



FIRST IN FLIGHT: POPULATION-LEVEL PREVENTION IN OHIO

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ABSTRACT:

Ohio Mental Health and Addiction Services (OMHAS) sponsored the first statewide scale-up of the PAX Good Behavior Game (PAX GBG) and its related classroom-based universal prevention components as a part of the Ohio Cures initiative from 2017-2019. This was a part of the state and federal effort to prevent factors contributing to the opioid epidemic. The state of Ohio demonstrates a distinct need to prevent the onset of mental, emotional, and behavioral disorders that develop in early childhood and school-age children. These disorders represent a serious threat to the public health of the state as well as the single greatest expense to Medicaid and private insurance for pediatric health care. This need is compounded by the impact of the opioid epidemic in Ohio, which ranks second nationally in opioid overdose deaths. This project resulted in the training of over 8,500 educational professionals in universal prevention and noted immediate improvements in student behavior and teacher wellness along with statistically significant improvement in workplace skills and efficacy.

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Ohio Mental Health and Addiction Services (OMHAS) sponsored the first state-wide scale-up of the PAX Good Behavior Game (PAX GBG) and its related components as a part of the Ohio Cures initiative from 2017-2019. This was a part of the state and federal effort to prevent factors contributing to the opioid epidemic. This scale-up was intended to promote positive lifetime outcomes for Ohio youth. To this end, this initiative had the following aims:

- Dramatically increase classroom PAX GBG implementations across the state
- Increase the capacity for Ohio-based training of PAX GBG and its related components
- Increase PAX Partner support for new and existing PAX GBG classrooms
- Develop a dynamic model for increasing internal capacity for PAX Partner support
- Provide focused professional development for new and existing PAX GBG classrooms
- Improve state-wide sustainability for PAX GBG implementation through webinars, regional leaders, and strategic planning
- Grow from self-contained pockets of implementations into a network of state-wide implementers fostering collaborative support
- Increase the prevalence and influence of PAX GBG in Ohio pre-service education institutions

IMPLEMENTING UNIVERSAL PREVENTION

The state of Ohio demonstrates a distinct need to prevent the onset of mental, emotional, and behavioural disorders that develop in early childhood and school-age children. These disorders represent a serious threat to the public health of the state as well as the single greatest expense to Medicaid and private insurance for pediatric health care. This need is compounded by the impact of the opioid epidemic in Ohio, which ranks second nationally in opioid overdose deaths. Unintentional drug overdoses remain the leading cause of injury-related deaths in Ohio, with 85% of those attributed to opioids. Total opioid deaths increased by nearly 500% from 2006 to 2015. Decreasing risk factors in young people for drug use, such as poor impulse control, anxiety, depression, hyperactivity, and aggression significantly reduces the risk for opioid and other drug use in youth and adults. This is especially important for young people exposed to trauma and other aversive childhood experiences due to exposure to incidents involving opioids in their families and communities. Instituting universal prevention in a public health model is vital for the health and prosperity of the citizens of Ohio.

PAX Good Behavior Game is a universal primary preventive intervention used by teachers in their daily practice to teach self-regulation as a skill set. This self-regulation provides for decreased problematic behavior, increased academic performance, and drastic improvement across an array of lifetime outcomes (Kellam et al., 2008, Bradshaw, Zmuda, Kellam, & Ialongo, 2009).

PAX GBG is one of the most scientifically proven classroom-based prevention programs to reduce the risk of substance use, and mental, emotional, and behavioural health disorders in as little as one semester (Wilson, Hayes, Biglan, & Embry, 2014, Jiang, Santos, Mayer, & Boyd, 2015, Furr-Holden, et al., 2004). These outcomes include a 67% reduction in opiate use (Furr-Holden et al., 2004). PAX GBG represents a public health approach to primary prevention by serving as an intentionally engineered universal preventive intervention to prevent high-risk disorders (IOM, 2009). When adults use the PAX Good Behavior Game with young people, they create a nurturing environment that impacts electrical, neurochemical, neural connectivity, and epigenetic makeup in young people with lasting lifetime effects. PAX GBG offers updated add-ons for selective and indicated populations as well.

