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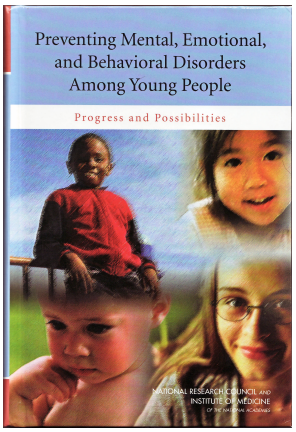
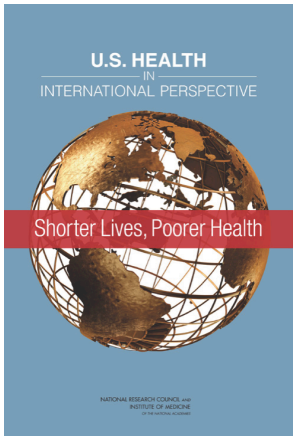
Taming the Epidemic: The Possibility of Protecting All American Children, Youth and Adults from Lifetime Mental Illness & Violence



The horror of violence to self and others keeps grabbing the Nation's attention and worry. Fortunately, the 2009 Institute of Medicine Report (IOM) on the *Prevention of Mental, Emotional, and Behavioral Disorders Among Young People* [1] makes it clear that the United States posses the world's knowledge store for how to protect against, prevent, reduce or avert those mental, emotional, behavioral and related physical disorders quickly and cost effectively—including violence and suicide [1].

How powerful is that knowledge store? It is factually possible to reduce acts of violence against others and self by 20% to 25% in less than a decade—without any reference to gun control.



Why haven't our nation's leaders heard of this? In part because many solutions are so simple that many say, *"That's impossible."* Another reason is because the strategies are so low-cost that no one can afford to pay the herds of lobbyists to roam the houses of power, and there is much more money to be made by NOT solving the problem.

This document lays out proven ways to reduce the horrific fiscal and emotional burden of these problems spread every department or agency of federal, state or local government in America as well as virtually every family or business in our country.

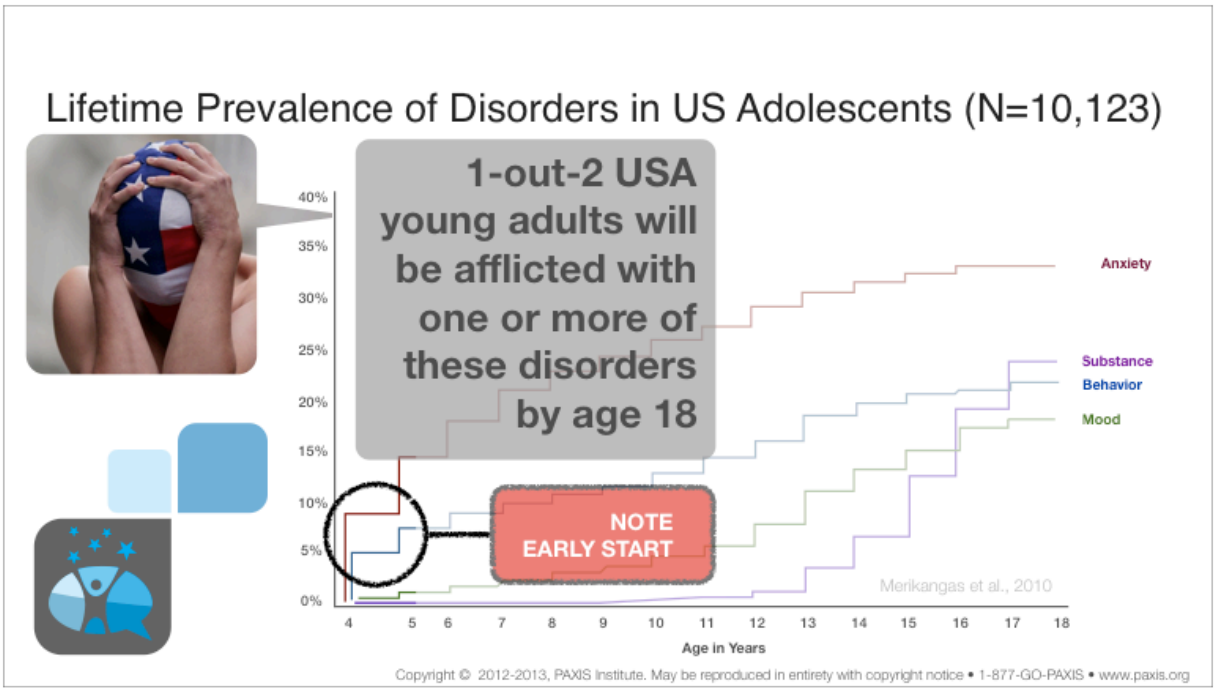
America funds and creates this body of science, but the other 17 rich democracies are using more of that science as the 2013 IOM Report entitled, *U.S. Health in International Perspective: Shorter Lives, Poorer Health*, shows Americans from every age—birth to old age—have poorer health and die earlier that our rich, democratic competitors (http://bit.ly/AmericanShorterLives).

Reducing access to weapons will not significantly reduce the prevalence of underlying epidemic of mental illnesses and related health or behavioral in the United States that drives people hurt others or themselves. But keeping guns from young people and adults with such disorders can reduce both homicides and suicides, base on well-constructed international comparisons (*IOM, 2013*).

The U.S. sickness and death disadvantage spans many types of illness and injury. When compared with the average of peer countries, Americans as a group fare worse in at least 10 health areas:

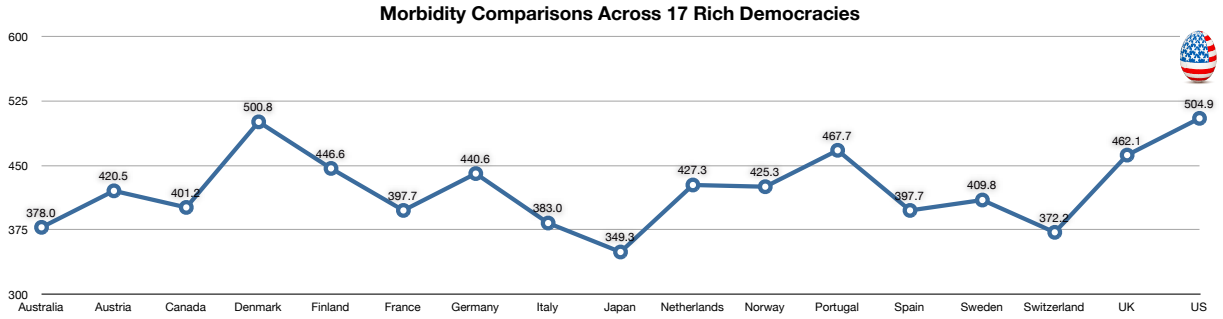
1. Neuro-psychiatric disorders
2. Infant mortality and low birth weight
3. Injuries and homicides
4. Adolescent pregnancy and sexually transmitted infections
5. HIV and AIDS
6. Drug-related deaths
7. Obesity and diabetes
8. Heart disease
9. Chronic lung disease

How serious are America's mental and emotional and behavioral disorders, the national longitudinal study of adolescence shows that 1-out-2 will have or have had such disorder by age 18.



