allcare health

The Fourth Miracle of Education

Beyond Reading, Writing, and Arithmetic

Changing healthcare
to work for you.

June 5th, 2017

What we hope to share with you today…

- The urgent need for PAX in our schools and the powerful return on investment it has been proven to yield for students, staff, and communities;
- Representatives of cross sector organizations working collaboratively in Southern Oregon to implement PAX Good Behavior Game to fidelity;
- An overview of how the multiple system transformations taking place in Oregon are creating unique opportunities for partnerships; and
- How PAX contributes to a hopeful and holistic approach to the science of NEAR (Neurobiology, Epigenetics, ACEs, and Resiliency).

allcare health

I am a PAX Leader.

I better my world.

I better myself.

PAXIS Institute passion into action science to practice promoting solutions

A Public-Health Approach to Create Nurturing Environments in Schools: A Case Example of the PAX Good Behavior Game

Nurturing Environments(1, 2) can achieve population-level protection of human developmental outcomes by richly reinforcing prosocial behavior, limiting problematic behaviors, reducing toxic influences, and increasing psychological flexibility widely in homes, schools and community settings. This is a case example of how to do so, based on multiple experimental tests and experiences.

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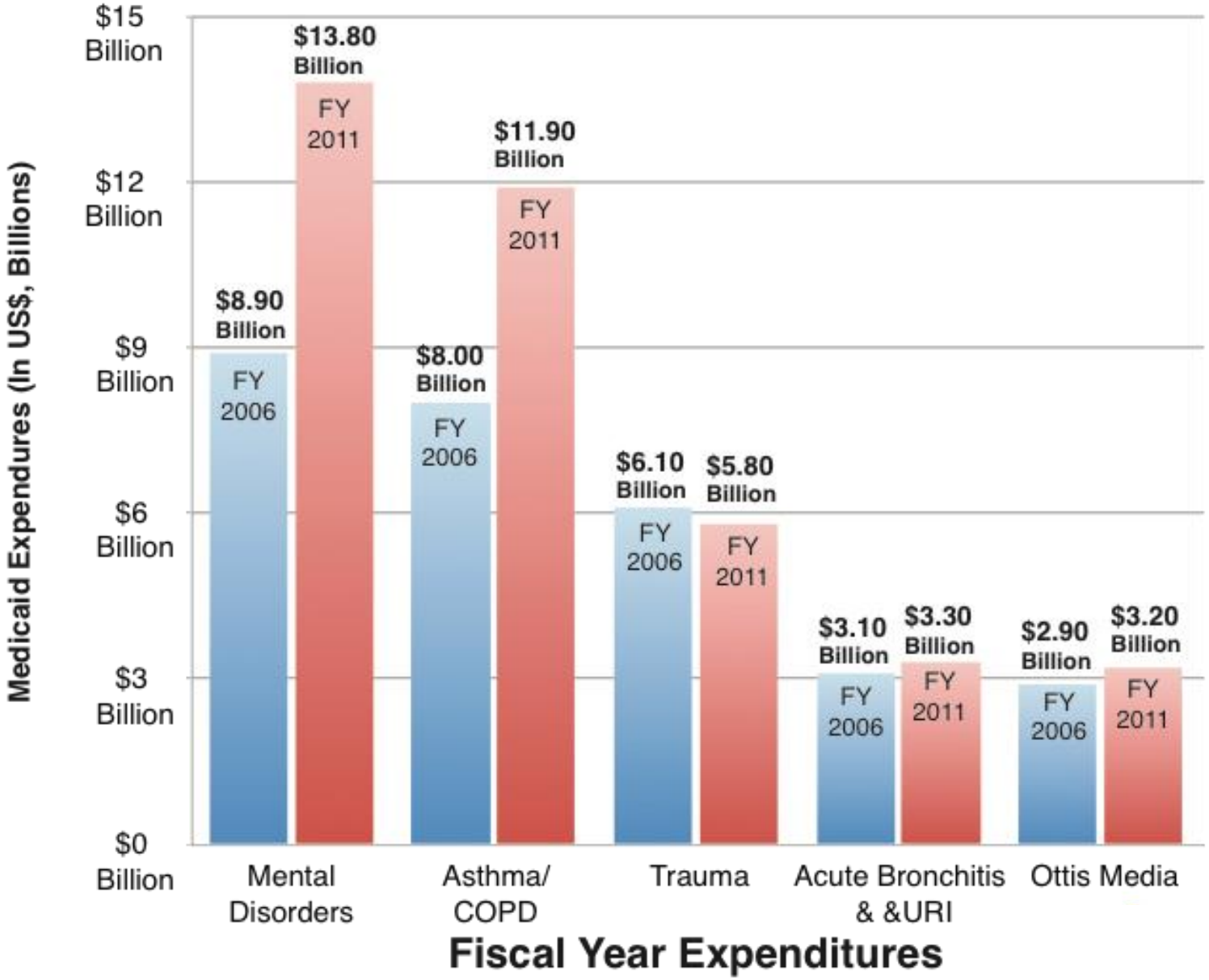
For more information on PAX Good Behavior Game®, please visit:
www.GoodBehaviorGame.org
http://bit.ly/NREPP

Medicaid Expenditures for the Five Most Costly Conditions in Children



Source: Center for Financing, Access, and Cost Trends, Agency for HealthCare Research and Quality, 2006, 2011

NREPP SAMHSA's National Registry of Evidence-based Programs and Practices

PAX Good Behavior Game (PAX GBG)