With multiple randomized control trials in the efficacy stage and numerous effectiveness trials across the world, PAX GBG meets SAMHSA's criteria for identifying evidence-based programs and practices (Kellam et al., 2011). Use of PAX GBG in a public health model affects one of the single greatest expenses in pediatric health care: mental, emotional, and behavioral health disorders. By significantly reducing these disorders, their effects on families, society, and subsequent economic impact through service use and lost wages, the Washington State Institute for Public Policy calculated PAX GBG to have a return on investment of 65:1 (Aos, Lee et al. 2013). Recent studies have also indicated improvements in provider (teacher) outcomes when implementing PAX GBG including increased sense of efficacy as well as decreased stress and depression (Huber et al., 2016, Ghadheri, Johansson, & Enebrink, 2017). This ensures increased provider retention and programmatic sustainability. PAX GBG also offers an array of support models to fit each community as well as Strategic Planning and Development for arranging PAX GBG into community-wide Strategic Prevention Frameworks.

The first implementations of PAX GBG in Ohio occurred in 2006. By 2016, about 3,400 teachers had been trained through several large initiatives, including federal SAMHSA and Safe Schools/Healthy Students initiatives, as well as a plethora of prevention initiatives sponsored by OMHAS. Local recovery boards, educational service centers, school districts, hospitals and a number of other stakeholders contributed to implementations across the state as well. The result was over 3,400 teachers trained in PAX GBG within pockets of concentration across the state. This represented the single largest concentration of PAX GBG in any state or province at the time.

Many of the Ohio implementations were able to replicate the tremendous proximal and distal outcomes attained in the original efficacy trials of the intervention at Johns Hopkins University. However, many pockets of implementations found it difficult to sustain, support, or expand their implementations from both a content and resource standpoint. The Ohio Cures initiative in 2017

provided resources to not only dramatically scale up the PAX GBG implementations across the state but also develop mechanisms for state-wide sustainability, including PAX Partner support, strategic planning, and in-state trainers of PAX GBG and its related components.

PURPOSE AND PROGRAMMING

This evaluation was designed to determine the degree to which the outcomes of this project met its aims of significantly increasing the implementation of PAX GBG as well as the capacity for growth and sustainability through a connected network of state-wide implementers. This evaluation also measured the outputs, training effectiveness, maintenance, sustainability, and predictive impact of the programming provided by PAXIS Institute within the initiative. By examining multiple constructs of multiple distinct programs, this evaluation measured policy, strategy, and practice alterations for increasing the public health benefit in a population-level initiative. This evaluation examined all of the Ohio Cures PAX GBG programming, including:

- PAX GBG Summit
- PAX GBG Initial Teacher Training
- PAX Next Steps Teacher PD Training
- PAX Heroes Teacher PD Training
- PAX Partner Training
- PAX Partner Heroes PD Training
- PAX Tools Training
- PAX Pre-Service Training

The PAX GBG project under the Ohio Cures initiative consisted of nine distinct program components. Each of these programs played a part in building the prevalence, sustainability, and effectiveness of PAX GBG across the state.

The PAX GBG Summit was held in July 2018 in Columbus, Ohio. This event allowed stakeholders to meet with OMHAS and PAXIS Institute officials and gather information about upcoming PAX Training available state-wide as a part of the Ohio Cures initiative. Community leaders and stakeholders also networked and collaborated with peers from across the state to develop plans for implementing PAX GBG in their region. This event provided for professional development and information sessions for numerous types of stakeholders involved with PAX GBG. The event also provided practical strategies for school officials and PAX Partners for implementing tiered models of PAX Partner support within schools to increase local fidelity and sustainability of implementations. The summit provided strategic planning and development sessions promoting the integration of PAX GBG plans into local and regional strategic plans in order to increase the sustainability of implementations at the conclusion of the project. This event was also used to increase the pool of Ohio-based training staff and update current trainers on new components of 2018-2109

trainings through PAX Training inductions. This allowed PAXIS Institute to re-align and update statewide training for localized interests such as trauma and opioid use to increase the fidelity of training.

PAX Good Behavior Game Initial Teacher Training provides current teachers with training in all the classroom strategies of PAX GBG. This 1-day, in-person session allows up to 40 teachers to learn the evidence-based practice along with their peers in an interactive format from a certified PAX trainer. This is the foundational training of PAX GBG and ensures proficiency in each of the PAX Kernels as well as the PAX Game. In addition to implementing strategies, teachers learn the importance of a nurturing environment and its effects on trauma, self-regulation, and mental health outcomes throughout the lifespan. Teachers also learn about the role they can play in supporting the students who are most affected by environmental influences. In this training, teachers receive a PAX Kit that provides all the materials necessary to carry out PAX GBG in their own classroom, including the PAX GBG Manual. Teachers also receive training on utilizing the PAX Up! App for implementing and monitoring their use of PAX GBG in their classroom. Teachers leave this session with all the training and skills necessary to begin their PAX GBG implementation the very next day. PAX GBG Initial Teacher Training also demonstrates how PAX strategies integrate seamlessly into existing PBIS, RTI, MTSS, and other school-wide procedures.

