# NPRSB-NACCD Joint Youth Leadership Report

Central to success in achieving the mission of the Office of the Assistant Secretary for Preparedness and Response (ASPR) and the United States Department of Health and Human Services (HHS) to prevent, prepare for, and respond to the adverse health effects of public health emergencies and disasters is sustained leadership. Youth are one of our greatest assets in building our nation's health security. They are both a resource to develop, tap, and grow for the future as well as a conduit to strengthening community emergency and disaster readiness and resilience.

In response to a request by the ASPR on May 17, 2016 to consider the issues and opportunities associated with engaging our nation's youth in early identification and development of next-generation leadership in preparedness, response, and resilience, the National Preparedness and Response Science Board (NPRSB) and the National Advisory Committee on Children and Disasters (NACCD) established the ASPR Future/Youth Leadership Working Group (FYLWG). Considering especially the issues and opportunities for youth from a range of language and cultural backgrounds, family composition, socioeconomic status, and other factors characterizing our country, this FYLWG undertook to:

- Identify promising practices;
- Highlight the unique contributions youth can make to community and national preparedness and response; and
- Recommend a discreet, prioritized set of strategic and tactical opportunities to recognize our nation's youth as assets and pursue their engagement toward assuring our overall resilience.

In the course of our work, the FYLWG engaged and consulted multiple stakeholders and experts in various areas and across a spectrum of organizations. The following overarching objectives toward building a culture of preparedness emerged:

1. **Nurture resilient youth—assure a foundation for a culture that fosters our nation's health security**
2. **Engage youth to help build resilient communities**
3. **Advance the frameworks supporting the strengthening of community resilience through effective youth engagement strategies**

Considering these goals, the FYLWG advises the following strategies:

1. **Utilize and expand on existing programs to train the next generation of emergency preparedness and response leaders**
2. **Establish role models and mentors to assure strong support systems**
3. **Determine what evidence-based or evaluation metrics exist or are needed to define both short- and long-term outcomes of youth engagement**

# OVERARCHING OBJECTIVES TOWARD BUILDING A CULTURE OF PREPAREDNESS

## 1. NURTURE RESILIENT YOUTH—ASSURE A FOUNDATION FOR A CULTURE THAT FOSTERS OUR NATION'S HEALTH SECURITY

***Build and assure a positive and supportive environment.***

A nurturing home environment is a critical component of developing resilient children and youth.[1, 2, 3] Families struggling with stressors such as poverty, substance abuse, and domestic violence are commonly associated with erosive environments in which children and youth are more likely to develop abusive and negative behaviors. Stable, emotionally healthy families are more likely to develop resilient children and youth who become future leaders. Such families establish behavioral boundaries, and they make recreational, educational, and occupational opportunities accessible and stimulating.[4, 5] Parents and families supported with resources, education, and training to counter negative factors (for example, through programs such as those offered by the Department of Housing and Urban Development [HUD])[6, 7] may be better able to provide supportive environments for their children.

A wide range of promising practices build positive and supportive environments in which children and youth may find opportunities for leadership. Schools are one setting in which such environments may be established. Teachers trained to help build a social infrastructure supportive of children, parents, and the broader community may counter socioeconomic, religious, and race disparities. In turn, children and youth benefitting from such settings may be more likely to become leaders in times of crisis as they grow up being supportive of other children, their siblings, and parents.[8, 9]

Various non-profit, private, and faith-based organizations may also provide nurturing environments in which youth may overcome any fears or low self-esteem stemming from, for example, poor family resources or different cultural backgrounds and thereby develop resilience. Organizations and programs with established systems of incentivizing productive activities and rewarding and publicizing, especially among their peers, the achievements of children and youth appear to positively influence career development.[10, 11]

Promoting favorable social determinants of health such as healthy eating and physical activity can lead to resilient children and youth and, ultimately, well-prepared adults in the future. Physical and mental health relate to one another such that self-esteem increases as physical health improves, and vice versa. Many children are not resilient because of their own health problems or those of their families. Thus, it is important for children to have access to health support, for example, through school health systems and access to medical care. Direct linkages between schools and local health organizations may be one effective and efficient method toward improving the health of families, and subsequently their communities. Creating a positive culture of health around children is critical. For example, healthy eating and actively decreasing and even eliminating food deserts in impoverished communities can foster good eating habits.[12, 13, 14, 15, 16] Providing healthy alternatives such as physical activity [17, 18, 19] or simple relaxation techniques may have more positive outcomes for youth behavior rather than negative or punitive actions (for example, detention). The latter reinforces nonproductive and potentially destructive behaviors while the former contributes to building the whole child better equipped to cope with stress and anger through constructive rather than destructive behaviors.[17, 18, 19]