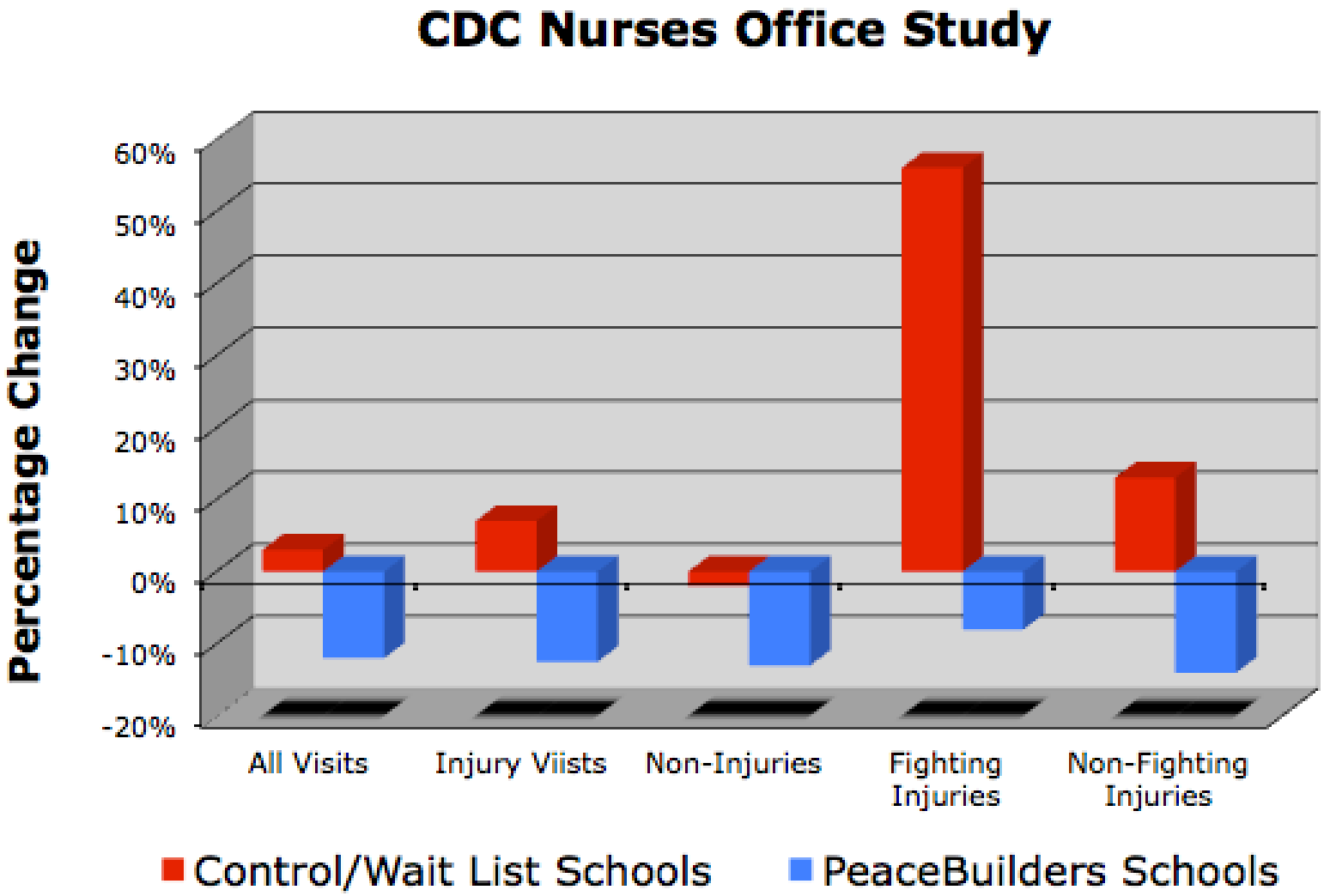
The PAX Good Behavior Game (PAX GBG) is an environmental intervention used in the classroom with young children to create an environment that is conducive to learning. The intervention is designed to reduce off-task behavior; increase attentiveness; and decrease aggressive and disruptive behavior and shy and withdrawn behavior. The intervention also aims to improve academic success, as well as mental health and substance use outcomes later in life. PAX GBG evolved from the original Good Behavior Game developed and studied with fourth-graders in the 1960s.

The intervention includes a set of evidence-based strategies called "kernels" and a classroom game intended to increase self-regulation and cooperation and decrease unwanted behaviors called "spleems." The teacher first applies the kernels in the classroom. These kernels, some of which were developed for another NREPP-reviewed intervention, PeaceBuilders, include transition cues (PAX Quiet); written notes (Tootles) praising positive behavior; use of a timer to decrease the time needed for task completion (Beat the Timer); random calling of students during lessons (PAX Stix); and rewards in the form of brief and fun activities that are normally not allowed in the classroom, such as tapping a pencil on the desk or throwing paper balls (Granny's Wacky Prizes). The teacher also works with the students to establish a shared language and expectations about classroom behavior.

After these kernels are integrated into classroom activities, the game is played in two to five teacher-selected heterogeneous teams that are changed on a regular basis. Each day, the game is announced and played three times. Initially, the game is played for only a few minutes at a time when the children are engaged in simple tasks. As students improve at the game, the game is played for longer periods and during different activities and times of day. During the game, the teacher identifies and counts each unwanted behavior. At the end of the game, the teams with three or fewer infractions receive a reward, typically an activity selected from Granny's Wacky Prizes. In addition to the three announced games, one unannounced game is played each day. Roles (e.g., captains, coaches) can be assigned to children on each team. A booklet for parents and children explains the game and provides guidance on how parents can use elements of the game at home.