PAX Next Steps Training provides teachers who have previously been trained in PAX GBG with enrichment and extension activities. This 1-day, in-person professional development training expands on the lessons from PAX GBG Initial Teacher Training and the original PAX Manual for up to 40 teachers. This training explores advanced strategies and methods in the PAX Manual that are not provided in the initial teacher training. This training also gives teachers access to a certified PAX Trainer to help troubleshoot implementation issues they may be facing in the classroom. It also provides explicit instruction for using PAX Kernels in tiered instruction and for students who have been exposed to trauma. Teachers also receive training on utilizing the PAX Up! App for implementing and monitoring their use of PAX GBG in their classroom. PAX Next Steps Training provides in-depth instruction for the differentiated application of many traditional PAX strategies to create expertise in implementing PAX GBG.

PAX Heroes Teacher Training provides up to 40 teachers who have previously been trained in PAX GBG with new variations and strategies for students who continue to demonstrate behavioural difficulties. This 1-day, in-person training delivers explicit instruction in using the PAX Heroes Manual to identify areas of student difficulty and refining PAX GBG implementation to support those needs. PAX Heroes Teacher Training also provides instruction in analyzing activities and areas of difficulty for students and selecting targeted Tier 2 and Tier 3 strategies to improve their behavioral and academic performance. Teachers also

receive training on utilizing the PAX Up! App for implementing and monitoring their use of PAX GBG in their classroom. This training also provides explicit instruction in behavior observation and analysis useful in identifying useful strategies in and out of the classroom. PAX Heroes Teacher Training provides instruction in integrating PAX Heroes assessment, analysis, and strategies with existing clinical assistance and school-wide procedures.

PAX Partner training provides up to 20 internal or external school personnel who have previously been trained in PAX GBG with the skills to support a new or existing PAX GBG implementation. This 3-day training features one day of online content instruction followed by two days of in-person instruction with a certified PAX Trainer. This instruction and the PAX Partner Manual provide PAX Partners with the skills to support teachers in initiating and maintaining a PAX GBG implementation in their classroom by promoting the step-by-step integration of PAX strategies with fidelity into their classroom procedures. Partners also receive instruction on using the PAX Up! App for data collection and analysis as well as guiding classroom implementations. This training also includes strategies for troubleshooting and additional assistance for teachers with students who continue to struggle. PAX Partners learn expert coaching and support skills in order to effectively guide teachers as they improve their implementation. Partners also learn fidelity monitoring and use of data to alter implementations and collaborate with school and district administration to generate the best outcomes possible from the PAX GBG implementation.

PAX Heroes Partner Training provides up to 20 previously trained PAX Partners with the PAX Heroes Manual and two days of in-person instruction with a certified PAX Trainer. This training provides skills in supporting teachers who will be implementing PAX Heroes strategies with students in need of more individualized support from Tier 2 and Tier 3 strategies. Partners also receive instruction on using the PAX Up! App for data collection and analysis as well as guiding classroom implementations. PAX Partners will learn to guide teachers in their structured observations and analysis of problematic behavior. They will also learn to refine PAX GBG implementation to support the specific needs of students that struggle behaviourally. They will also learn to guide strategy selection for students with the most intense needs as well as integrating PAX Heroes into school wide PBIS structures and behavioural procedures. PAX Heroes Partner training also provides methods for coordinating PAX Heroes implementations with available clinical and counselling support available in the school or district.

PAX Tools Training provides up to 40 community-based leaders with the PAX Tools Manual and strategy instruction rooted in the PAX Good Behavior Game from a Certified PAX Trainer. Participants will learn to implement and share PAX Strategies for implementation in the home and community. Participants can then disseminate these

research-based strategies at the individual or group level for improving youth outcomes and relationships with adults. This training provides detailed instruction for implementing community-based strategies in a variety of settings as well as utilizing the PAX Up! App for monitoring and evaluating progress. Some potential settings and recipients for PAX Tools include parents, childcare workers, behavioural health, faith-based settings, juvenile justice, and recovery settings.

PAX Pre-service Training consists of PAX GBG Initial Teacher Training tailored to the pre-service teacher setting. This 1-day, in-person training provides up to 40 pre-service teacher candidates with PAX GBG instruction along with a PAX GBG Kit and Manual to use in their own classrooms as well as to practice in their field placements that use PAX GBG. This opportunity also encourages the collaboration between the college's participating pre-service teacher training program and the local schools they partner with for student teaching. PAX Pre-service Training is a step on the PAX Pre-service Rollout that provides opportunities for partnership between universities and PAXIS Institute in the areas of research and other human service strategy dissemination.

