Imagine Texas,
when children’s mental illness is rare

Dennis D. Embry, Ph.D. president/senior scientist, PAXIS Institute;
Member, National Advisor, U.S. Center for Mental Health Services;
Scientific Advisor, Children’s Mental Health Network;
Board Member, National Federation of Families for Children’s Mental Health

www.paxis.org
Your presenter: Dennis D. Embry, Ph.D.—who started out in special ed.
If the Polio Epidemic of the 1950s happened today, there would be 6,000 deaths and 120,000 cases. How would we respond?
Remembering when America mobilized science for universal protection of children

The ROI was 3-to-1

What if we could reduce mental, emotional & behavioral disorders like this?

Future Dr. Embry
Country Club Apartments
7th Street Phoenix, 1956
Born 1976-1986

What behaviors do depressed adults attend to in kids?

These trends are not the result of over-diagnoses
The cost of Mental Disorders is increasing $1 billion per year.
The US had 75 million children and teens in 2009.

45.6 million kids had one psychotropic med in 2009.

60.8%

Wall Street Journal, 12-28-2010
What can we do practically? And quickly to better the odds?
ADHD on the rise in the U.S.

By Cindy George | September 7, 2018

Attention deficit hyperactivity disorder, known as ADHD, has nearly doubled over the last generation to include more than 10 percent of U.S. children, according to a recent study published in JAMA Network Open.
Several Texas Medical Center experts said the analysis confirmed the trends they have observed over the last two decades.

“It isn’t surprising that the number has gone up over time considering all of the factors involved,” said Adiaha I. A. Spinks-Franklin, M.D., MPH, a developmental-behavioral pediatrician at Texas Children’s Hospital and an assistant professor of developmental pediatrics at Baylor College of Medicine. “The results are very compelling. What the results show is what many of us in medicine have suspected for a long time—that the prevalence has gone up. We really didn’t have the hard-core national numbers to back that up. I wasn’t surprised when I read the study at all.”

She noted that the research was based on parent reports and not medical records.

ADHD is one of the most common mental disorders affecting children, according to the American Psychiatric Association, with symptoms including inattention, hyperactivity and impulsivity.
Created by parents, for parents..... Welcome!

A project of the Family to Family Network committed to providing accurate and consistent information to parents and families of students with disabilities.

Where do you start?
What age is your child?
### All Texas Public School Districts Including Charter Schools Receiving Special Education Services

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORTHOPEDIC IMPAIRMENT</td>
<td>3,593</td>
</tr>
<tr>
<td>OTHER HEALTH IMPAIRMENT</td>
<td>76,291</td>
</tr>
<tr>
<td>AUDITORY IMPAIRMENT</td>
<td>7,028</td>
</tr>
<tr>
<td>VISUAL IMPAIRMENT</td>
<td>3,884</td>
</tr>
<tr>
<td>DEAF/BLIND</td>
<td>310</td>
</tr>
<tr>
<td>INTELLECTUAL DISABILITY</td>
<td>56,886</td>
</tr>
<tr>
<td>EMOTIONAL DISTURBANCE</td>
<td>31,787</td>
</tr>
<tr>
<td>LEARNING DISABILITY</td>
<td>163,688</td>
</tr>
<tr>
<td>SPEECH IMPAIRMENT</td>
<td>107,668</td>
</tr>
<tr>
<td>AUTISM</td>
<td>71,951</td>
</tr>
<tr>
<td>DEVELOPMENTAL DELAY</td>
<td>25</td>
</tr>
<tr>
<td>TRAUMATIC BRAIN INJURY</td>
<td>1,325</td>
</tr>
<tr>
<td>NONCATEGORICAL EARLY CHILDHOOD</td>
<td>7,553</td>
</tr>
</tbody>
</table>

**Total:** 531,989 Texas children needing special education.

What if a simple procedure reduced the need for special education by 25%?
Texas needs to find up to $3.3 billion to bring special education services up to national standards
An audience conversation

• How are these trends affecting teachers?
• How are these trends affecting families?
• How are these trends affecting everyday life in Texas?
• How will these current trends affect the future of Texas and our country?
• How do we fix the situation?
May I tell you story?