Many of these conditions have a particularly profound effect on young people, reducing the odds that Americans will live to age 50. And for those who reach age 50, these conditions contribute to poorer health and greater illness later in life. With the nation moving to just two adults of working age against every one retired baby-boomer, this excess morbidity and mortality threatens our futures as a fast-moving metastatic fiscal and social epidemic.

The 20-to-40 year rise in mental, emotional, behavioral and related physical disorders documented by the Institute of Medicine are the *root cause* of the health care and other costs or burdens to American society such as educational success of all children, public safety, illegal drug trade, mission readiness of our armed services, small business competitiveness, and budget deficits or challenges at every level of government.



This document, therefore, outlines specific executive orders or legislation (large and small) that federal, state, or local entities might be able to do lessen both these predictive disorders AND related risk of violence to other and self, as well as have major impact to reducing the chronic and rising expenditures related to these mental, emotional, and behavioral disorders including the

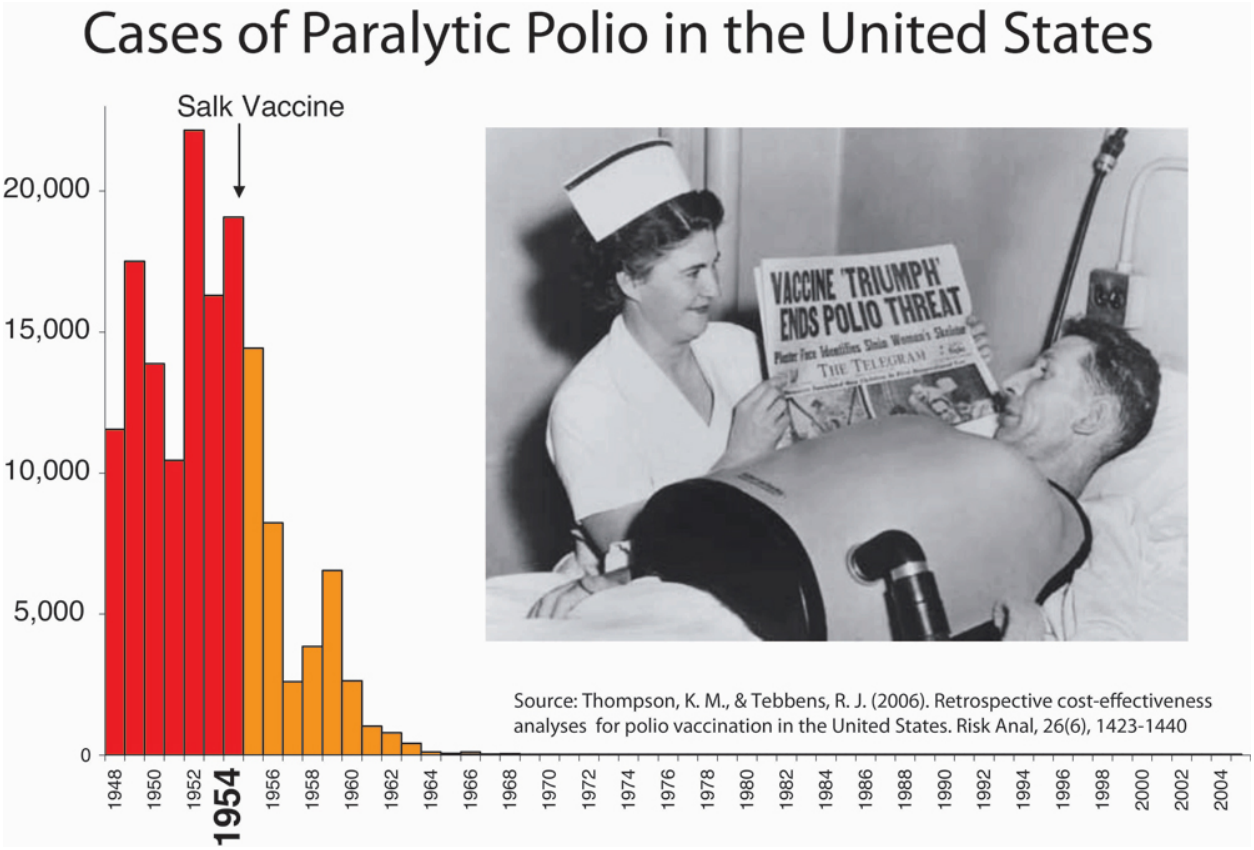
impact on both violence against others and self. This paper uses one example as a working illustration that could unite the country in common cause to protect the future of all Americans.

The same strategy, as outlined, also significantly reduced major causes of disability and death. The recommendations are designed to achieve rapid results and/or return on investment. This document presents cursory scientific rational, for each possibility, which can be expanded greatly. Some important points emerge:

1. None of the policy suggestions involve issues of the Second Amendment.
2. The suggestions involve actions that every community can undertake, and strengthen individual responsible actions.
3. The suggestions do not involve new money, rather redirection of existing funds to more tested-and-proven strategies.
4. The suggestions will help reduce national, state and local entitlement expenditures more rapidly—but without harming individuals, families, or communities—particularly those with historic disparities.

Taming Past Epidemics: Recalling the Response to Polio in the 1950s

Many reading this will recall the polio epidemic of the 1950s, when 3,000 people died and 60,000 cases of polio ravaged the country, and struck fear in families. And then there was the news of the largest protective vaccination trial ever undertaken in the world lead by Dr. Thomas Francis, testing thing Salk Vaccine [2] among over 1 million children. The vaccine was effective [3], but did not work for all children depending on the type of polio, yet the vaccine did confer "herd immunity."



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Once children all over America started to receive the Salk vaccine in 1955, the prevalence of polio plummeted—by 1961 there were less than 200 cases. By 1978, polio was gone from America. How did this happen? The polio field trials involved approximately 1,830,000 children in 217 areas of the United States, Canada, and Finland. More than 20,000 physicians and public heath officers, 40,000 registered nurses, 14,000 school principals, and 200,000 volunteer workers helped test the safety and effectiveness of Jonas Salk's polio vaccine [4].

How much did this cost? In current dollars, the United States invested more that $35 billion to eradicate polio from America between 1955 and 2005, and will spend $6.3 billion between 2006 and 2015 to keep polio at bay in the U.S. [4]. Probably no living adult today in North America would deny that it was worth the money.

What if the United States had the practical prevention science like the polio vaccine to reduce mortality and morbidity of multiple mental, emotional, and behavior disorders for less per child than common vaccinations like mumps, measles, varicella, and rubella (MMVR)? Well, America does.