Positive role models, whether peers, older youths, parents, popular figures, or leaders can counter negative factors (e.g., alcoholic/dependency, abusive, or other risky environments) and greatly influence whether a child or youth contributes to society or develops into a leader. Such role models can encourage communication and facilitate a youth's awareness of risky situations to avoid them. Mentors can provide a safe and confiding environment to allow youth to flourish and reach their potential. Ultimately, a healthy mind and supportive environment are necessary for nurturing preparedness and resilience both for individuals and subsequently the entire community.[20, 21]

***Assure children can cope with life stressors to be better or more naturally equipped to handle the stress of a large event such as a natural or a man-made disaster***

Building resilience requires first addressing pre-existing needs and providing coping skills for children and youth but also helping adults to be better able to provide support for children and youth. Acceptance of and adjusting to change are part of building resilience. Assuring the stable and positive emotional health of children and youth through, for example, training and programs focused on helping others, can help them learn to be self-reliant as well as collaborative. Programs, such as 4H Clubs, Boy Scouts of America, and Health Occupations Students of America (HOSA), encouraging inner strength and an ability to look beyond oneself to understand the range of problems afflicting people worldwide can increase perspective and a willingness to support others.[20] Schools often have funding challenges and competing priorities to provide standard education. These constraints limit offering programs or environments which encourage children and youth to learn to cope with life stressors and support each other while discouraging violent or bullying behaviors.[22] Yet, schools may offer the most optimal environment, being naturally structured and community-based.[23, 24] Hence, investment in both home and school environments is needed to build a prepared generation of adults in the future.

Children and youth with depression and mental illnesses can be especially prone to social isolation from their peers. Such isolation can lead to risky behaviors (e.g., alcohol and drugs), especially when children live in environments where such behaviors are the norm rather than the exception.[25] Moreover, pre-existing psychopathology decreases a child's ability to cope with external stressors. Therefore, before employing any training or program, understanding children's and youth's perspectives as well as their behaviors or responses to both stressors (e.g., death of relative, separation of parents, school challenges, community violence) and successes is critical to providing them the appropriate supportive environment.[26] Mental stability is essential for preparedness and leadership. Negative behaviors are likely to keep a youth's focus inward rather than outward and unlikely to contribute to the community. Increased competitiveness and disparities are contributing to increasing mental health problems and negative behaviors.[27] Identifying and supporting families and children suffering from the impacts of harmful social determinants of health is critical.

Although teaching and awareness about the harmful effects of drugs and alcohol have increased in schools and through various programs, dependency on these damaging agents continues and threatens to erode our community and counter efforts toward resilience.[28] Recognized to be greater in the United States than in other Western countries,[29] dependence on drugs and alcohol is a great societal problem. This is evident by the current opioid epidemic [30] and other ongoing problems. Unstable family structures, peer pressure, pressure to perform well in academics or sports, bullying, and other life stressors can all lead to drugs and alcohol dependency as well as other risky and destructive behaviors.[31] Programs addressing these root causes require support through funding and resources to assure our children and youth can develop into self-confident, resourceful, and compassionate leaders of our

community.

***Train youth to help others—e.g., simple and supportive reactions to another's distress or challenges rather than derisive ones such as belittling or bullying***

A strong and resilient community is one in which individuals support each other. In today's world of social media, it has become all too easy for youth to hide from a distance and succumb to the destructive behaviors of bullying or intimidation. At the root of bullying in any form is a person who may have low self-esteem and uses any means (verbal or physical) to feel powerful over others, thereby causing others distress.[32, 33] Any form of bullying is detrimental to the larger community, national cohesiveness, and overall preparedness and resilience. We cannot expect our children and youth to grow into adults who contribute to and support their neighbors and their community if intolerance to bullying behaviors is not universal among peers and in families and communities. At the same time, children should be encouraged to continue to demonstrate and maintain the empathy they naturally possess and to engage in positive behaviors and activities promoting improved self-worth. Such encouragement ensures they identify and sustain these preferred attitudes and behaviors as they mature, instead of resorting to bullying.