It is a story of a promising path for our futures.

How open minded are you about increasing peace, productivity, health and happiness in Texas classrooms, schools & communities?
Stopping the 3rd leading cause of death preschool age children…
An unusual request from the Secretary of Defense
Give Peace a Chance
Psychologist Dennis Embry helps to transform schoolyard bullies into angels

His program "doesn't just teach" troublemakers good behavior, says Embry (outside a Salinas, Calif., school). "It makes it happen."
Yes, do something about school shootings
Shepard Kellam
A scientist and psychiatrist

Muriel Saunders
A 4th Grade Teacher
Demonstrating real promise of protection from generational pediatric epidemics

Salk Vaccine proven to express polio antibodies.

2009 IOM Report confirms prevention of Mental, Emotional & Behavioral Disorders.

Two highly proven, scalable strategies cited:

✓ PAX Good Behavior Game
✓ Triple P (Positive Parenting Program)
Development and provision of the pilot program training and materials were funded by resources provided by the New York State Education Department.
What qualities and experiences would you want to pack in your students’ suitcase for life?

What would you want to keep out of their suitcases?
There are 393,000 First Graders in Texas
Watch PAX in action in a full Title I Classroom in very diverse 5th San Francisco Classroom for 45 minutes
How does one design a classroom environment to produce desired outcomes?

Probability of Two Behaviors in a Classroom in this Community

\[
\frac{k^* r_{p_A}}{(r_{p_A} + r_v)} = \frac{k^* r_{p_B}}{(r_{p_B} + r_v)}
\]
National, state, and local authorities instruct ALL teachers to reinforce PAX behaviors once per minute. What will be the rate per hour of reinforcements for PAX & Spleems? But, each student reinforces Spleems 1x per minute, and almost never reinforces PAX.

What will be the rate per hour of reinforcements for PAX & Spleems?

**Differential Probability/Ratio of PAX and Spleems in a Classroom**

A = Spleem Behaviors

\[ - \quad 96.1 \quad \text{Percent} \]

B = PAX Behaviors

\[ 3.84 \quad \text{Percent} \]

\[ \text{Percent} \]

\[ \text{Percent} \]

\[ 60 \]

\[ 60 \]

\[ 60 \times 25 \]

\[ 1,500 \]

\[ 1,500 \]

\[ 3.84 \]

\[ 96.1 \]
3-Month Impact of PAX in Eight US School Districts on Disturbing, Disruptive, and Inattentive Behaviors Per 15 minutes


PAX Kernels and Language PLUS using PAX Game 3-Times Per Day Optimize Learning

(Note: Site 7 had staff changes who were not fully trained in PAX GBG)
Reduced Risk Probability for Psychiatric Disorders
Improved environment and fewer problematic behaviors reduces risk of mental, emotional, behavioral disorders
Improvements on Standard Measures of Academic Progress in Six Districts in High Poverty Schools in Ohio

Source: Weis, Osborne, & Dean, 2015

The statistical difference favoring PAX GBG is highly significant (greater than 1 chance in 1,000).
PAX GBG has large impact on multiple forms of ACEs both in the present and in the future—with intergeneration trauma.
What if Texas replicated the Hopkins results for first and second graders?

How would these outcomes change Texas?

What if this happened for every 1st grade cohort?

How do these results make students, teachers, families and Texas communities mentally and physically healthier?

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**Predicted Benefits of PAX GBG in Your School, District, Tribe or Community When First Grade Students Reach Adulthood After 1-2 Years of PAX GBG Exposure**

| Site Estimate for: All First Graders in Texas | Enter number of First Graders
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>393,000</td>
<td>&lt;&lt;&lt; Enter number of First Graders</td>
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</table>