Gun Violence Prevention Task Force

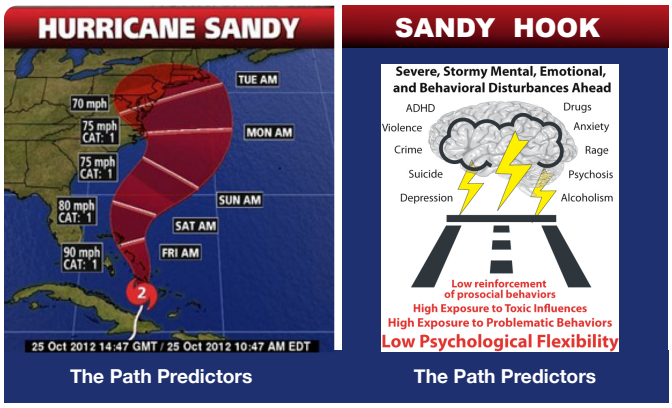
The taskforce—chaired by Congressman Mike Thompson—has proposed major charges that are not gun-related:

- **Support initiatives that prevent problems before they start: Local communities should have assistance in applying evidence-based prevention and early intervention strategies that are** designed to prevent the problems that lead to gun violence before those problems start.
- **Close the holes in our mental-health system and make sure that care is available for those who need it:** Congress must improve prevention, early intervention, and treatment of mental illness while working to eliminate the stigma associated with mental illness. Access to mental health services should be improved, the shortage of mental health professionals should be addressed, and funding should be made available for those programs that have proven to be effective.
- **Address our culture's glorification of violence seen and heard though our movie screens, television shows, music and video games:** Congress should fund scientific research on the relationship between popular culture and gun violence, while ensuring that parents have access to the information they need to make informed decisions about what their families watch, listen to, and play.

This document addresses those changes with simple, scientifically proven strategies that can be quickly deployed across America to achieve rapid results to protect the Nation's future.

Prediction Makes Protection and Prevention Possible

Many make a policy error that major events like Tucson and Sandy Hook are unpredictable. They are predictable—just like the path and damage of hurricanes are significantly predictable, but not exactly which homes or persons will be harmed. In the case of Hurricane Sandy, nobody could



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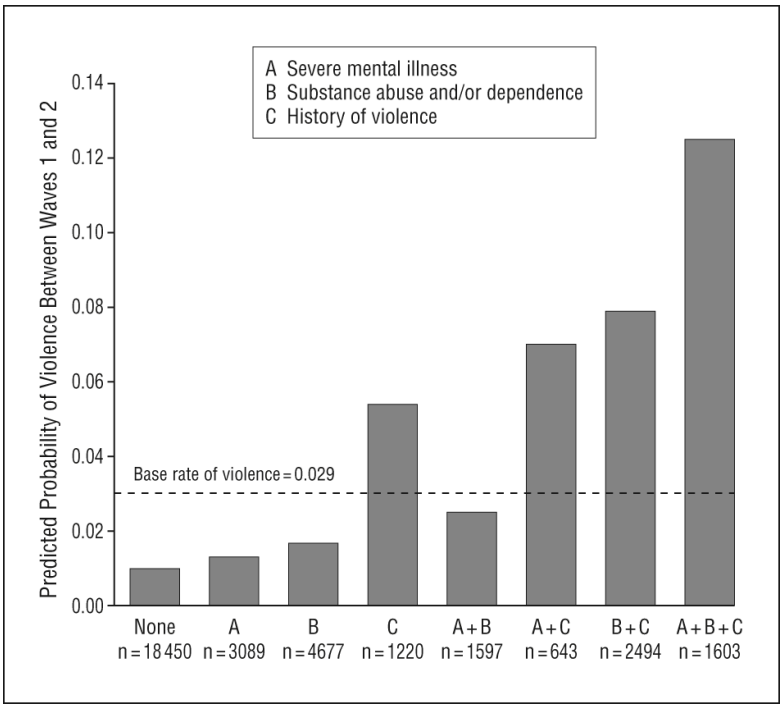
say for sure which house or person might be damaged by the storm. The forecasters could say, with precision, which places and people were in the dangerous path. In the case of every major act of violence, we now have robust preventable predictors. If prediction is possible, then protection is possible.

Homicide and Suicide are more common in the United States than other rich democracies. The events of Tucson, Aurora, and Sandy Hook raise the question of the relationship between mental or behavioral disorders and violence against others, self or both. The answer is not black and white, but it is not many shades of grey either.

Typically combinatorial histories of aggression from childhood or adolescence or both; substance abuse disorder (including marijuana or alcohol); and severe mental illness significantly increase the risk of violence [5], as shown in the figure from a study of 34,653 persons [5]



The core findings of this study are widely replicated [6-10]. Early psychosis—which is clearly evident in from events in Tucson and Aurora—especially with substance abuse—greatly elevate the risk [7, 9]. At the heart of issue appears to be loss of executive function and increased impulsivity [10], coupled with a prior habit of aggressive behavior worsened by substance abuse. Severe mental illness alone is not predictive of violence, but severe mental illness, with a history of aggression or substance abuse is. The combination of all three is the worst.

Preventing Any First or Serious Instance of Mental Illness, Aggression and/or Substance Abuse

The 2009 Institute of Medicine Report [1] clearly shows the practical prevention science exists to avert that early aggression history, risk of substance abuse, most mental illnesses, and even psychosis [11, 12]. The most proven strategy is a behavioral vaccine—like hand washing, using seatbelts, or brushing teeth. That behavioral vaccine is called, the Good Behavior Game [13]—which was tested among First Graders, and following them for twenty years [13-20]. There could be no more fitting to the lost children and their caring adults than something that might protect whole generations for first graders.

The Good Behavior Game is not a program; it is a daily practice that teaches children self-regulation, impulse control, how to reduce aggression and how to cooperate with peers during normal classroom activities in First Grade [13, 21]. What does this daily practice do 15-20 years later? This summary chart from the longitudinal study shows lifetime protection for the troika of lifetime problems predictive of serious violence: poor impulse control or poor executive function, alcohol/drug use, and chronic aggression [15] in the table below.

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Table 1: Long Term Protective Outcomes of the Good Behavior Game

First graders exposed to GBG for one year had these benefits at age 21.

OUTCOMES	STUDENT GROUPS	GBG CLASSROOM	STANDARD CLASSROOM
Drug abuse and dependence disorders	All males	19 percent	38 percent
	Highly aggressive males	29 percent	83 percent
Regular smoking	All males	6 percent	19 percent
	Highly aggressive males	0 percent	40 percent
Alcohol abuse and dependence disorders	All males and females	13 percent	20 percent
Antisocial personality disorder (ASPD)	Highly aggressive males	40 percent	100 percent
Violent and criminal behavior (and ASPD)	Highly agressive males	34 percent	50 percent
Service use for problems with behavior, emotions, drugs, or alcohol	All males	25 percent	42 percent
Suicidal thoughts	All females	9 percent	19 percent
	All males	11 percent	24 percent

SOURCE: Kellam, S. G., Mackenzie, A. C., Brown, C. H., Poduska, J. M., Wang, W., Petras, H., & Wilcox, H. C. (2011). The good behavior game and the future of prevention and treatment. *Addict Sci Clin Pract, 6*(1), 73-84.