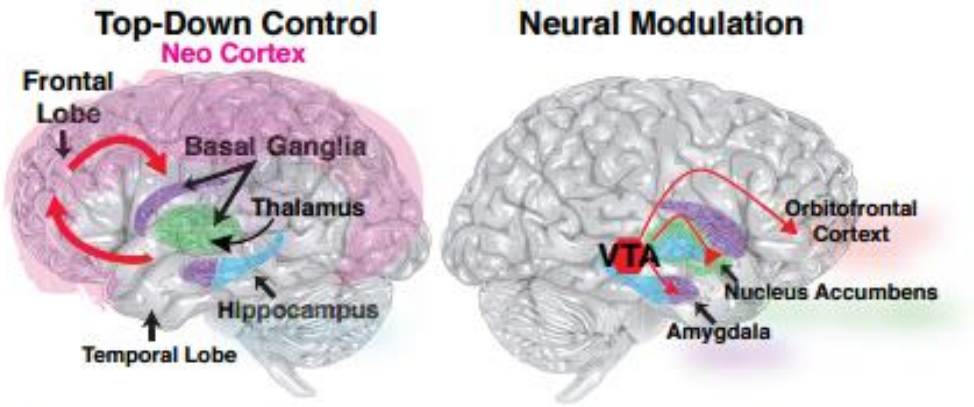
The study that was reviewed for this summary provided the foundation for the version of PAX GBG currently disseminated. Since the study was conducted, the game has been modified (e.g., it is played at different times, some games are unannounced, students can have roles) and elements have been added (e.g., parent booklet, kernels) to foster the generalization of self-regulation and peer cooperation across people, places, time, and activities. In addition, in this study, PAX GBG was used throughout first grade along with weekly classroom meetings to promote group problem solving, curriculum enhancements in language arts and mathematics, and additional support for children who did not respond adequately to the intervention. Although the study was conducted with first-graders, PAX GBG has been used with children of different ages.

http://legacy.nreppadmin.net/ViewIntervention.aspx?id=351



Krug, E. G., Brener, N. D., Dahlberg, L. L., Ryan, G. W., & Powell, K. E. (1997). The impact of an elementary school-based violence prevention program on visits to the school nurse. American Journal of Preventive Medicine, 13(6), 459-463.

Figure 1: Predicted Human Brain Systems Involved in Children Learning Self-Regulation via PAX GBG *



In 2015, a group of prominent psychiatrists, developmental psychologists, and neuroscientists named the PAX Good Behavior Game as the *"Next Big Thing for universal prevention of psychiatric disorders."*[1] The selected PAX GBG, because it is well replicated in the real world and accessible for schools and teachers. They also selected it because of the underlying brain and behavioral mechanisms that PAX GBG influences in the course of every-day instruction that nearly any teacher can do. With the permission of the authors, we have adapted their brain scans and technical language to make their conclusions more accessible. They have approved both the illustrations and technical translations for broader access.

In an article naming PAX GBG the next big thing in universal prevention of psychiatric disorders (see footnote), the psychiatrists and neuroscience authors comment:

> *"[PAX GBG's] targeting of self-regulation in its interventions is a sensible choice, given that the development of the capacity for effective self-regulation in childhood leads to more adaptive interpersonal interactions, more positive health behaviors, improved cognitive flexibility, and better impulse control. It predicts future academic and occupational achievement and reduces the severity or likelihood of manifesting psychiatric symptoms.*

In contrast, poor self-regulation promotes risky and addictive behaviors, and it undermines critical long-term pursuits such as educational attainment, social integration, and physical health. Self-regulatory failures are implicated in many of the leading preventable causes of death, including tobacco use, alcohol use, other drug use, overeating, accidents, and violence, and account for up to 40% of all deaths in the United States. Improving self-regulation relies on maturation of neural systems that comprise

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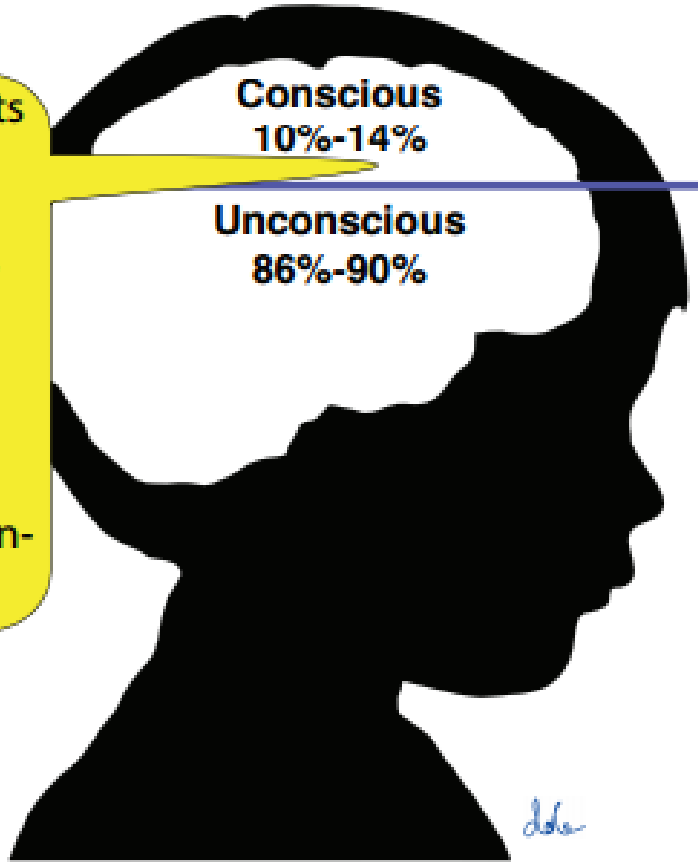
* This graphic and explanatory narrative are adapted (by permission) from by Shoemaker, E. Z., Tully, L. M., Nierdam, T. A., & Peterson, B. S. (2015). The Next Big Thing in Child and Adolescent Psychiatry: Interventions to Prevent and Intervene Early in Psychiatric Illnesses. *Psychiatric Clinics of North America, 38*(3), 475-494. doi:10.1016/j.psc.2015.05.010. Full article may be downloaded via: http://bit.ly/PAXGBG-Next-Big-Thing