METHODS

In order to determine the degree to which the project met the aims of this initiative, this evaluation was designed to measure the outputs, training effectiveness, maintenance, sustainability, and predictive impact of the programming provided by PAXIS Institute within the initiative. Measurement of these constructs within a scale-up initiative detects strengths, weaknesses, and variations that arise from a true public health application of a universal preventive intervention and related programming.

The outputs of the initiative were tracked using the secure online registration system. These outputs include:

- Number of local PAX Trainers certified
- Number of PAX GBG Summit participants
- Number of PAX Strategic Planning and Development participants and instances
- Number of teachers trained in PAX GBG
- Number of teachers trained in PAX Next Steps professional development
- Number of teachers trained in PAX Heroes
- Number of internal and external PAX Partners trained
- Number of PAX Partners trained in PAX Heroes
- Number of pre-service candidates trained in PAX GBG and collaborative partnerships
- Number of community leaders trained in PAX Tools

Outputs also include the distribution of materials throughout the initiative. Training outputs were also

analyzed and contribute to the *sustainability* measurement made up of the geographic concentration of PAX Partners trained and PAX Strategic Plans developed in relationship to the number of PAX GBG teacher trained in each region.

The training effectiveness for each of the nine individual programs within the initiative was determined using customized instruments designed specifically for each training. The training effectiveness measure captures the initial success of the intervention with each participant and also provides indications as to the maintenance and sustainability of the intervention relative to the outputs. These anonymous instruments were provided in-person to participants following each training and recorded their experiences and impressions of training in areas including but not limited to:

- Professional gains,
- Understanding of strategies,
- Intention to implement,
- Confidence in strategies,
- Appropriateness for settings,
- Confidence in creating outcomes
- Confidence giving and receiving support
- Input on strengths and weaknesses of the training
- Plans for maintenance and sustainability

PAXIS Institute can use the training effectiveness outcomes in their constant renewal and revision of training models and content. These outcomes are also useful to PAX Partners to gauge impressions, strengths, weaknesses, and needs of the teachers they support as they begin PAX GBG implementations in their own classrooms.

The maintenance of the PAX GBG implementation and related programming was determined through follow-up contact with participants to gauge their impression, progress, and use of their new skills and strategies three months after training. The maintenance measure captures the true use of the interventions in the field, helps to confirm the effectiveness of training, and provides indications as to the sustainability of the intervention. Other areas of measurement at the 3-month benchmark include:

- Frequency of use
- Appropriateness of strategies
- Success of strategies
- Effect on discipline
- Effect on user well-being
- Integration with existing practices
- Strengths vs. Difficulties
- Use of internal and external supports

These anonymous instruments were placed online and made accessible through an emailed link based on registration information from training. The maintenance

benchmark for each program also offered an opportunity to provide optional qualitative feedback via online/phone interviews with scripted questions regarding their experience implementing PAX GBG and their impression of the intervention. Other areas captured in this qualitative exploration include:

- Experience initiating PAX GBG
- Effects on the classroom
- Integration with school practices
- Difficulties implementing
- Models of support
- Collaboration with faculty and administration

The maintenance measure provides the first state-wide examination of the continued use of PAX GBG and its related programming following initial training. This measure provides further information to PAXIS Institute for refining instruction and guidance to increase and improve implementation. It also provides PAX Partners and local officials with valuable information in regard to necessary supports for the specific needs and culture of their region as well as some early indications on prevalence and return on investment in their communities.

The sustainability of the state-wide PAX GBG implementation was determined through registration outputs from each training and their respective county or region. The sustainability measure identifies areas in the state and their supports relative to the number of teachers implementing PAX GBG. Regional program sustainability is determined through tracking the number of teachers trained both previously and within the Ohio Cures initiative along with the development of current support including internal and external PAX Partners and Strategic Planning and Development sessions. This is displayed through a concentration map revealing regions throughout the state with relatively sustainable implementation, those fit for expansion, and those in need of greater support. This information is useful for state and local funders in prescribing the most immediate needs of an area for school-based prevention and in communicating competitive preference in future opportunities. This allows officials to provide targeted support in regard to capacity, guidance, and funding.

The predictive impact of the programming includes implementing validated instruments to determine changes to participants and young people as a result of the intervention. The predictive impact measure captures distal indicators with a research-based foundation for predicting outcomes for those involved in the implementation. These anonymous instruments were placed online and made accessible through an emailed link based on registration information from training. Pre- and post-measures were collected in accordance with the specific protocols for each instrument.