***Demonstrate the value of general knowledge, especially current issues related to the community, the nation, and the world***

Children and youth can be effective agents of positive change in our communities if allowed to learn and understand more about the world around them. Adults and peer leaders should facilitate children and youth in gaining appreciation and respect for different cultures and these cultures' real and potential contributions to our society. We should also raise children and youth's awareness of issues involving our environment and communities and any potential threats (e.g., climate change, antimicrobial resistance) as well as teach them the science behind those issues. A broader understanding of the science involved in these issues would contribute toward finding common ground for our national dialogue. The United States is part of a global village, and students who are ill-informed of world issues and hazards will be unprepared to anticipate emergencies. The more children and youth understand and are actively engaged, the more open they are likely to be learning how to prepare for potential menaces. Overall, children tend to be more readily receptive and able to grasp new concepts than adults. What they learn, they tend to bring home and teach their families, thereby strengthening our communities.[34]

***Emphasize an American identity as well as outlook which overcomes race, religion, and socioeconomic inequality***

We need to demonstrate to our children and youth that our strength as a nation benefits most when our many cultures work in concert together toward a common goal rather than divided into separate tribes. Creativity expands as diverse thoughts, people, and ideas are brought together. Adult role models from various fields and areas of life can help emphasize these concepts by their successes as well as their actions. Programs rewarding collaboration among children and youth from different cultures to achieve an objective can also enable children and youth to embrace a shared identity.[35]

## 2. ENGAGE YOUTH TO HELP BUILD RESILENT COMMUNITIES.

As our communities face emergencies of increasing scope and costs with fewer resources, we are challenged to seek non-traditional resources for help. Youth populations have the capacity to help build resilient communities by addressing capability gaps and contributing remarkable creativity and novel approaches. Youth engagement can be defined as "meaningful participation and sustained involvement of a young person in an activity, with a focus outside of him or herself."[35, 36] Despite the potential of youth engagement to address many capability gaps in disaster preparedness, lack of attention to youth regarding disaster research, scholarship, and training programs persists.[37, 38] Research by the FYLWG developed the following themes as it relates to engaging youth to promote community resilience.

***Encourage communities addressing public health and medical emergencies to work with youth to manage surge medical needs for their mutual benefit***

The concept of medical surge forms the cornerstone of preparedness planning efforts for major medical incidents. It is important, therefore, to define this term before analyzing solutions for the overall needs of mass casualty or mass effect incidents. Medical surge describes the ability to provide adequate medical evaluation and care during events exceeding the limits of the normal medical infrastructure of an affected community. It encompasses the ability of health care organizations to survive a hazard impact and maintain or rapidly recover compromised operations (a concept known as medical system resilience).[39] Two themes have surfaced in our exploration of the roles youth can play in increasing the medical system resilience of a community. The first theme is that encouraging young medical professionals to serve in underserved areas in exchange for loan repayment and scholarships can directly support these areas in need of primary care, mental health, and other health related services.[40] The second theme is that organization-based injury prevention and disaster preparedness programs can be a principal strategy for long-term behavior change toward a more resilient community. Such educational programs promote understanding of protective actions for risks relevant to a targeted population.[4, 6, 7] For example, there have been effective programs teaching CPR to middle and high school students.[41] Additionally, an educational program by Plan International asked children in El Salvador to map the risks of disaster in their communities. Through this exercise, the children discovered people were quarrying stone and sand from a river and increasing the risk of flooding. Their discovery and advocacy to stop the quarrying resulted in saving their community from creating a high risk of flooding.[42]

Thus, youth are capable of increasing the medical surge resilience of a community. Conversely, youth benefit from such engagement. Aside from monetary benefit, as is the case with loan repayment and scholarship programs for young medical professionals, youth engagement in educational programs can promote long-term behavior change toward resilience in a community.[32, 33] As noted by the Texas School Safety Center,[43] theories on youth engagement by adults support these concepts. According to their findings, resilient communities with adult support foster youth growth. That is, if one surrounds youth with supportive adults, those youth will look to those adults for guidance and are motivated to be engaged. The community then benefits from having youth well equipped and developed, and the community has the capacity to support youth to overcome, and help others overcome hardships during crises much more so than a non-resilient one. The positive relationships youths develop with adults in

the community additionally results in youth valuing their community and those relationships they develop.[44, 45] Additionally, long-term, meaningful relationships with adults resulting from youth engagement, can lead to greater social or community participation in educational programs that promote resilience.[46, 47]