Child Development of Healthy Theory of Mind In a PAX Good Behavior Game Classroom

In one-hour of 25 students in your classroom, their cortex neurons alone will fire between 400-900 trillion times, or about 4.9 quadrillion times in a school day in the cortex alone. That can change their conscious and unconscious brains for life.



See

Hear

Do

Feel

Perceived:
Peace,
Productivity,
Health,
Happiness

Versus

Perceived:
Threats
Loud/Shrill Sounds
Scarcity
Danger
Uncertainty
Isolation
Distrust
Enemies
Toxins

Impact of the Nurturing Environment Created by PAX Good Behavior Game on Children

Increasing Psychological Safety & Flexibility

PAX Vision
I'm a PAX Leader
PAX OK/
Spleems Not OK
Predict, Monitor,
& Reflect

Reducing or Minimizing Toxic Influences

PAX Quiet
PAX Hands
PAX Breath
PAX Stix

PAX Good Behavior Game®

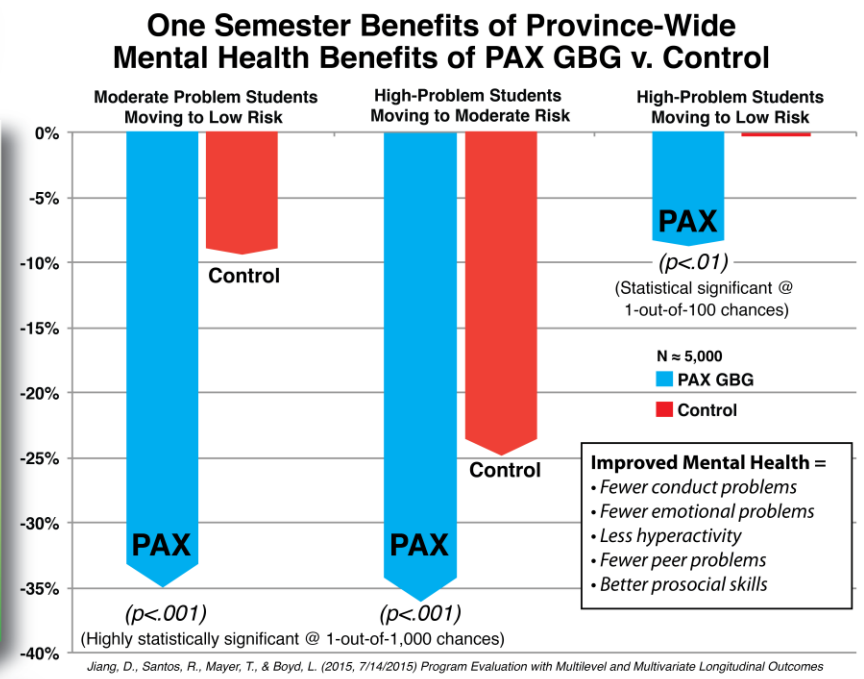
Richly Reinforcing Prosocial Behaviors

Tootles Notes
PAX IT Notes
PAX Roles
Granny's Wacky
Prizes
PAX Minutes
ABCD Pinch Slates

Limiting Problematic Behaviors

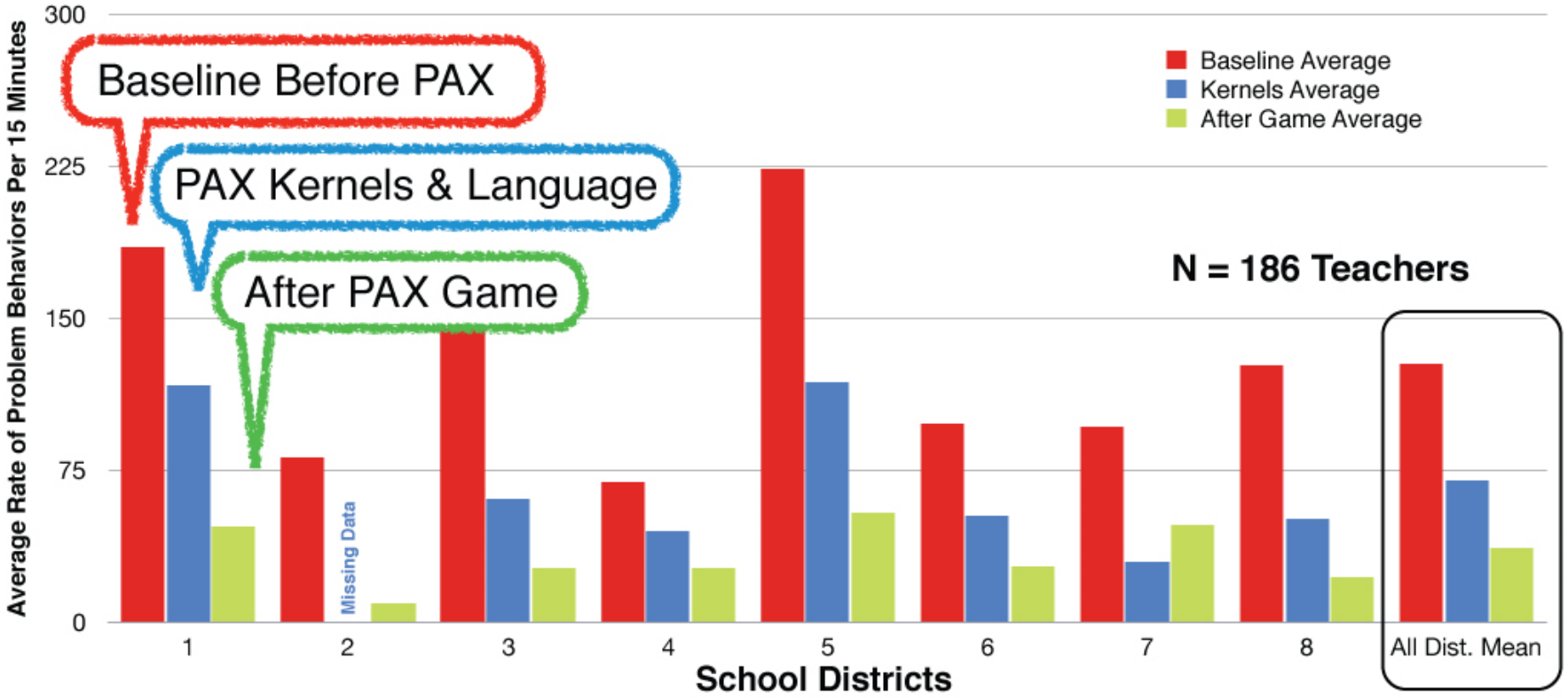
PAX Quiet
PAX Hands
PAX Voices
PAX Roles
PAX Feet
Spleem Observations