The predictive impact measures allow for the unique collection of data in a large-scale effectiveness trial. By

gathering a wealth of data on a number of different constructs for both teachers and students, Ohio's outcomes can be measured through the validated instruments to determine the real impact of universal prevention at scale.

EVALUATION DESIGN

This evaluation combines all of these measures in a mixed methods study by incorporating quantitative and qualitative feedback from participants regarding their experiences in training and implementing PAX GBG and its related components in the field and measuring their effects. This study consists of a number of customized and validated instruments to measure the impressions and effects of the various programs. The data and outcomes will be useful for all stakeholders in evaluating the success of the initiative as well as areas for consideration and revision for future scale-up initiatives. This will also reveal strengths and weaknesses in implementation across the state that imply replication, expansion, or further support.

DATA COLLECTION

Instrumentation used in data collection for this evaluation includes hard copy forms and links to online surveys and validated instruments. All hard copy data was anonymous and kept in locked storage. All online surveys were anonymous and accessible only through a secure link. Contact information was only recorded for those participants who opted into an additional interview and offered contact information. This information was known only to researchers and not identifiable or associated with any data in any other part of the study.

The Training Effectiveness measures consist of customized instruments that were narrowly tailored to determine the success of each program training. These instruments appeared as hard copy pages in each participant's handouts and were collected at the conclusion of each training. All Training Effectiveness instruments were anonymous.

The Maintenance measures consist of customized instruments that have been narrowly tailored to determine the use and success of each program as implemented. These instruments were made available to each participant via secure online link emailed to the contact information listed at registration. All Maintenance instruments were anonymous.

The Sustainability measure consists of tabulating the outputs of the project and displaying them geographically to demonstrate the prevalence of PAX GBG implementations and PAX GBG support in each area across the state. These outputs combine to create a concentration map that quickly and visually indicates the relative sustainability of PAX GBG implementation in each area. This map may be used to quickly diagnose sustainability needs in each region, including the need for greater support or the relative preparation for implementation expansion.

The Predictive Impact measures consist of research-based and validated instruments to determine the impact of the

intervention on long-term outcomes. The pre-test and post-test for these instruments was made available to each participant via secure online link upon registration. All Predictive Impact instruments were anonymous. For instruments recording student information, teachers selected random students meeting the requirements of the research protocol of the instruments and did not provide any identifying student information to researchers or anyone involved in the study.

RESULTS

The outputs of the initiative were tracked using the secure online registration system. Figure 1 below shows the total number of participants trained under each distinct program in the initiative including the PAX Good Behavior Game and the support professional development providing capacity and sustainability.

FIGURE 1

Distinct Program	Total Trained
PAX Summit Participants	275
PAX Summit – PAX Trainers	11
PAX GBG Initial Teacher Training – Cures Funded	2403
PAX GBG Initial Teacher Training – Locally Funded	3701
PAX Next Steps Teacher Training	733
PAX Heroes Teacher Training	502
PAX Partner Training	439
PAX Partner Heroes Training	94
PAX Tools Training	126
PAX Pre-service Training	217

TRAINING EFFECTIVENESS

The following training effectiveness data was compiled from 2695 voluntary respondents who provided quantitative and qualitative feedback at the conclusion of their PAX GBG Initial Teacher Training to determine its effectiveness. Approximately 531 attended a training paid for directly by Ohio Cures, and 2164 attended a training paid for by local partners during the initiative. To measure the effectiveness of this training, a multiple-choice survey was developed to determine the clarity and participants' confidence in select competencies vital to implementing PAX GBG following the training.

Participants were asked *To what extent is your school currently implementing PBIS?* Figure 2 below shows the make-up of responses to PBIS.

FIGURE 2

PBIS	Frequency of Responses	Percentage of Responses
Not currently using PBIS	67	12.6%
Some PBIS principles	346	65.0%
Extensive PBIS Implementation	119	22%

Understanding	Frequency of Responses	Percentage of Responses
Unclear	0	0.0%
Somewhat Clear	54	10.2%
Clear	286	53.8%
Very Clear	192	36.1%

Participants were asked *How would you rate your level of understanding of the strategies presented today?* Figure 3 below shows the make-up of responses to Understanding.

FIGURE 3

Confidence	Frequency of Responses	Percentage of Responses
Not confident	2	0.4%
Somewhat confident	263	49.5%
Very confident	266	50.1%

Participants were asked *How would you rate your level of confidence in creating the environments and outcomes for young people presented today?* Figure 4 below shows the make-up of responses to Environments.