***Encourage and establish peer leadership***

Youth engagement in community activities cultivates the skills needed to be an effective leader. Again, according to research by the Texas School Safety Center[39], Brennan and Barnett (2009)[42] concluded that youth engaged in community efforts demonstrate better problem-solving and decision-making skills and are therefore more likely to be future leaders.[40] Youth also gain a sense of belonging and purpose [43] as they realize others, their peers and even adults, will listen to them. Children have a great capacity to help their peers; they readily talk to and provide advice to each other. At an early stage of development, they naturally are supportive of their peers, as long as they are provided the tools and environment to do so. Negative and demeaning behaviors are often learned from their environment, older youth, and adults as they try emulating what they observe. However, given the support and encouragement to continue their natural inclination to help and support others, they can grow into youth, who see themselves as vital, contributing members of the community.[40] Subsequently, as youth realize they have the power to influence decisions in their community, they develop into effective leaders. Such youth leaders can become particularly effective communicators with their peers and motivate and engage other youth.

***Partner with youth to reach underserved communities***

Youth are able to communicate better with communities to which they belong. They are often a bridge between mainstream resources and communities with barriers such as language, culture, and socioeconomic status. Training programs at school or other community-based organizations can provide youth the specific tools and experience to teach others about preparedness concepts and actions in their community. Youth engagement can then be especially powerful if they belong to underserved, economically challenged, and culturally diverse communities.[39]

***Employ youth in advocacy***

Youth are able to serve as wonderful advocates to draw attention to issues or campaigns to help communities prepare and respond to emergencies. Their idealism and earnest passion to combat perceived wrongs can be powerful motivators for their peers as well as their community. Empowering and engaging youth in community activities allow them to interact with adults and receive guidance as they develop the necessary skills to make decisions and understand challenging situations.[42]

As of July 1, 2015, the population of youths in the United States, ages 5 to 24 years, was 84,957,722; this translates to 26% of our population.[48] In the book, "Youth! The 26% Solution," Lesko and Tsourounis point out that this just over a quarter of the population makes important contributions to our nation, such as participating in school and community activities, spending more than $150 billion per year, and demonstrating through actions they care about the world in which they live. The authors further

suggest it would benefit communities to encourage this segment of the population to exercise leadership.[49] One of the more successful youth advocacy programs has been in the development of comprehensive tobacco control programs. The Centers for Disease Control and Prevention (CDC) provides guidance to involve youth as partners in advocacy and gives evidence that this approach has been effective in reducing the use of tobacco in communities and schools.[50] By extension, other programs in community health resilience may benefit from collaborating with youth. Topics suggested and discussed by subject matter experts in our Working Group briefings include: promoting healthy eating, communicating emergency procedures at school through hip-hop videos, installing automated external defibrillators in school buses, wearing sunscreen, and preventing the spread of the Zika virus.[51]

## 3. ADVANCE FRAMEWORKS SUPPORTING THE STRENGTHENING OF COMMUNITY RESILIENCE THROUGH EFFECTIVE YOUTH ENGAGEMENT STRATEGIES.

***Continue to build the science base for and help validate evolving models of community resilience***

Frameworks to depict as well as efforts to measure community resilience and its contributing factors continue to evolve.[52] Community resilience models are advancing dynamic approaches and newly available techniques. Tools and initiatives based on evolving frameworks are increasingly being used and applied. Yet, few models have been fully validated, and actual measurement (or more accurately, prediction) of resilience has proven challenging, often limited by sufficient indicators or proxies of the factors felt to influence it. ASPR and other stakeholders in community resilience should work toward increasing the availability of evidence-based indicators to measure such resilience as well as the factors influencing it. Continuing to advance such modeling and measurement efforts is critical, as they are the foundations upon which to identify the most effective strategies for engaging youth in advancing community resilience.