Fewer Child Mental-Health Disorders



Jiang, D., Santos, R., Mayer, T., & Boyd, L. (2015, 7/14/2015) Program Evaluation with Multilevel and Multivariate Longitudinal Outcomes

3-Month Impact of PAX in Eight US School Districts on Disturbing, Disruptive, and Inattentive Behaviors Per 15 minutes



Teresa Sayre
teresa.sayre@phoenix.k12.or.us

Partnering with K-12 Education…

Teresa Sayre, Superintendent
Phoenix-Talent School District

The Origins of the Southern Oregon PAX Movement

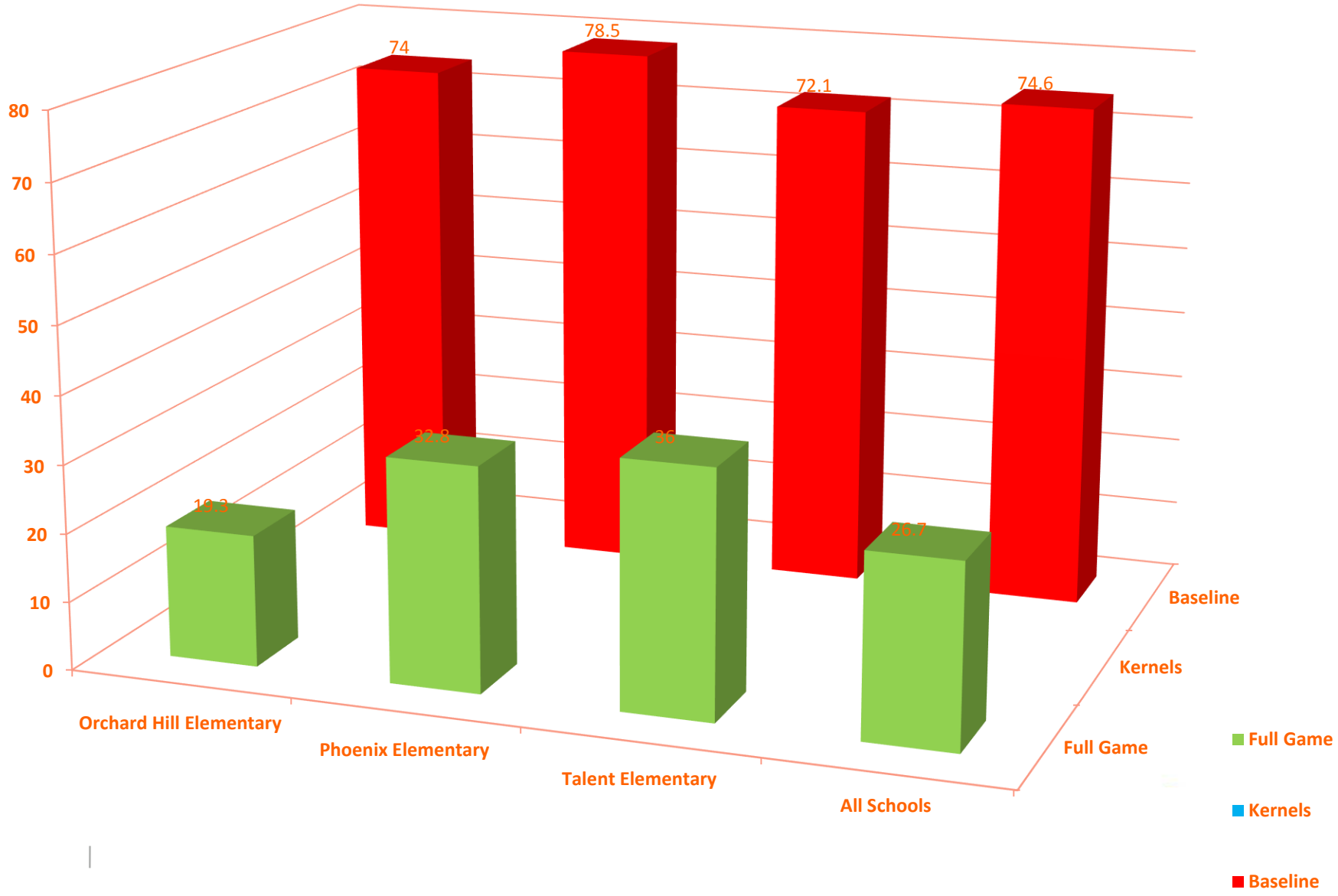
Has Education lost its way?

