year 4</td>
<td>58</td>
<td>55</td>
</tr>
</tbody>
</table>

Adj = adjusted estimates. No sig. main intervention effect.
Data Collected

- Implementation fidelity
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
  - Effective Behavior Support Survey (Self-assessment; Sugai, Todd, & Horner, 2000)

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  - Office discipline referrals (SWIS; School-Wide Information System & teacher report)
  - Suspensions

- Need for & use of services
  - Special education, counseling

- Academic information
  - State standardized test scores (school-level)
TOCA – Concentration Problems: Gen. 1 *(Adj)*

Lower is better

Adj = control for student mobility, stu-teachr ratio, enrollment, % Caucasian, % FARMs, & cohort., No sig. main effect.
Lower is better

TOCA – Behavior Problems: Gen. 1 (Adj)

Adj = control for student mobility, stu-teachr ratio, enrollment, % Caucasian, % FARMs, & cohort., No sig. main effect.
TOCA – Prosocial Behaviors: Gen. 1 (Adj)

Higher is better

Adj = control for student mobility, stu-teachr ratio, enrollment, % Caucasian, % FARMs, & cohort., No sig. main effect.
Major Office Discipline Referrals (ODRs) per 100 students per day

Note. Adjusted rates; Wilks’ Λ = .84, F[1,14] = 2.59, p = .13, η^2 = .16, d = .17, adjusting for school system, % FARMS, and school enrollment.
Office Discipline Referrals (ODRs)

Percent of Students with A Major or Minor ODR

<table>
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<th>Year</th>
<th>Percentage</th>
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<tr>
<td>Year 1</td>
<td>22</td>
</tr>
<tr>
<td>Year 2</td>
<td>21.8</td>
</tr>
<tr>
<td>Year 3</td>
<td>21.1</td>
</tr>
<tr>
<td>Year 4</td>
<td>19.6</td>
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</table>

Note. Wilks’ Λ = .67, F[1,14] = 6.99, p = .019, η² = .33, d = .05, adjusting for school system, % FARMS, and school enrollment.
Office Discipline Referrals (ODRs)

Number of Major and Minor Events Per Student

![Bar chart showing the number of major and minor events per student from Year 1 to Year 4. The chart indicates a significant reduction in PT PBIS sample.]

Note. Wilks’ Λ = .52, F[1,14] = 12.90, p = .003, η2 = .48, d = .06, adjusting for school system, % FARMS, and school enrollment.
Teacher-Reported Office Discipline Referrals (ODR): Comparing PBIS and Focus Across All Study Years

- Students in PBIS schools were 35% less likely than students in Focus schools to receive an ODR
  - Boys were 29% less likely to receive an ODR
  - Girls were 45% less likely to receive an ODR
  - Effects were strongest for students who first received PBIS in Kindergarten or 1st grade

Note. Based on teacher report. Estimates varied by generation (i.e., the grade the children were in during the first year of the Project Target), $p<.05$. Analyses adjust for school level covariates.
Suspension Rate (school-level duplicated counts)

Baseline Year 1 Year 2 Year 3 Year 4
Suspension rate (%)

PT Focus PT PBIS

Note. Wilcoxon test: (PBIS) Z = -2.17, \( p = .03 \), \( d = .27 \); (Comparison) Z = -1.54, \( p = .12 \)

Significant reduction in PT PBIS sample
Data Collected

- Implementation fidelity
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
  - Effective Behavior Support Survey (Self-assessment; Sugai, Todd, & Horner, 2000)
- Organizational health
  - Organizational Health Inventory (OHI; Hoy et al., 1990)
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- Disruptive behavior
  - Teacher Observation of Classroom Adaptation (TOCA; Werthamer-Larsson et al., 1991)
  - Office discipline referrals (SWIS; School-Wide Information System & teacher report)
  - Suspensions
- Need for & use of services
  - Counseling & special education
- Academic information
  - State standardized test scores (school-level)
Teacher-reported Need & Use of Services: Comparing PBIS and Focus across All Study Years

- Generation K students in PBIS schools were 39% less to receive counseling for inappropriate behavior
  - Generation K girls in PBIS schools were 45% less likely
- Generation K students (overall and boys and girls) were 33% less likely to need counseling for social skills
  - Generation K boys in PBIS schools were 35% less likely
- There were no significant differences in special education service referral or use
  - Referral: 14.9% in PBIS vs. 15.4% in Focus schools
  - Use: 12.8% in PBIS vs. 12.7% in Focus schools

Note. Based on teacher report. Generation indicates the grade the child was in during the first year of the Project Target, $p<.05$. Analyses adjust for school level covariates.
Data Collected