***Document the current state of the evidence for and potential benefits of youth engagement strategies in advancing individual and community resilience***

Research on resilient children and individual resilience suggests three factors contribute to the ability of some high-risk children to "beat the odds:" a strong relationship with a caring adult, high expectations, and opportunities for meaningful participation.[53] Many community resilience models and supporting literature reflect a growing recognition that a community's social capital and connectedness (a proxy for post event emergent collective behavior—neighbors helping neighbors, groups emergently coalescing to support response and recovery, etc.) play strong roles in both a community's pre-event functioning and its resilience to disaster.[54, 55, 56] In addition, population vulnerability and inequality reduce a community's ability to withstand and recover from disasters. Youth engagement efforts would benefit from a review of current evidence reflecting the effectiveness of youth in driving or contributing to improvements in these and other resilience related domains.

***Further develop and sustain the science base needed to guide selection and application of youth engagement/leadership strategies as they relate to health security and community resilience***

In a different yet related area, literature on the role of youth in violence prevention[57] and other community development efforts emerges. This suggests youth engagement and development may also be effective strategies in advancing social capital and connectedness. Similarly, such tactics may effectively address policy and system change issues aimed at reducing population vulnerability and inequality (health equity initiatives, community development work, etc.). Efforts to do so should include research to demonstrate the short and long-term effects of youth engagement in advancing these influencers of resilience and to demonstrate the most effective approaches. One approach to advancing this research agenda is ASPR's post-Sandy recovery grants aimed at rapidly integrating research into the active work of recovery to facilitate lessons learned.[58]

The April 2014 Community Health Resilience Report of the National Preparedness and Response Science Board (NPRSB; previously the National Biodefense Science Board [NBSB]) provides recommendations, which also relate to the current youth engagement and resilience task. In that report, recommendation 5 states:

> The NBSB recommends "ASPR—working with other HHS agencies, federal departments, and non-governmental scientific organizations—coordinate the development of a coherent science agenda to promote innovation and prioritize areas for research on community health resilience."

This document goes on to note, "To do this, ASPR should coordinate the development of this science agenda with other HHS agencies and components, other departments, and non-governmental scientific organizations. Once consensus is reached, ASPR (through the HHS Secretary) should convey to appropriators and agency leaders the importance of allocating sufficient funding for intramural and extramural research on community health resilience. Finally, HHS should ensure that component agencies allocate sufficient personnel to coordinate and execute scientific research on community health resilience, as appropriate to the missions of the respective agencies."[59] The FYLWG would add the following to the proposed list of community resilience research questions posed in that report:

- What are the gaps in our knowledge of the individual and community factors which strengthen resilience of youth before, during, and after disasters? How can they best be addressed?
- What aspects of community resilience can youth most effectively advance?
- What are the most effective strategies and times to expose youth to and engage them in preparedness, response, and resilience building efforts to: 1) build the next generation of cross-sectoral health security leaders, and 2) advance the ability of communities to withstand and recover from disasters?

# SPECIFIC RECOMMENDED STRATEGIES TO ACHIEVE A CULTURE OF PREPAREDNESS

## 1. UTILIZE AND EXPAND ON EXISTING PROGRAMS TO TRAIN THE NEXT GENERATION OF EMERGENCY PREPAREDNESS AND RESPONSE LEADERS

### *Identify existing directories of current youth engagement programs and encourage a "community of practice" for collaboration among organizations involved with youth*

One suggested practice is to identify and expand existing directories of current youth engagement programs, although these programs require appropriate vetting for overall quality and suitability regarding youth resilience. Potential evaluation metrics to consider for vetting include the programs' reach, culture, diversity, organizational stability, sustainability, record of youth development, community involvement, broad reputation within specific sectors, and also avoidance of unintended consequences.[60, 61] Such metrics should be interpreted within the context of regional characteristics as well as strengths and limitations of their urban or rural environment. Programs should work through and expand partnerships with organizations and systems that currently reach youth in communities. Examples of successful youth-led and youth-related organizations are listed in Appendix 1. Common ground between organizations may be determined in terms of existing structures, shared interests, and the ability to maintain a level of success. In this way, organizations may leverage each other's resources, expand partnerships, and utilize communication outlets of each organization to voice a shared message. This type of collaboration may lead to a "community of practice" model in which existing organizations with overlapping interests continue to grow through collaboration on that shared interest.