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Benefit Description</th>
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</thead>
<tbody>
<tr>
<td>33,806</td>
<td>Fewer young people will need any form of special education services</td>
</tr>
<tr>
<td>21,874</td>
<td>More boys will likely graduate from high school.</td>
</tr>
<tr>
<td>26,249</td>
<td>More boys will likely enter university</td>
</tr>
<tr>
<td>34,881</td>
<td>More girls will likely graduate from high school</td>
</tr>
<tr>
<td>27,257</td>
<td>More girls will likely enter university</td>
</tr>
<tr>
<td>3,818</td>
<td>Fewer young people will commit and be convicted of serious violent crimes</td>
</tr>
<tr>
<td>37,783</td>
<td>Fewer young people will likely develop serious drug addictions</td>
</tr>
<tr>
<td>25,852</td>
<td>Fewer young people will likely become regular smokers</td>
</tr>
<tr>
<td>13,920</td>
<td>Fewer young people will likely develop serious alcohol addictions</td>
</tr>
<tr>
<td>19,061</td>
<td>Fewer young women will likely contemplate suicide</td>
</tr>
<tr>
<td>25,852</td>
<td>Fewer young men will likely attempt suicide</td>
</tr>
</tbody>
</table>

- **$5,116,860,000** Predicted financial net savings to students, families, schools, communities, state/federal governments
- **$23.67** Estimated Cost of PAX GBG Materials Per Child for Lifetime Protection
- **$22.00** Estimated Cost of External Training & Technical Supports Per Teacher Prorated per Child’s Lifetime
- **$26.80** Estimated Cost of Internal Supports for Implementation and Maintenance by Teachers Prorated per Child’s Lifetime
Introducing Mike Muempfer, A PAX Teacher, PAX Coach, PAX Presenter and PBIS leader

Predicted Benefits of PAX GBG in Your School, District, or Community When First Grade Students Reach Adulthood After 2 Years of PAX GBG Exposure*

<table>
<thead>
<tr>
<th>Site Estimate for:</th>
<th>Any three classrooms here today who use PAX GBG faithfully</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter number of First Graders at school, district or community&gt;&gt;&gt;</td>
<td>75 &lt;&lt;&lt; Enter number of First Graders</td>
</tr>
</tbody>
</table>

6. Fewer young people will need any form of special education services
4. More boys will likely graduate from high school.
5. More boys will likely enter university
7. More girls will likely graduate from high school
5. More girls will likely enter university
1. Fewer young people will commit and be convicted of serious violent crimes
7. Fewer young people will likely develop serious drug addictions
5. Fewer young people will likely become regular smokers
3. Fewer young people will likely develop serious alcohol addictions
4. Fewer young women will likely contemplate suicide
5. Fewer young men will likely attempt suicide

<table>
<thead>
<tr>
<th>$976,500</th>
<th>Predicted financial net savings to students, families, schools, communities, state/federal governments</th>
</tr>
</thead>
<tbody>
<tr>
<td>$23.67</td>
<td>Estimated Cost of PAX GBG Materials Per Child for Lifetime Protection</td>
</tr>
<tr>
<td>$22.00</td>
<td>Estimated Cost of External Training &amp; Technical Supports Per Teacher Prorated per Child's Lifetime</td>
</tr>
<tr>
<td>$26.80</td>
<td>Estimated Cost of Internal Supports for Implementation and Maintenance by Teachers Prorated per Child's Lifetime</td>
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*Based on research and studies.
These are outcomes from the principles of sketched by Ostrum. And these type of outcomes are likewise forecast from from variety of development psychology studies, when children are exposed to prosocial peers for an extended period of time. These are outcomes at age 19-21. We now have three public health outcome studies.

The model has been scaled to 40K teachers (1 million children) in multiple states/provinces, and countries.
Epigenetic mechanisms

Mental, Emotional, Behavioral, Physical Illnesses

Inspirational Credit: Clyde Hertzman
None of this was possible scientifically 20 years ago.

Now it is possible and less expensive than brain scans, and less invasive. Just a spit sample works in most cases.
How could this savings be used to benefit of the children, families, schools, communities, businesses and the state?

Ask a child, “Who are you?”

“I am…”
εγώ είμαι (ancient greek)

“I belong…”

What if every child could better the world?
PAX Good Behavior Game may not be for you, but you may know another teacher who might be interested in using PAX. Texas is supporting widespread implementation of PAX GBG.

www.paxis.org
www.GoodBehaviorGame.org

Read the science at www.pubmed.gov
PAX Good Behavior Game has been implemented in more than 45,000 classrooms in the US, Canada, and Europe • Here is the Canadian story…