Read this and other studies about the Good Behavior Game at www.pubmed.gov

Case Specific Cost-Effectiveness of Early Prevention of Mental, Emotional & Behavioral Disorders

What is the cost effectiveness of this strategy to avert all of these costly social and health problems, which also predict protection against homicide and mass murders? There are multiple cost-effectiveness estimates published on the Good Behavior Game [22, 23]. The most conservative assessment is by the Washington State Center for Policy Research [22]. Using those numbers, one can estimate the cost-effectives for an estimated annual cohort of 4,000,000 grade one children each year in the United States.

All Inclusive Cost of Delivering Protective Behavioral Vaccine per U.S. child:	$150.00
Annual Number of U.S. First Graders to Be Protected:	4,000,000
Total Cost of Protect Each Entering U.S. First Grade Cohort for Lifetime:	$600,000,000
Average Net Savings from the Multiple Adverse Outcomes Per Child:	$4,367
Estimated Total Net Savings per U.S. First Grade Cohort at Age 21	$17,468,000,000
Return on Investment (ROI) Per U.S. First Grade Cohort at Age 21	**29.1** to **1**

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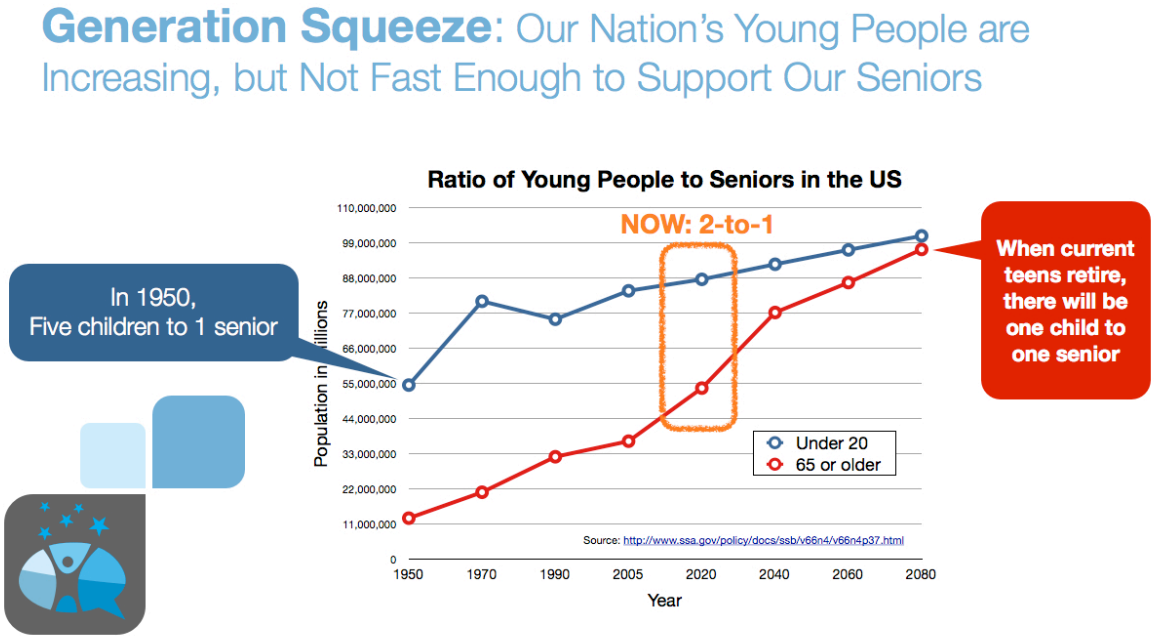
Economic Security and Long-Budgetary Implications of Early Prevention of These Disorders

Each mental, emotional, behavioral and related physical disorder acquired during childhood or adolescence has very large economic security and budgetary consequences for the United States, as there are the costs of doing things and the cost of not going things in public policy. Consider the graph below showing what is called, "The Generation Squeeze."



Current epidemiological data previously shown that 1-out-of-2 young people will have had, at least, one major mental, emotional, or behavioral disorder. These disorders are not benign to lifetime earnings, lifetime savings, lifetime tax incomes for all levels of government, for consumer spending, or ability to fund retirements and to avoid dependency on government programs. Consider these examples:

- Childhood psychological conditions including depression and substance abuse are a growing concern among American children, yet only recently have the long-term costs to the individual and his or her family been computed using generally accepted methods [24]—specifically on the ability of affected children to work and earn as adults. Here is what the authors conclude:

  "Educational accomplishments are diminished, and adult family incomes are reduced by 20% or $10,400 per year with $18,000 less family household assets. Lost income is partly a consequence of seven fewer weeks worked per year. There is also an 11% point lower probability of being married. Controlling for physical childhood diseases shows that these effects are not due to the co-existence of psychological and physical diseases, and estimates controlling for within-sibling differences demonstrate that these effects are not due to unobserved common family differences…The long-term economic damages of childhood psychological problems are large¬a lifetime cost in lost family income of approximately $300,000, and total lifetime economic cost for all those affected of 2.1 trillion dollars."

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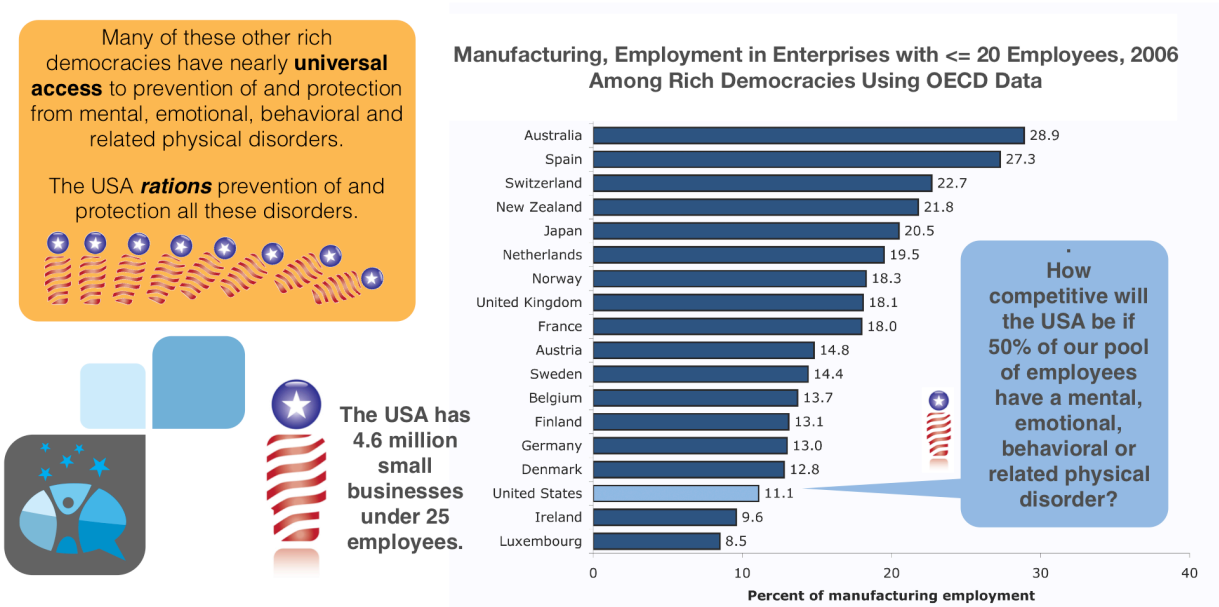
- The notion that 1-out-2 American young people will have a preventable mental, emotional, or behavioral disorders that will cause them to miss work, not be as stable, and probably not attain as much high-quality education and related skills has profound consequences for America's already withering small businesses—compared to rich democracies who are using many of the prevention tools that were invented and tested in the America, but being broadly used for their populations yet rationed in America.