Counting the Cost of Human Capital

Seeing the Fruits of PAX

Bring the Whole Child back to School

SEEING THE FRUITS OF PAX…



"PAX has helped my students learn to **self-regulate**, **work cooperatively**, and **be leaders**."

Brittany Anderson
1st Grade Teacher

"I like PAX because it helps me not use my hands as weapons and helps me stay focused."

1st Grader

"Everyone is working and is quiet when we need to be."

1st Grader

"It has given me **renewed energy** in my teaching and **hope** in the behavior abilities of my students."

Julie Mackinnon
2nd Grade Teacher

IN THEIR OWN WORDS…

Teresa Slater
teresa_slater@soesd.k12.or.us

Partnering with Early Childhood…

Teresa Slater, Grants & Contract Manager
Southern Oregon Early Learning Services Hub

The Goals of Early Learning Hubs

- Safe, Stable & Attached Families
- Coordinated & Family Centered System of Services
- Children Thriving at Kindergarten Entry

How do CCOs and Early Learning Hubs connect?

Getting School Buy In

Our Community and Our PAX Champions

What about Parents and other Caring Adults?

Southern Oregon Early Learning Services

Peter Buckley
peter_buckley@southernoregonsuccess.org

Partnering with the Science of NEAR…

Peter Buckley, Director
Southern Oregon Success (A Regional Achievement Collaborative)

The Science of NEAR

- Neurobiology
- Epigenetics
- ACEs
- Resiliency

How is PAX being leveraged with other initiatives in Southern Oregon?

PAX from different Perspectives

SOUTHERN OREGON SUCCESS

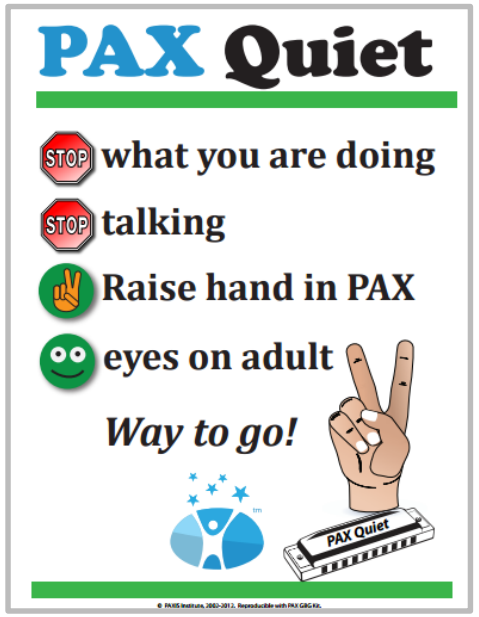
Where do we go from here?

PAX GBG infuses a set of evidence-based strategies called "Kernels" and a classroom game which evolved from the original Good Behavior Game, developed and studied during the 1960s. The Kernels and PAX Game increase self-regulation and cooperative behaviors and decrease unwanted behaviors, called "spleems".

Using PAX GBG, teachers are able to:

- reduce transition time and student response time *(PAX Quiet)*.
- increase task completion and reduce the time students need to complete tasks in and out of the classroom *(Beat the Timer)*.
- regulate individual and group behavior and increase students' focus during instruction *(PAX Stix/OK-Not OK)*.
- increase positive/pro-social behaviors *(Tootles/I'm a PAX Leader)*.
- create predictive expectations with students for behavior *(PAX Vision/PAX Voices/PAX Hands & Feet)*.
- increase students' ability to self-regulate to meet the changing demands of the classroom environment *(PAX GBG)*.

For additional information about PAX GBG, visit goodbehaviorgame.org or contact info@paxis.org.



Two articles in ***Clinical Child and Family Psychology Review*** [2, 3] describe how the "gold-standard" scientific studies at Johns Hopkins University on PAX GBG were translated into powerful results in more than 10,000 classrooms throughout the United States, Canada and other countries.

This is why PAX GBG is the official version used in all new replications Johns Hopkins:

- *Only* **PAX Good Behavior Game** has replicated early improvements in reading and math scores [4, 5], previously proven in the famous Johns Hopkins studies [6].
- *Only* **PAX Good Behavior Game** has proven, dramatic reductions in problematic, off-task or disruptive behaviors in a semester [7-9] throughout the United States, Canada and Europe.
- *Only* **PAX Good Behavior Game** has been proven to reduce mental, emotional, behavioral and psychiatric disorders in one semester [9, 10], just like the original studies at Johns Hopkins [6, 11].
- *Only* **PAX Good Behavior Game** has been integrated and studied in combination with Trauma Informed Strategies, PBIS or Social Emotional Learning Curriculum [12].
- *Only* **PAX Good Behavior Game** has studies showing changes in teacher stress, teacher efficacy, and related outcomes [13, 14].
- *Only* **PAX Good Behavior Game** has published studies on the success of its coaching model [15, 16] to improve results, replicating the results from the original coaching procedures from Johns Hopkins [17].
- *Only* **PAX Good Behavior Game**'s coaching model intervention that has randomized studies showing teachers can successfully implement after in-person or online induction [18].
- *Only* **PAX Good Behavior Game** has multiple scientific replications by different independent researchers, and PAX GBG is used for all replications at Johns Hopkins University, where the acclaimed research on the good behavior game began.
- *Only* **PAX Good Behavior Game** has replications of results in Native American Tribal sites, frontier communities, rural communities, mid-sized communities, and urban/inner-city sites.
- *Only* **PAX Good Behavior Game** has replications in multiple countries: including the U.S., Canada, Estonia, Ireland, and the United Kingdom.
- *Only* **PAX Good Behavior Game** is being funded for implementation by schools, school districts, United Way, county/state/provincial agencies, insurance companies, health-care entities, and other discretionary state/provincial or county funds and voter approved levies.
- *Only* **PAX Good Behavior Game** has thousands of classrooms, schools and communities that you can visit to see this powerful strategy implemented, or newspaper articles from around the world that you can read about its successes.
- *Only* **PAX Good Behavior Game** has pre-packaged tools that you can use to prove that PAX GBG works for your classrooms, schools, or communities.
- *Only* **PAX Good Behavior Game** has proven tools to build cost-effective, sustainable prevention in your community—that have been widely replicated in the world.

4. Weis R, Osborne KJ, Dean EL. **Effectiveness of a universal, interdependent group contingency program on children's academic achievement: A countywide evaluation**. *Journal of Applied School Psychology* 2015, 31(3):199-218.
5. Fruth JJ. **Impact of a universal prevention strategy on reading and behavioral outcomes**. *Reading Improvement* 2014, 51(3):281-290.
6. Ialongo N, Werthamer L, Kellam SG, Brown CH, Wang S, Lin Y: **Proximal impact of two first-grade preventive interventions on the early risk behaviors for later substance abuse, depression, and antisocial behavior**. *American Journal of Community Psychology* 1999, 27(5):599-641.
7. Embry DD. **The Good Behavior Game: A Best Practice Candidate as a Universal Behavioral Vaccine**. *Clinical Child & Family Psychology Review* 2002, 5(4):273-297.
8. Wilson DS, Hayes SC, Biglan A, Embry DD. **Evolving the Future: Toward a Science of Intentional Change**. *Brain and Behavioral Sciences* 2014, 37(4):395-416.
9. Morgan M, O'Donnell M. **Evaluation of the PAX Good Behaviour Game Pilot Study: Final Report**. In. Dublin, Ireland: Northside Partnership; Midlands Area Partnership; 2015: 55.
10. Jiang D, Santos R, Mayer T, Boyd L. **Program Evaluation with Multilevel and Multivariate Longitudinal Outcomes**. In: *International Meeting of the Psychometric Society: 7/14/2015 2015; Beijing, China*: International Meeting of the Psychometric Society; 2015. 21.
11. Dolan LJ, Kellam SG, Brown CH, Werthamer-Larsson L, et al.. **The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement**. *Journal of Applied Developmental Psychology* 1993, 14:317-345.
12. Domitrovich CE, Bradshaw CP, Greenberg MT, Embry D, Poduska JM, Ialongo NS. **Integrated models of school-based prevention: Logic and theory**. *Psychology in the Schools* 2010, 47(1):71-88.
13. Pas ET, Bradshaw CP, Hershfeldt PA, Leaf PJ. **A multilevel exploration of the influence of teacher efficacy and burnout on response to student problem behavior and school-based service use**. *School Psychology Quarterly* 2010, 25(1):13-27.
14. Fruth JD, Huber MJ. **Teaching Prevention: The Impact of a Universal Preventive Intervention on Teacher Candidates**. *Journal of Education and Human Development* 2015, 4(1):245-254.
15. Becker KD, Darney D, Domitrovich C, Keperling JP, Ialongo NS. **Supporting universal prevention programs: A two-phased coaching model**. *Clinical Child and Family Psychology Review* 2013, 16(2):213-228.
16. Becker KD, Bradshaw CP, Domitrovich C, Ialongo NS. **Coaching teachers to improve implementation of the good behavior game**. *Administration and Policy in Mental Health and Mental Health Services Research* 2013:No Pagination Specified.
17. Turkkan J. **The Good Behavior Game Manual**. In. Baltimore, MD: John Hopkins School of Hygiene and Public Health, Department of Mental Hygiene; 1988: 38.
18. Becker KD, Bohnenkamp J, Domitrovich C, Keperling JP, Ialongo NS. **Online training for teachers delivering evidence-based preventive interventions**. *School Mental Health* 2014, 6(4):225-236.

pax Good Behavior Game

Spleems Observation Form

School/Classroom Site:_____ Date:_____ Observer:_____

Brief Description of Activity:_____

Instructions: Observe the group every minute for fifteen minutes. During each minute, tally the number of Spleems that occur. After the fifteen minutes, complete the rest of the form and graph the results.

	ONE – MINUTE INTERVALS

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Highest number of students in the group															
Tally of Spleems in the minute (make hash /// marks)															
Total number of Spleems in the minute (add up the hash marks)															
1. Total the number of Spleems in the 15 minutes															
2. Divide the total Spleems (A) by the number of students in the group.															
3. Multiply #2 by 4 to express the rate of disruptions per hour per student. Use this number for the graph in Appendix D.															