### *Encourage providing life-long skills to develop prepared and resilient youth*

To support youth development and resilience, successful programs often incorporate life-long skills (e.g., leadership, communication, sense of responsibility) training through specific and finite projects.[62] Such projects and programs are often a combination of individually led and team-based efforts. They can be challenging but success should be attainable. Additionally, they may be broken down into small steps to demonstrate interim progress while providing the opportunity for reflection on broader impact, both in one's growth and also of one's efforts on the community. This process maintains drive and enthusiasm in the youth involved as does encouragement and small rewards for success. Most importantly, when provided in a safe environment such projects allow youth to thrive, which means their community will too.

### *Empower youth*

Successful programs in youth development empower the youth themselves. Youth-led programs or components of programs are often successful because the youth's motivation and passion drive the activities.[63] However, the level of adult involvement, while largely a function of the age of participants, requires careful consideration.[64] Achieving the best outcome for both the involved youth and their community means youth activities are chosen which meaningfully advance program and issue objectives (based on the best available evidence), progress toward established metrics or milestones, and build relationships with supportive and knowledgeable adults.[65] For specific activities, advocating and pursuing actions directed by the ideas of youth, rather than what adults may think is optimal for youth,

may be the best and most successful course of action. Youth, and ultimately their communities, may benefit when provided as much leadership opportunities as appropriate and available.

***Engage youth reflecting the diverse populations comprising our communities***

Diversity is at the core of successful youth development programs to influence all demographic subgroups within a community effectively. Considering socio-economic diversity is the ideal, although challenging when engaging youth who have access to fewer resources and are limited in being able to commit as fully to a program or activity because of, for example, transportation and availability challenges. Cultural diversity is also important, and youth can be the ones who bring leadership and change back to their communities.[66, 67] Underserved cultural groups may be harder to reach but deserve to benefit from broad community programs. Reaching high-risk youth, their families, and their communities may be most effective using techniques such as social branding.[68] That is, targeting all youth with general or broad techniques may be inefficient; whereas, a more targeted and tailored approach would focus on connecting with a particular demographic subgroup. Two key components of targeting subgroups are passionate brand ambassadors, who can use relevant and carefully selected messaging that reflects the target groups' values and interests.[69]

## 2. ESTABLISH ROLE MODELS AND MENTORS TO ASSURE STRONG SUPPORT SYSTEMS

***Develop youth as role models and encourage a legacy of mentoring***

To ensure the nation's youngest citizens become engaged in preparedness activities, children and youth need strong role models and mentors who will provide them with a lasting support system. In the course of this Working Group's research, we learned programs currently exist (e.g., 4H and Virginia Y Street)[70] in which youth-adult partnerships produce positive youth experiences and, in turn, encourage youth to participate in activities such as individual and community preparedness. Providing opportunities for youth can be a gateway to participation in different preparedness activities. In addition, programs providing role models and mentors develop youth who can then become mentors to other younger children. The Texas School Safety Center is an example of an organization with a number of youth-based initiatives. Involving youth as mentors through peer-to-peer education and youth education, this Center observed data driven improvements in their programs (txssc.txstate.edu).[71] Chicago Youth Programs (CYP), established in 1984 to address and improve the health and life opportunities for children and youth residing in underserved inner-city neighborhoods, provides a broad scope of programs. CYP effectively deployed adult role models and youth peer-mentors. Additionally, CYP tracked retention of program participants as well as outcomes (education success, avoidance of high risk behaviors) of participants and program alumni.[72, 73, 74]

Youth who have participated in these types of activities are excellent sources of potential mentors. Through our research and interaction with several different youth engagement programs, the FYLWG determined there is a lack of tracking of students who complete engagement programs to document the potential long-term benefits or impact on the careers and lives of these youth. Successful youth engagement programs should be encouraged via funding criteria to track program participants and alumni, as well as relevant outcomes. This strategy can create a network of potential mentors for the

next generation of youth as well as verify achievement of the desired objective of youth and thereby community resilience. To successfully apply such metrics and better inform efforts toward resilience, these programs require funding and resources from those public or private agencies and organizations with an interest in supporting youth.