Key message about global competition…



The implications of the above two bullets is inexorable in light of the generation squeeze in America for the cost of NOT acting to prevent early mental, emotional, behavioral, and related physical disorders:

1) Every business in America will have less talent to draw from for productive, healthy employees, leaders and innovators.
2) Every business stands to have fewer customers (directly or indirectly) with resources to buy products and services in America.
3) Every business in America will be less able to compete with the other rich democracies who NOT rationing universal access to prevention for mental, emotional, behavioral and related physical disorders.
4) Economic disparities will increase, and overall family income will fall relatively faster in America because of the excess morbidity and mortality compared to the other rich democracies.
5) Every American community will be less safe directly from the prevalence of the disorders, and indirectly because decline in resources to assure health and safety.
6) The Generation Squeeze may become generational conflict for survival.

Thus there is no economic reason to delay action to protect the current and future generations.

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Reducing Severity of Current Mental Illness, Aggression and/or Substance Abuse

What many do not know is that it is possible to reduce existing aggression, serious mental illness symptoms, and serious substance abuse using scientifically proven, cost-effective strategies rapidly without the use of psychotropic medications or coercive measures. We bring to attention three of these strategies with robust science yet miniscule implementation in America.

- *The Prize or Fish Bowl Reinforcement Strategy*. The "Fish" or "Prize" Bowl is perhaps the *single-most proven strategy* to reduce substance abuse disorders in the world, with the bulk of the research on it funded by the National Institute on Drug Abuse [25-44], and the studies on this technique span more than 15 years and the more basic science for more than 30 years. The operational principle involves individuals or groups earning random, variable valuable "prizes" for engaging in being clean and sober plus recovery or treatment related behaviors. A causal observer would say this is "drug court" without "drug court"; the strategy can be used in any community context—without drug court—successfully for both substance abuse and co-morbid mental or behavioral health problems. The strategy works well with adults and adolescents. While the Federal Government has paid handsomely for this strategy that can be learned from a simple, low-cost manual available at Amazon [25], a whole tangle of rules and regulations prevent this strategy from being widely used. Additionally, payments for treatment at community levels are based typically on time in treatment rather than recovery and engagement in in a clean, sober and successful life. The policy and recommendation section. *[Note: PAXIS Institute does not publish the manual for this intervention, but has promoted and given training on the use of the intervention as well as delivered services using the intervention.]*
- *Psychosis, Aggression & PTSD Prevention Strategy*. Psychosis, PTSD, and histories of impulsive aggression or personality disorders significantly elevate risk of homicides, suicides, or the especially lethal combination of both that characterizes many of the recent mass shootings. The National Institute on Alcohol Abuse and Alcoholism has lead the way on both epidemiological [45-50] and intervention research [51-54] using high-cost effective strategy, omega-3 fatty acid. Correct formulations of omega-3 reduce borderline personality disorder [55], prevents first episode psychosis [12], reduces suicidal or serious violent behaviors [49, 50, 56-58] including among U.S. military service members [59]. Also, Grandmother's Nostrum, omega-3 (aka Cod Liver Oil from the past), has evidence of reducing or ameliorating multiple mental, emotional, behavioral, and related physical disorders with no appreciable side effects [60-66]. *[Note: Neither PAXIS Institute or any of its staff derive any income from any omega-3 product, though PAXIS has advised on selected studies of omega-3 including the trial presently being conducted by NIAAA in cooperation with the Department of Defense.]*
- *Significantly Reducing Relapse from Psychosis*. Psychosis is one of the most hazardous states of a major mental illness—both in terms of safety of the patient and safety of others. Once a psychosis has happened, the probability of relapse is quite high—even with medications. Standard cognitive-behavioral therapy (CBT) has therapists teach patients who have psychosis a variety of "thought-stopping" strategies; whereas Acceptance and Commitment Therapy (ACT, which is 3rd generation version of CBT, essentially teaches patients to just notice the thoughts, feelings, and sensations without investing any effort to stop them or argue about their "believability" [67-69], or as the authors said: teaching patients to *"…focus on actions directed toward valued goals; and to defuse from odd cognition, just noticing thoughts rather than treating them as either true or false"* [70, 71]. The ACT intervention took a modest about of time, but cut psychosis and readmission relapse by half 180 days [70] and by about 80% a year later [71]—with both CBT and ACT groups having the same level of medication compliance. This ACT strategy should be widely defused for emergency

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room personnel, crisis teams, and for any clinician treating chronically or severely mental ill. Training, incentives and differential reimbursement for implementing this superior protocol could have a rapid impact across the country on the use of costly emergency services, reduce utilization of expensive crises care, increase public safety and personal safety of the affected persons, and improve multiple cost and wellbeing indicators for less money than currently spent. [Note: PAXIS Institute staff have authored articles with the major scientist behind the creation of ACT].

Universal Protection for America's Children Against Mental, Emotional, and Behavioral Disorders—Including Violence

What history does the United States have for dealing successfully with an epidemic among its children? The most remarkable is the push to contain and control polio. There are lessons to be applied today for rapid translation from science to practice [72]. It is important to mention that only six years elapsed from 1949 of the "two key scientific discoveries were made that allowed for the development of Salk's polio vaccine and by the summer of 1955 the vaccine was in mass production and available to the public" [72], including the largest clinical trial ever undertaken by Dr. Thomas Francis and his team.