Notes:

Implementation Survey

School:_____ Grade Level:_____ Classroom:_____ Teacher:_____

Date/Time:_____ Observer:_____ Condition(circle one): Baseline / Kernels / Full Game

Completed (circle one): Complete / Dropped Out / Testing / School Event / No School / Other

Instructions: Please refer the Purrfect PAX Rubric used for help students and adult achieve maximum PAX. NT=not trained, 0=not observed. 1 = Learning Skill; 2 to 3 are improving skill; and 4=Purrfect PAX

Purrfect PAX Rubric (Purrfect means things are humming and working well)						
	Not Trained	0	1	2	3	4
Preparing the Students for Game start (PAX Quiet Kernel)						
Choice of Activity (Appropriateness of task)						
Timing of the Game (Beat the Timer Kernel)						
Teams (Soft-team competition)						
Spleem Tracking System (Tally sheet, scoreboard, etc.)						
Response to Spleems (Non-emotional response kernel)						
Granny's Wacky Prizes (Mystery Motivator/Premack Kernel)						
After the Game – Reviewing Spleems (Teacher or team captain can facilitate any of these)						
PAX Language (Relational frame kernel)						
PAX Cues (PAX Quiet, PAX Hands, PAX Voices, Thumbs up/down, Go PAX/Stop SPLEEM Kernels)						
Tootle Notes (Tootle/PAX IT Kernel)						
Additional PAX Elements (Kernels that bridge success when no Game)						

Strengths and Difficulties Questionnaire

P or T 4-10

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior over the last six months or this school year.

Child's name ..... Male/Female

Date of birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children, for example toys, treats, pencils	☐	☐	☐
Often loses temper	☐	☐	☐
Rather solitary, prefers to play alone	☐	☐	☐
Generally well behaved, usually does what adults request	☐	☐	☐
Many worries or often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, depressed or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often offers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets along better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Good attention span, sees work through to the end	☐	☐	☐

PAX GBG is identified in the ***Substance Abuse and Mental Health Services Administration (SAMHSA)'s National Registry of Evidence-Based Programs and Practices (NREPP)*** to address:

1. Conduct and problem behaviors
2. Academic success
3. Mental health service utilization
4. Initiation of substance use

Recent research has linked PAX GBG to school completion, reduction in suicidality, and reduced incidents of involvement in violent crimes as either victim or perpetrator. One or more years of PAX GBG has also been shown to cause positive expression of brain genes associated with mental health.

PAX GBG is aligned with SAMHSA's six key principles of ***Trauma-Informed Approach*** to meet the needs of children who have experiences Adverse Childhood Experiences (ACEs) or other trauma. It is also easily adapted to scaffold success for children with special needs or to be used for ***Positive Behavioral Interventions and Supports (PBIS)*** Tier 2 and Tier 3 interventions to help all students be successful in the classroom.

To review PAX GBG on NREPP visit bit.ly/NREPPv2

A Vision for Oregon

PAXIS Institute™ passion into action science to practice promoting solutions

What if all first graders in the United States and Oregon were protected by the Good Behavior Game, when they entered school — as recommended in the 2009 Institute of Medicine Report?

The 2009 Institute of Medicine's *Report on the Prevention of Mental, Emotional, and Behavioral Disorders Among Young People (1)* singled out the Good Behavior Game as potentially one of the most effective early, universal school-based prevention strategies (based on multiple randomized, longitudinal trials; (*2-11*). Accordingly, the Substance Abuse and Mental Health Services Administration (SAMSHA) has fund 38 sites across America to prove that it is replicable using the commercially-available version from a Johns Hopkins study called the PAX Good Behavior Game. Based on those successes, SAMSHA recently funded seven states to expand the reach of the GBG.

Endorsed by both the Institute of Medicine and the Substance Abuse and Mental Health Services Administration (SAMSHA)

What About the Potential Impact of GBG in Oregon?

By reaching all 1st graders in Oregon each year, major benefits can occur for the estimated 46,418 young people in the state. How would local, state, and national indicators change if each of those children received the benefits of the GBG? Here are the estimates based on the previous research findings:

4,029	Fewer young people will need any form of special education services
2,607	More boys will likely graduate from high school
3,129	More boys will likely attend college
4,157	More girls will likely graduate from high school
3,249	More girls will likely attend college
455	Fewer young people will commit and be convicted of serious violent crimes
4,503	Fewer young people will develop serious drug addictions
3,081	Fewer young people will become regular smokers
1,659	Fewer young people will develop serious alcohol addictions
2,272	Fewer young women will contemplate suicide
3,081	Fewer young men will contemplate suicide

Short and Long Term Improvement of Education, Health, and Social Contribution Outcomes

Using the Washington State Institute for Public Policy's cost effectiveness study (*12*), the economic benefits can be extrapolated when those young people reach age 21, as a result of having GBG just in first grade. With cohort of first graders being protected and promoted by GBG, the state's citizens, families, schools, communities, and children themselves will save an estimated ***$675 Million*** **(NET)** when the children reach age 21.

And what does it cost per child to protect children for their lifetimes? Less than the CDC's measles, mumps, varicella, and rubella vaccine (MMVR) of $128.00. All up it costs about the price of a premium box of copy paper (10 reams) per child—$60 to $75. The rate of return on investment is better than 80-to-1 (*12*). The polio vaccine had a rate of return of 3-to-1, and we never denied providing polio vaccine to any child in America. Why would we not protect our future generations from the mental, emotional, behavioral, and related physical disorders?

The cost of PAX per child is less than the CDC's measles, mumps, varicella, and rubella vaccine (MMVR).

RETURN ON INVESTMENT > 80-to-1

Visit the PAX Good Behavior Game Website to Learn More
www.paxgoodbehaviorgame.org

Questions & Answers