FIGURE 4

Health	Frequency of Responses	Percentage of Responses
Not confident	7	1.3%
Somewhat confident	265	49.8%
Very confident	260	48.9%

Participants were asked *How would you rate your level of confidence that implementing today's strategies will improve your own physical or emotional health?* Figure 5 below shows the make-up of responses to Health.

FIGURE 5

Implemented - Cures	Frequency of Responses	Percentage of Responses
Not currently using PBIS	67	12.6%
Some PBIS principles	346	65.0%
Extensive PBIS Implementation	119	22%

Participants were asked *How much of what you learned today could be implemented in your classroom over the next school year if provided with support?* Figure 2.6 below shows the make-up of responses to Implemented.

FIGURE 6

Implemented - Cures	Frequency of Responses	Percentage of Responses
Not currently using PBIS	67	12.6%
Some PBIS principles	346	65.0%
Extensive PBIS Implementation	119	22%

Nothing	0	0.0%
Some of the Kernels	60	11.3%
Most of the Kernels	179	34%
The Kernels and PAX Game	293	55.1%

MAINTENANCE

The *maintenance* of the PAX GBG implementation and related programming was determined through follow-up contact with participants to gauge their impression, progress, and use of their new skills and strategies three months after training.

PAX Good Behavior Game Initial Teacher Training provides teachers with all skills, strategies, and supplies necessary to implement PAX GBG in the classroom.

The following data was compiled from 63 voluntary respondents who provided quantitative and qualitative feedback 3 months into their classroom PAX GBG implementation to determine their progress. To track the maintenance of their PAX GBG implementation, a multiple-choice survey was developed to identify changes the teachers noticed in their students and themselves since implementing PAX GBG.

Figure 7 displays how often teachers implemented PAX GBG in their classrooms 3 months after being trained.

FIGURE 7

Implementing PAX GBG in the classroom	Frequency of Responses	Percentage of Responses
Periodically	26	41.3%
Often	25	39.7%
Regularly	12	19.0%

Figure 8 displays how well PAX GBG was working in their classrooms 3 months after being trained.

FIGURE 8

PAX GBG working with students	Frequency of Responses	Percentage of Responses
Not working	1	1.6%
Working with some	15	23.8%
Working with most	44	69.8%
Working with all	3	4.8%

Figure 9 displays how many reprimands teachers were using in their classrooms 3 months after being trained.

FIGURE 9

Reprimands after using PAX GBG	Frequency of Responses	Percentage of Responses
Using more	2	3.2%

Using the same	10	15.9%
Using fewer	31	49.2%
Using significantly fewer	20	31.7%

Figure 10 displays how many official disciplinary actions have been necessary in their classrooms 3 months after being trained.

FIGURE 10

Number of disciplinary actions	Frequency of Responses	Percentage of Responses
Increase	0	0.0%
No change	16	25.4%
Slight decrease	25	39.7%
Significant decrease	22	34.9%

Figure 11 displays how teachers' emotional health has changed 3 months after being trained.

FIGURE 11

Changes in emotional health	Frequency of Responses	Percentage of Responses
Harmful changes	0	0.0%
No changes	18	10.2%
Slight improvement	28	53.8%
Significant improvement	17	36.1%

SUSTAINABILITY

The sustainability of the State-wide PAX GBG implementation was determined through registration outputs from each training and their respective county or region. The sustainability measure identifies areas in the state and their capacity for support relative to the number of teachers implementing PAX GBG.

Figure 12 displays each county's utilization of Cures funding in establishing support capacity and adding providers trained in PAX GBG. This figure may be used to recommend future plans for expansion of PAX GBG implementations in each county.

Counties labeled in green used Cures funding to train teachers in PAX GBG and establish PAX Partner support commensurate with the number teachers trained in the county during the initiative. These counties can continue to train teachers in PAX GBG and develop support in order to expand their implementations.