The Polio Trials

When the United States faced the Polio Epidemic, the passion of leaders like the March of Dimes funded Jonas Salk's study of some 7,000 children that proved that protection from and prevention of polio [3, 73]. Salk's was an incredible study, yet the question was whether that science could be moved to practice at a national scale, thereby solving the epidemic crisis and protecting the population from paralytic polio. And there was the issue of potential bias, could the study results have been the work of an eager-beaver scientist and foundation that wanted the world's attention. Thus, it was clear that a larger, randomized field trial with a more complex design would required and run by a independent investigative team. Thus, Dr. Thomas Francis was recruited to lead this new study involving 1.8 million school children from some 217 sites across the U.S. [73] Tens of thousands people volunteered to help implement this field trial, aiding the staff of 100 scientists and assistants who were collecting and analyzing data when there were only punch cards, no personal computers, hand-crank calculators, and lots of number 2 pencils. Then the results were announced [72]

> *On April 12, 1955, the results of the 1954 Field Trials were released to the public at a national press conference at the University of Michigan. The vaccine was shown to be virtually as safe as placebo. In areas of the US where the trials were conducted, the incidence of paralytic polio dropped by nearly 20% compared to previous years while there was little change in the incidence of paralytic polio in other parts of the country. The vaccine demonstrated a 72% effectiveness against paralytic polio in the placebo controlled trial. Within days, five pharmaceutical companies mass-produced the vaccine and vaccination clinics were quickly organized nationwide.*

Note that the vaccine was not perfect, but as the earlier graph shows: America was on its way to eradicating polio.

The Proposed Good Behavior Game Field Trial to Protect America's Young People

The Good Behavior Game was invented by a 4th grade teacher, and its first scientifically proven effects were published in 1969 [74]. Forty-four years later, there are more than 60 published studies on GBG and variations, with more in process showing the benefits and the limitations of the

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practice [13-19, 75-92]. Good Behavior Game (GBG) has probably the most convincing results across cultures [91]. These have been efficacy trials, proof that it works—but not necessarily whether it is scalable in the real world.

Since early 2010, there has been growing evidence that a version of the game, called the PAX Good Behavior Game,* is highly scalable in multiple tests across about 25,000 primary grade students in the U.S. and Canada. The Substance Abuse and Mental Health Administration has funded 30 sites all across the United States to use PAX GBG—which is an enhanced version of GBG designed to make it easier to implement and more reliable in producing both immediate and medium-term results [13]. This implementation uses a continuous improvement model of monitoring both immediate impact and processes to tweak impact. For example, the initial demonstration study in Canada with 12 whole schools showed a 45% in the classrooms behaviors that predict lifetime risk of multiple, mental, and emotional disorders in the span 10 weeks (REF). In a recent rapid scale up for eight school districts across the country supervised by the Education Development Center, those show major impact in 185 classrooms out of 186 in the span of three months. These immediate effects are metaphorically analogous to the production of antibodies against polio, signaling there is likely longer-term protection. A report soon to be presented to the Cabinet of the Government of Manitoba on an independent effectiveness trial of approximately 5,000 first graders shows significant protection against multiple clinical indicators of future mental, emotional, and behavioral disorders.

With the historic trials at Johns Hopkins, replications beginning in 1999 through the present, and new experimental studies and actual implementation trials across some 50,000 children, it is clear that there is a robust, practical possibility of protecting against, averting and preventing lifetime mental, emotional, and behavioral disorders among America's current and future generations of young children.

As the President said, *"The Time Is, Now."* The question is, what *NOW* should we do? The best answer is: a rapid, national field trial rather like the landmark national U.S. of 1.8 million children to protect them against polio, direct by Thomas Francis using the Salk vaccine. Here are suggested general parameters in two phases:

Phase 1:

The purpose is to demonstrate rapidly that important prevention indicators can be rapidly improved, and to show that it can happen in every state, many diverse communities while creating buy-in among multiple silos of state governments and relevant implementation and evaluation infrastructure for Phase 2 event involving an estimated 1,000, 000 children.

Table 2: Early Wins Demonstration and Infrastructure Building in Every State and Selected Tribes

Phase 1 Action	Rationale
1. Invite states and tribes to implement a small waitlist control study of 30-40 classrooms (Grade One or Grade One Combos) as proof of concept for each political jurisdiction that it might work there.	*Every region in America needs to be represented, since there is no community that is immune just like no community was immune from the polio epidemic. Each successful application would receive approximately $250 to $500K for 24 months.*

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Phase 1 Action	Rationale
2. Successful applicants would have to have MOU's or similar endorsements across government agencies of Education, Health (Medicaid, physical, substance abuse, mental health), Justice, appropriate heads of legislative committees, and the Governor's Office. The MOU would involve a commitment from a private donor or business in their impacted area, as well as a media co-sponsor.	*This is part of the social marketing and policy development about the depth of the epidemic of mental, emotional, and behavioral disorders to breakdown the silos, so that warring factions come to see they are in the same lifeboat for the future of their state or tribe. Additionally, the involvement of a private donor or business plus local media de-stigmatize and mobilize the effort.*
3. Successful applicants would have to have qualified evaluation/research partner in their political jurisdiction.	*The aim here is to build state's/tribes capacity to engage in the larger trial, as well as to build capacity for local research that would advance the effectiveness of the interventions nationally and locally, better meeting unique needs that may exist across the country.*
4. Successful applicants would form an advisory panel to review and make recommendations and comments processes, measures, and outcomes achieved locally.	*This input would be of great assistance in preparing for a much larger field trial, and would allow for the better identification of strategies that might enhance primary effects that could be tested in a larger trial.*
5. Successful applicants would collect not only primary outcome data but also implementation data. Additionally they would be required to document social validity with recorded interviews with teachers, children and families.	*With local video examples, promotion, training and recruitment of sites in the political jurisdiction will be significantly better. Further, the jurisdictions will have greater pride and investment.*
6. Success applicants and their teams would become part of a learning community across North America implementing these procedures.	*This will provide for rapid learning of needed adaptions or interfering problems, for which solutions can be co-created quickly.*
7. Successful applicants would be required to provide pooled data for a meta-analysis across sites, and submit their study to a peer-reviewed journal.	*This will greatly increase the internal and external validity of the effort to prevent mental, emotional, and behavioral disorders—as these are systematic replications across the USA.*

The estimated cost of Phase 1 is $30 to $45 million, over the course of 18-24 months. It is suggested that each site in state or among the Federally Recognized Tribes dedicate their project after a grade one child who lost his or her life as the result of community-level violence that this major effort is attempting to pioneer universal protection from.

Phase 2:

The purpose of Phase 2 is to test the main preventive effects and factorial innovations that might improve effectiveness of a universal behavioral vaccine to protect America's children from morbidity of mental, emotional, and behavioral disorders using some of America's finest preventive strategies.

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Phase 2 represents a significant investment, just as the nearly $18 million did in 1953 by the March of Dimes for the Salk Vaccine across 1.8 million children, directed by Dr. Thomas Francis. Today that trial would easily cost $200 million. The estimated cost of the national field study to protect America's children is $275 to $320 million, since the implementation of the protective behavioral vaccine is more labor intensive than 2-3 vaccination shots that can be mobilized *en masse*.