***Provide and coordinate training and resources for organizations, programs, and mentors to be able to optimally support children and youth***

Additional resources are required for adult mentors to be able to recognize potential problems in the youth with whom they interact and, thus, to provide the appropriate level of support. These mentors become trusted individuals and role models to youth, so they must have an adequate level of basic awareness and knowledge of additional partners who can provide more in-depth care for any youth exhibiting signs of developing problems. Centers such as the National Center for School Crises and Bereavement at the University of Southern California School of Social Work,[75] which provides training and crisis response to school staff and communities during and after crisis and tragedies (e.g., Orlando shooting)[76, 77] should be considered a model for such a resource. Providing training and resources to mentors to recognize early signs of problems in youth is a beneficial strategy to the mentors and fellow participants in youth engagement programs and vulnerable youth in need of assistance, as demonstrated through programs such as CYP.[74]

These resources would allow adult leaders in key groups to engage in a positive and measurable way. Fostering coordination among federal agencies in supporting activities would allow for better distribution of effort, covering more areas with less redundancy. Tracking which programs and resources achieve the best results from the perspective of youth but also from the perspective of adults, organizations, and communities would provide a continuously improving evidence base for funding and activity. Federal funding for all programs should include a component for assessment that is feasible and useful for measuring real progress toward improving both youth resilience and the wider scope of community resilience.

Children and youth need better access in general to—insurance coverage such as Medicare, Medicaid and Children's Health Insurance Program (CHIP), nutrition programs, community support for at-risk children, temporary assistance programs, and vaccination programs- the list can be endless. However, all can empower individuals and communities with resources to improve the health, education, insight, and social connection of youth to caring adults. Therefore, adults may better recognize issues among children and youth and support them appropriately. Consequently, adult leaders and key organizations should be encouraged to support youth engagement programs visibly.

***Encourage and introduce youth to consider preparedness, response, and resilience-related careers***

Invested stakeholders should provide opportunities for all youth to participate in preparedness and response. Such opportunities should be embedded not only in the community but also throughout the school system from the earliest years. Access to such educational training and experience should increase through high school, trade school, and college to encourage youth to consider and select careers in this area. The Agency for Healthcare Research and Quality (AHRQ), CDC, and other federal agencies should provide information and other support for colleges as well as graduate and professional schools to develop in fields associated with preparedness and resilience (e.g., healthcare and emergency

management). Participation as a youth in preparedness programs will encourage them to continue in these activities as adults.[77]

## 3. DETERMINE WHAT EVIDENCE–BASED OR EVALUATION METRICS EXIST OR ARE NEEDED TO DEFINE BOTH SHORT- AND LONG-TERM OUTCOMES OF YOUTH ENGAGEMENT

When considering metrics of youth leadership programs, a question related to preparedness metrics raised by RAND seems to apply: "How well did the system perform given what was expected from it and the investments that were made based on those expectations?"[78] Many youth preparedness programs exist, but few are empirically evaluated. This is not an easy feat and will likely include a mixed methods approach as not all outcomes are quantifiable. Furthermore, given continual changes within youth programs (e.g., youth age out, events occur/do not occur), we must collect measures on a regular basis. Youth are more involved in social media. Therefore, metrics related to this platform might be worthy of consideration. Programs involving youth often suggest positive outcomes as they become young adults. Thus, a longitudinal approach to program assessment may also be important to collect, including involvement in adult preparedness and response programs.[79]

***Encourage self or individual assessment of involved youth***

As we consider metrics for youth leadership programs, self-assessment of participants is one piece of the outcome puzzle. These may assess multiple domains: preparedness knowledge, self-esteem, social skills (including community connectedness, social responsibility, and leadership development). Stakeholders may triangulate the self-assessment with information from other sources such as parent/teacher/leader perceptions, community assessment, and academic outcomes (grades, behavior reports, school involvement) to get an overall understanding of the effectiveness of the programs. As youth engage in program activities, metrics of implementation, effectiveness of response, and perceptions of their response should be determined and collected.