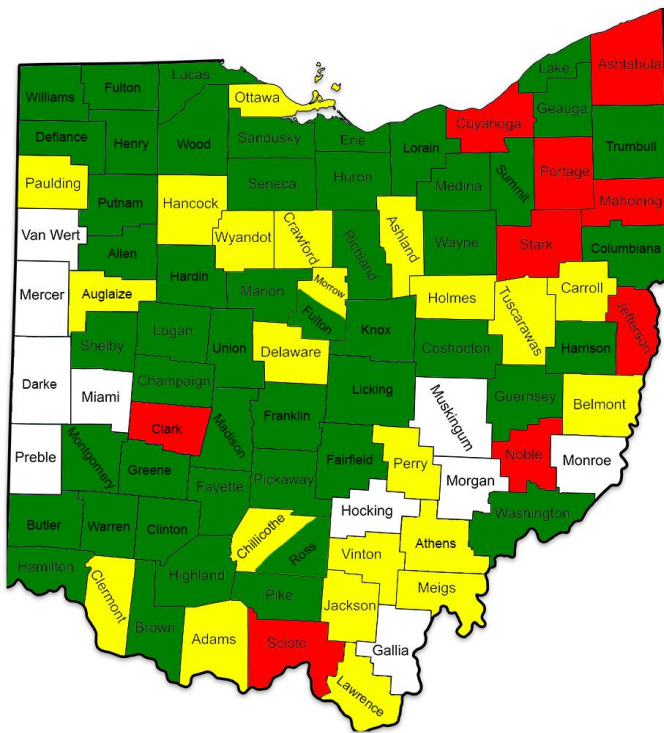
Counties labeled in yellow used Cures funding to train only a few teachers but did not yet train PAX Partners to support those teachers during the initiative. These counties can continue to train teachers in PAX GBG but should also expand their capacity to support those

teachers.

Counties labeled in red used Cures funding to train many teachers in PAX GBG but did not yet train PAX Partners to support these teachers during the initiative. These counties can expand their implementations by first developing their capacity to support the teachers they have already trained.

Counties labeled in white did not utilize Cures funding to train teachers in PAX GBG.

FIGURE 12



PREDICTIVE IMPACT

The predictive impact of the programming included implementing a range of validated instruments to determine changes to participants and young people as a result of the intervention. The predictive impact measure captures distal indicators with a research-based foundation for predicting outcomes for those involved in the implementation. These indicators will continue to be tracked for years to come. The most proximal of these more distal measures include the Teachers' Sense of Efficacy Scale (TSES). Movement from pre to post on this scale indicates changes in teachers' beliefs about their own effectiveness and impacts their performance, their students' performance, teacher retention rates, and even their experiences with young people as indicated in Huber et al. (2016).

The TSES is a 24-item Likert-style questionnaire that measures the sense of efficacy that the teacher has in the areas of student engagement, instructional strategies, classroom management, and overall efficacy as an educator. The measure includes questions such as, "How much can you do to respond to defiant students?" with answers ranging from "nothing" to "a great deal." This

measure was given as a pre/post before teacher training and after teachers had implemented for several months.

Figure 13 displays data compiled from 211 voluntary respondents who completed the measure before their PAX GBG training and again several months into their implementation, detailing changes in their sense of efficacy. Teacher trained in PAX GBG demonstrated a significant increase in efficacy as well as in the subscale of instructional strategies.

FIGURE 13

Welch's Test of Significance*	Pre-test Mean (n=211)	Post-test Mean (n=26)	p-value	Effect Size	Statistically Significant?
OSTES	6.9	7.3	p < 0.05	.40	yes
Efficacy in Student Engagement	6.7	7.0	p = 0.353	--	no
Efficacy in Instructional Strategies	6.9	7.7	p < 0.01	.59	yes
Efficacy in Classroom Management	6.9	7.4	p = 0.105	--	no

*Welch's t-test was used because of the very different sample sizes in each group. Caution should be used when interpreting these results as the post-test sample was very small.

PAX Next Steps Training provides professional development for PAX Teachers that focuses on extension and enrichment activities with a focus on trauma-informed care and tiered intervention. Figure 14 displays data from 476 voluntary respondents who completed the measure before and after PAX Next Steps training, detailing changes in their sense of efficacy. These results are also in consideration that teachers trained in PAX Next Steps face a potential ceiling effect in efficacy scores due to already seeing an increase in their scores with PAX GBG Initial training. Despite that, teachers trained in PAX Next Steps demonstrated a significant increase in efficacy and each of the subscales.

FIGURE 14

Paired Sample Test of Significance*	Pre-test Mean (n=81)	Post-test Mean (n=81)	Average of Differences	p-value	Effect Size	Statistically Significant?
OSTES	7.0	8.0	.96	p < .01	.79	yes
Efficacy in Student Engagement	6.8	7.7	.95	p < .01	.85	yes
Efficacy in Instructional Strategies	7.3	8.1	0.8	p < .01	.84	yes
Efficacy in Classroom Management	7.1	8.1	1.01	p < .01	.97	yes

*Data taken from matched pairs only.

CONCLUSION

Ohio Mental Health and Addiction Services (OMHAS) sponsored a 2-year scale up of the PAX Good Behavior Game (PAX GBG) and its related components as a part of the Ohio Cures initiative from 2017-2019. Based on this implementation and this evaluation, the following conclusions can be drawn in regard to the achievement of the stated aims.