- Implementation fidelity
  - School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001)
  - Effective Behavior Support Survey (Self-assessment; Sugai, Todd, & Horner, 2000)

- Organizational health
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  - Suspensions

- Need for & use of services
  - Special education, counseling

- Academic information
  - State standardized test scores (school-level)
Achievement Data: Cumulative Gains in MSA Advanced and Proficient Across All Available Years

Note. †Grade 5 math: t = -1.67, df = 35, p = .105, d = .54
Summary

- High fidelity implementation of PBIS
  - Comparison schools adopted some aspects of PBIS
- PBIS training associated with increase in school’s organizational health
  - Especially those starting at a *slightly* lower level
- Impact on students
  - Reductions in office discipline referrals
  - Reductions in school-level suspensions
  - Reduced need for counseling
  - Positive trend in MSA achievement
Current & Future Research Directions

- Ongoing Analyses – Project Target
  - TOCA analyses
    - Variation in impact by level of behavior problems
  - Contextual factors and observational data
    - Student & staff perceptions of climate
  - Disproportionality in office discipline referrals (ODRs)
    - Increased risk of ODRs among African American students

- Evaluation of PBIS in Maryland
  - Design challenges
  - Outcome findings mixed and vary by district
Current & Future Research Directions (Cont)

- Grants
  - “Variations Grant” to U.S. DOE (IES)
    - Link Project Target and MSDE data to examine student-level achievement, attendance etc.
    - Determine needs of students not responding adequately to PBIS
  - Center for Prevention and Early Intervention (NIMH/NIDA, N. Ialongo) – BCPSS
    - PATHS & Good Behavior Game with PBIS
    - Middle School PATHS & Good Behavior Game with PBIS
    - Middle School Coping Power for PBIS non-responders
  - PBISplus Project
    - Supports for non-responders through connection with SST
PBISplus Project

**Design**
- Federally funded 3-year randomized controlled trial (USDOE/IES)
- 46 elementary schools (in 6 districts) that have high fidelity PBIS & “yellow-zone” needs
- Random assignment to either “SWPBIS” or “Plus” condition

**Aims**
- Address needs of PBIS “non-responders”
- Increase use of evidence-based programs
- Reduce behavior problems & improve achievement
- Reduce disproportionality

**Strategy**
- Provide training, support, and on-site technical assistance to SSTs and staff regarding:
  - Simplified functional behavioral assessment and “function-based thinking”
  - Evidence-based programs
  - Effective teaming and collaborative problem-solving
  - Cultural competency & culturally appropriate interventions
Summary of Support Services Provided by PBISplus Liaisons

Liaison Services Provided (total hours)

- Other support: 314.2 hours
- Attend SST mtg: 201.6 hours
- Attend SWPBIS mtg: 122.1 hours
- Check In/Check Out: 92.1 hours
- Model/shadow consultation: 64.2 hours
- Model/shadow observations: 52.7 hours
- Needs assessment: 24.0 hours
- Data Collection strategies: 29.8 hours
- Professional development: 29.0 hours
- Cultural relevance: 41.3 hours
- Data-based decision making: 42.8 hours
- Selecting EBPs: 60.1 hours
- RIDE process: 32.3 hours
- Teaming Process: 26.9 hours
- Other support: 53.4 hours

*Note. Data from Year 1 (Sept – May), N=14 schools*
Observations from the Field: Year 1 in PBISplus

- Schools need additional services and supports for the children not responding adequately to the universal model.

- In Year 1, Liaisons conducted 432 school visits:
  - ≈ 3.4 visits per month, 3 hours each
  - 1,296 total hours of consultation

- Most common services:
  - Attend SST meetings, conduct needs assessment, model/shadow classroom observations, & model/shadow consultations with teachers

- Potential areas for additional technical assistance:
  - SWPBIS coaching, FBA, SST process, data-based decision-making, & implementation fidelity/quality of check-in/check-out
Next Steps: Topics for Discussion

- Dissemination
  - Local and national
    - Co-author manuscripts for multiple audiences
- Additional collaborative research questions
- Future collaborative grants
  - Middle school
  - Check & Connect / Checkin-Checkout
    - Vary level of coaching, training, and technical assistance
Acknowledgements

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- Jerry Bloom

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C. Bradshaw: CDC (K01CE001333-01)
P. Leaf & C. Bradshaw: IES (R324A07118)

Additional Information on PBIS

www.PBISMaryland.org
www.PBIS.org
www.jhsph.edu/PreventYouthViolence/Research/index.html