***Determine youth involvement as a measure of community preparedness and resilience***

Youth leadership programs may inform adults and other youth regarding a community's preparedness and resilience through the degree of youth involvement. Therefore, metrics related to youth leadership evaluation should assess this goal of youth involvement. Measuring family disaster preparedness in a community and measuring whether and how youth initiated that capacity in their family may advise indirectly regarding the impact of programs in an area. Changes in youth enrollment in programs may facilitate tracking growth and may include metrics related to how new members learned of the program. As programs expand, metrics to understand growth may contribute to understanding best practices for recruitment and participation sustainment. For example, mapping of known youth programs within communities to assess diversity, demographics, and gaps in preparedness planning program locations may be critical to understanding the variety of factors influencing a program's success. Furthermore, such mapping may inform on how new program start-up decisions are made and implemented. Tracking preparedness partnerships with community stakeholders may contribute information to new communities which may be seeking to create or expand effective youth leadership programs.

***Emphasize the importance of evaluation toward measuring success and making improvements***

Youth leadership and youth preparedness programs exist at all levels: programs for different ages, after

school programs, and extracurricular activity and community-based programs. They often have different goals and activities to meet—from education to preparing disaster kits to active scenario involvement. Programs also have varying degrees of response implementation. These too, need assessment from a qualitative lens (self-perception of effectiveness and leadership assessment of youth response) and both qualitative and quantitative outcomes (were response goals achieved?). Across evaluation components, standardized measures often exist. Programs should explore such standardized instruments before augmenting these by creating program specific indicators and surveys. They should consider utilizing existing data, if available, as well as adults who were former youth participants as potential sources to identify the impact of programs on behaviors and careers, especially with regard to developing future leaders. Only through developing evaluation components will we be able to understand the success or gaps of youth programs. All programs should consider allocating some portion of their funds and efforts toward evaluation of their program with respect to at least youth outcomes. In this way, the contribution of such programs not only to the individual youth but also our communities may be better determined and understood.

## Appendix 1: Selected Youth Leadership Programs and Resources

1. ASPR TRACIE
2. Network Profile of the Medical Reserve Corps
3. FEMA's Children and Disaster Newsletters
4. FEMA's Youth Preparedness Council
5. 4-H'ers spring into action to help with flood recovery efforts
6. Extension Disaster Education Network
7. Medical Reserve Corps: Youth Engagement Toolkit
8. Youth GIS Partnerships in Action: Alert, Evacuate, and Shelter
9. Technology Trend: Using Technology to Prepare for Emergencies
10. Journal of Extension: 4-H Teen Community Emergency Response Team (CERT)
11. University of Florida IFAS Extension: CERT helps 4-Hers Learn Citizenship and Workforce Skills
12. Global Biodefense Report: National Blueprint for Biodefense
13. 2012-2013 Report of the Children's HHS Interagency Leadership on Disasters (CHILD) Working Group: Update on Departmental Activities and Areas for Future Consideration
14. The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment
15. Risk & Protective Factors
16. Measuring resilience and youth development: the psychometric properties of the Healthy Kids Survey
17. National Strategy for Youth Preparedness Education
18. National Biodefense Science Board Community Health Resilience Report
19. National Preparedness and Response Science Board (NPRSB) Assistant Secretary for Preparedness and Response (ASPR) Future Strategies Report
20. AVMA: How to be a Leader in your Community
21. The #1 Reason Leadership Development Fails
22. Best practices of leadership development
23. National Center for Healthcare Leadership Best Practice in Physicians Leadership Development Programs
24. Linking Leadership to Instruction: A Leadership Development Curriculum for Virginia Public Schools
25. Allstate Youth Empowerment
26. Allstate Youth Initiative Involvement
27. Allstate Foundation: Good Starts Young
28. Girl Scouts Leadership Development
29. Boy Scouts of America National Youth Leadership Training
30. YMCA
31. YWCA
32. Big Brothers/Big Sisters
33. Girls Inc.
34. Campfire USA
35. Chicago Youth Programs
36. Promising Practices Network
37. Virginia Foundation for Healthy Youth
38. Virginia Foundation for Healthy Youth: Y Street
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9. Dr. Amy McCune, National Program Leader, 4H Youth Engagement, National Institute of Food & Agriculture / Institute of Youth, Family & Community, United States Department of Agriculture (Washington, DC)

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13. Dr. David Schonfeld, MD, FAAP, Professor, the School of Social Work and Pediatrics at the University of Southern California and Director, National Center for School Crisis and Bereavement, Children's Hospital Los Angeles,

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