Dramatically increase classroom PAX GBG implementations across the state. PAXIS Institute provided evidence-based training in universal prevention in the form of the PAX Good Behavior Game to 6104 new teachers across the state of Ohio affecting over 145,000 Ohio children each year.

Increase the capacity for Ohio-based training of PAX GBG and its related components. PAXIS Institute recruited and trained 11 new Ohio experts in education, mental health, and public health. These contractors helped to disseminate the evidence-based programming and its related components and will maintain relationships with PAXIS Institute and local and state entities to continue train professionals in PAX GBG.

Increase PAX Partner support for new and existing PAX GBG classrooms. PAXIS Institute provided PAX Partner training to 439 new educational/mental health support professionals to provide coaching and implementation to support to new and existing PAX GBG teachers and schools. PAXIS Institute provided PAX Heroes Partner training to 94 professionals already trained as PAX Partners

Develop a dynamic model for increasing internal capacity for PAX Partner support. PAXIS Institute developed and communicated frameworks for communities to recruit internal and external classroom supporters as PAX Partners. PAXIS also developed the PAX Sustainability training for remote areas or schools lacking capacity for internal or external support professionals.

Provide focused professional development for new and existing PAX GBG classrooms. PAXIS Institute provided professional development training for existing PAX GBG teachers in the form of PAX Next Steps to 733 teachers. This training improved implementation provided insight into the integration of PAX GBG with tiered intervention and trauma-informed care. PAXIS Institute also provided PAX Heroes Training to 502 teachers. This training improved implementation and provided focused strategies for students with severe behavioural difficulties.

Improve state-wide sustainability for PAX GBG implementation through webinars, regional leaders, and strategic planning. PAXIS Institute developed and will continue to maintain www.paxis.org to provide localized updates and outcomes of PAX GBG implementations across the state of Ohio in cooperation with local champions, partners, and other stakeholders. PAXIS Institute also established and will maintain monthly "Open House" webinars for any PAX-trained professionals for Q&A,

troubleshooting, and connecting with other local providers. PAXIS Institute also established and will maintain monthly PAX Partner Webinars with a focused topic for improving support, implementation, and sustainability for PAX Partners.

Grow from self-contained pockets of implementations into a network of state-wide implementers fostering collaborative support. PAXIS Institute connected various networks of support across sectors and communities throughout Ohio. These include Educational Service Centers, Mental Health & Recovery Boards, Health Care Networks, and Institutes of Higher Education. Each played a powerful, collaborative role in the initiative and created a blueprint for ongoing prevention and improved outcomes for Ohio citizens.

Increase the prevalence and influence of PAX GBG in Ohio pre-service education institutions. PAXIS Institute created collaborative partnerships with 4 Ohio universities. This will provide for ongoing research, evaluation, and pre-service prevention dissemination throughout the state of Ohio. PAXIS Institute also trained 217 pre-service teachers in PAX GBG.

FUTURE IMPLICATIONS

Based on the stated aims of the initiative, the state of Ohio and its various stakeholders benefitting from the effects and impact of an evidence-based universal preventive intervention should consider the following direction for the future of the health and success of the intervention.

Ohio and its communities should continue to train teachers in PAX GBG to improve Ohio children's behavioural, academic, and lifetime outcomes, including reduced addiction, psychiatric, and behavioural disorders, as well as improved graduation rates and standardized test scores.

Ohio communities should continue to develop support capacity for PAX GBG implementations by training professionals with internal and external classroom support capacity as PAX Partners.

Ohio schools should develop internal capacity by utilizing PAX Sustainability training, which provides strategies for administrators, counsellors, psychologists, teacher leaders, and others to contribute to the sustainability of PAX GBG within a school.

Ohio and its communities should continue to provide professional development training to teachers trained in PAX GBG through PAX Next Steps and PAX Heroes professional development training. These trainings improved classroom implementation and outcomes throughout the initiative and improved sustainability by providing strategies for integrating PAX GBG with current policy, such as tiered intervention/PBIS, trauma-informed care, social-emotional learning, early childhood education, and adolescent education.

Ohio and its communities should continue to utilize networks that support communication and collaboration in implementing PAX GBG throughout the initiative,

including Educational Service Centers, Mental Health & Recovery Boards, Health Care Networks, and Institutes of Higher Education. These networks can use www.paxis.org for updated local and state-wide training and implementation information.

Ohio schools and communities should utilize PAX Strategic Planning and Development training to generate local support from the various sectors to develop internal implementation sustainability.

Ohio and its communities should continue to foster emerging champions among stakeholders that can continue to develop channels of support for prevention in schools and in the community.

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