Table 3: National Field Trial to Protect All Children From Mental, Emotional, and Behavioral Disorders

Action	Rationale
1. Lessons learned from the smaller effort will be incorporated in the solicitation, implementation, measurement, and innovations.	*This provides for learning and responsiveness to regional or local needs, as well as learning from the difficulties that may be been experienced earlier.*
2. Invite 2,000 diverse communities (frontier, rural, suburban, urban and tribal) to submit letters of intent to participate, with commitments for conditions of the field trial.	*Every community in America needs to be represented, since there is no community that is immune just like no community was immune from the polio epidemic.*
3. Appoint an independent scientific team(s) for measuring and analyzing immediate, mid-level and long-term outcomes along with implementation variables.	*This preserves the credibility of this effort for the American people, just like Dr. Thomas Francis' leadership created the integrity for the polio trial.*
4. Randomize by communities, schools and classrooms to receive the enhanced Good Behavior Game or wait-list control based on implementation waves (See the Society for Prevention Science for rational in the "Standards of Evidence" paper [93].) Note: A behavioral policy intervention cannot be evaluated with placebo control.	*There is evidence that school and classroom make a difference, and this allows for understanding how to improve effects.*
5. Invite scientists and communities to propose variations to be added in factorial designs, which would be reviewed by multiple National Institute of Health (e.g. NICHHD, NIMH, NIDA, NIAAA, NCI) as well as appropriate CDC branches and the Institute of Educational Sciences.	The addition of a factorial design on top of the main design would allow for assessment of main effects as well as measure synergy for enhancements or other theoretically useful ideas indicated from prior research. For example, would improving children's sleep, restricting media access, increasing physical activities, providing simple parenting supports for every family, or adding omega-3 to the diet synergistically improve outcomes as other studies in the 2009 Institute of Medicine Report suggest? Rapid deployment of peer-reviewed factorial additions to the main study could significantly enhance prevention benefits.

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Action	Rationale
6. Implement a randomized, control trial of 1 million (out of 4 million) grade one children, which would follow children for three years and set up the study for long follow-up.	*This allows for adequate sample size to test variations and establish sub-analyses across ethnicity, gender, race, regional cultures, types of communities, etc. Past studies on the Good Behavior Game begin to show major prevention of mental, emotional, and behavioral disorders by 3rd grade. More recent studies and efforts with the enhanced version have shown faster effects. Still there is a need to get a better picture of the effects and cost savings.*

Funding Such a National Early Protection Trial

The first question how do we fund such a national effort. The first response to that question involves laying the two cited recent Institute of Medicine Reports on the table from the first page [1, 94], then laying down the Mission Readiness Report showing how all these conditions have completely undermined our ability to field our armed services [95], look at the declining share of small businesses in America compared to the other OECD countries with healthier, smarter and more mentally nimble population (ref), and then look at the simple math of increasing health-care costs and related social programs. We cannot—NOT—take action—no more than a captain of a ship cannot plug a hole in the hull of ship or put out a fire on that ship. Since break-even happens in a year or two, the compelling case for action is both economic and social. Thus, here is how this effort can be paid for out of exciting streams:

Funding Action Phase 1 Study	Funding Rationale
• Ask multiple major public and private foundations to make $1 to $5 contributions and local United Ways or other local funders to participate at small but important percentage.	This springs the effort into rapid action while the nation is concerned, and every state will benefit as will sample tribes. We will know if it works in those local places, which is important to sustainability.
• Ask national Medicaid authority to approve reimbursement of appropriately licensed and trained professionals from the sites to implement the strategy as part of a health-care reform and prevention effort.	This provides a test of a potentially cost effective way to reduced costs associated with the exploding use of psychotropic medications among children, and a more effective intervention that currently reimbursed procedures.
• Ask Governors to commit xx% of the Substance Abuse Block Grant funds for prevention for this effort.	These are existing funds in the pipeline, and a commitment of $50K to $100k would significantly invest each Governor in the outcome.
• Ask the Executive Branch to $10 to $20 million from the ACA prevention fund.	These funds exist, and were originally appropriated for these types of purposes.
• Commitment some existing, other HHS or Department of Education funds for this purpose; or grant waivers for states to use	This is a very small national project in terms of budget, but with high impact.

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some existing appropriations for this purpose.	

Funding Action Phase 2 Study	Funding Rationale
• Create Pay for Success Investment Bonds (aka, Social Impact Bonds) based on the Phase 1 success.	*This makes prevention of lifetime mental, emotional, and behavioral disorders an investment grade opportunity.*
• Allocate additional funds from the Prevention Fund	*Again this is the purpose of the fund.*
• Broaden reimbursement of implementation by Medicaid of Phase 1 is successful.	*This makes the federal government a differential investor in success.*
• Allocate a portion of the Substance Abuse Block Grant for this purpose, administered by SAMHSA	*This intervention has the most robust early prevention on lifetime substance abuse of any elementary school program in the world.*
• Allocate a portion of the Mental Health Block Grant to this purpose, administered by SAMSHA	*This intervention has larger preventive effects on lifetime multiple mental illnesses than any other validated early elementary school program.*
• Allocate a portion of the Title V Maternal & Child Health Block Grant, administered by HRSA	*This strategy addresses a portion of the special service needs of targeted populations, better than existing strategies without stigma.*
• Allocate a small portion from Office of Special Education and Rehabilitative Services (OSERS) to support certain aspects.	*This project provides effective behavioral supports that are preventative, that are sustainable in non-stigmatizing way.*
• Create funding drive for citizens like the March of Dimes, management by a very responsible entity. This would be the March of Dollars, not dimes given current inflation from 1953.	*This would give normal, everyday citizens to be involved.*
• Recruit licenses for promotional products and sponsorships from private businesses.	*This model has been used in prior major efforts by PAXIS Institute, and by many other entities.*

Implementing Recommended Practices for More Effective Treatment and Interventions for Existing Persons with Mental, Emotional and Behavioral Disorders associated with Violence

The recommended scientifically proven better treatments and early interventions can be completely funded under numerous existing sources. Potential actions, reasons, and benefits are listed in the table below.

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Table 4: Actions to Implement Better Treatment and Interventions

Policy Action (Briefly)	Rationale	Predicted Benefits	Citations
Authorize reimbursement of high-quality omega-3 for Medicaid, SCHIP, VA, and DOD patients for DSM-IV diagnoses or from pregnant mothers, based on research funded by NIAAA	Substantial evidence from NIH sponsored research and international replications shows omega-3 reduces mental health symptoms related to aggression, violence against others and self	Among existing patients or prodromal individuals, correct doses of omega-3 reduce the risk of violence against others and self, and reduce the risk of relapse of primary symptoms will reducing the health burden of psychotropic meds.	[12, 47, 49, 50, 56, 59-62, 64, 96-109]
Require sub-grantees of mental health or substance abuse block grants include omega-3 in their treatments, unless excluded for medical reasons, based on research funded by NIAAA	See above. Additionally, the use of omega-3 reduces cravings, impulsivity and poor cognitive function associated with individuals with alcohol, tobacco or other addictions.	See above. Faster and more stable recovery; fewer relapses. Also reduces cardio-vascular or diabetic events associated with addictions	[51, 107, 110-115]
Incentivize providers of mental health and/or addiction services to use NIDA funded research on the Prize Bowl (a variant of contingency management) for high-risk patients or high-risk areas	This easy to use strategy has large cost and outcome advantage over standard community treatments in reducing addictions, re-arrests, and relapse—thereby minimizing crimes, violence, and suicide. Reducing alcohol and drug involvement has both direct and indirect effects on preventing violence against others and self.	Rapid reduction in re-arrests, reduced domestic violence, and violent crime, reduction in HIV and other sexually transmitted diseases including Hepatitis C.	[25, 30-34, 37, 41, 42]
Incentivize providers to adopt and implement non-pharmaceutical strategies scientifically proven to reduce first-episode psychosis and psychosis relapse	Federally funded studies show that low-cost ($20 to $100), scientifically sound, non-pharmaceutical strategies published in high-quality, peer-reviewed journals can either avert first-episode psychosis or relapse. Other countries are more aggressive in averting first episode or repeated psychosis using these strategies.	First-episode psychosis figure into many of the most notable mass shootings in the US such as Tucson and Aurora, and possibly Sandy Hook.	[12, 67, 70, 71, 116]

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Policy Action (Briefly)	Rationale	Predicted Benefits	Citations
Implement the above in the context of VA and DOD funded treatment services	These strategies have strong application for military service members and veterans with PTSD, suicidality and addictions.	DOD research, not known to the media or general public, shows that MOST suicides by military personnel are not predicted by combat exposure—but more by widespread North American epidemiological factors.	[59, 95, 117]
Require the use of multiple, low-cost strategies scientifically proven to reduce relapse or recidivism among inmates and parolees by contractors, and other in correctional facilities.	Strategies such as NIDA's "prize bowl" and goal/node maps as well as the NIH/NIAAA sponsored studies omega-3 and vitamin D^3 have been show to achieve major benefits, but are not being used for community re-entry.	This could substantially reduce new convictions or return to correctional facilities, and could substantially increase public safety and reduce exposure to violence.	[25, 26, 31-33, 40, 50, 57, 58, 118-123]
Convene major private health-care providers to adopt the above practices, and/or write such standards into the ACA regulations.	Neuro-psychiatric disorders are widespread across every social class in America, with Americans having the second-highest mortality from these problems among 17 rich democracies. SAMSHA data shows that better than half of persons with these MEB's are full time employees, and another 20% to 25% are part-time employees. Use of psychotropic drugs is now wide-spread across all social classes of both children and adults. Additionally, children and young adults from wealthy circumstances are more likely to have personality disorders and social access that can have large impact on business, government and social systems. These conditions are affecting future ability to serve in the US military.	Reduced morbidity and mortality across all social classes; less violent crime and suicide; predicted less white-color crime, and lower rates of abuse of illegal or legal drugs that fuel criminal activities in communities. Increased mission readiness for US Military.	[95, 124-130]

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Policy Action (Briefly)	Rationale	Predicted Benefits	Citations
The President can convene a White House Summit for a National Private-Public Initiative to avert and prevent mental, emotional, behavioral and related physical disorders rapidly at a population level.	The United Ways, corporations, private donors, and foundations provide more community dollars for prevention that the Federal government and state governments, but it is not coordinated to achieve population level results. If the effort is targeted on ALL children and youth—not just high risk groups, there is greater potential for private sector sponsorship, which has been established in large projects here in the US and other countries.	Previous projects have demonstrated rapid results in aggressive, violent injuries, maltreatment, and on the predictors of lifetime mental, emotional, behavioral and related physical disorders using a positive, easily implemented protective or preventive strategies that are stigma free and entail positive community status. This would rapidly accelerate results, since the national tragedies have happened in wealthy, middle class, working class and poor communities alike. This public-health model reaches the most at-risk and has the largest effects on such children—with stigma or identification of risk.	[131-141]
The Secretary of Health and Human services could provide direction to integrate the above to the States and other recipients of Mental Health and Substance Abuse Block Grants as well as relevant CDC block grants.	The Institute of Medicine has firmly established that mental, emotional, behavioral, and related physical disorders are tightly interrelated. Current federal funds (See Chapter 13 of the 2009 IOM report) address these domains as separate, causing considerable waste and ineffective results. For example, the recent ARA funds for Putting Prevention to Work on Tobacco and Obesity by CDC ignored much of the National Institutes of Health and other CDC research on how to achieve results. For example, the CDC had previous show that adverse childhood experiences (e.g., exposure to violence) predicted both obesity and smoking but did not use it.	By focusing on multiple, related outcomes rather than topic, the country could achieve much more rapid and sustantainable treatment, intervention and prevention results rapidly. A good precedent for this across agencies and organizations was the Healthy Students/Safe Schools Initiative.	[1, 142]

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Policy Action (Briefly)	Rationale	Predicted Benefits	Citations
The Drug Free Community Grants by SAMSHA and ONDCP as well as State Incentive Grants or System of Care Grants would be changed to focus on early prevention using evidence-based strategies that can be implemented at a population level impacting multiple mental, emotional, and behavioral disorders—not just at risk level for certain groups.	The implement of Government Performance and Results Act (GPRA) of 1993 for prevention measures does not align with the epidemiological and prevention science in the 2009 or 2013 IOM Reports. As a consequence, the Federal and State Governments and sub-grantees have measurement requirements that defeat cost-effective prevention. For example, the 2009 IOM report and related literature clearly show that the antecedents of future violent or suicidal behavior or risk of psychosis are manifestly evidence as early as age 5. GPRA typically requires prevention to occur after age 11, when those problems may have crystalized.	The trends for earlier and earlier onset and more severe life-course might be averted, with lower cost to governments, health-care and less suffering for families and communities.	[1, 124, 125, 143]
Medicaid, S-CHIP and ACA regulations can be amended to allow and encourage delivery of environmental, group-based or population-level base strategies that have prevention and treatment effects simultaneously , as documented in the 2009 IOM report and other high-quality published research.	Most federal, state and even private health-care systems have Balkanized prevention and treatment systems. Often formally or by unwritten rules, providers and practitioners are not allowed to mix delivery or groups together. This results in terrible inefficiencies, and defers the findings of multiple Federally funded research studies cited in the 2009 IOM Report and other policy documents.	By providing nurturing environments across multiple contexts, multiple studies have shown that outcomes as diverse child maltreatment, ADHD, Oppositional Defiance, Substance Abuse, etc. reduced or averted. This is consistent with evolutionary science showing that such outcomes are adaptive outcomes in adverse circumstances.	[14, 15, 17, 82, 83, 138, 144, 145]

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