Healthy Living

4-H Healthy Living Literature Review and Recommendations for Program Planning and Evaluation

FEBRUARY 2009

The 4-H Healthy Living mission engages youth and families through access and opportunities to achieve optimal physical, social, emotional well-being. This literature review was undertaken in the furtherance of this mission.

This literature review has been funded through a partnership between Kraft Foods, Inc., and National 4-H Council.

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ACKNOWLEDGEMENTS

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CONTENTS

AIMS

PART I: PERSPECTIVES, DEFINITIONS, AND INDICATORS OF HEALTH AND WELL-BEING

A. The Ecological Model of Development: Urie Bronfenbrenner
B. Challenges in Defining and Assessing Child/Youth Health and Well-being
C. Perspectives: Problem Prevention and Promotion of Health and Well-being
    1. Prevention Science
    2. Resilience
    3. Positive Youth Development and Community Youth Development
    4. Common Ground Between Risk Prevention and PYD/CYD Approaches
    5. Differences Between Prevention and PYD/CYD Approaches
    6. Levels of Intervention in Risk Prevention and Health Promotion
D. Perspectives of Public Health Entities and National and International Organizations
E. Indicators of Child and Adolescent Health and Well-being
    1. Domain-Specific versus Global or Aggregate Assessments of Health and Well-being
    2. Individual or Contextual Indicators
    3. Indicators of Individual Health and Well-being
        a. Personal assets
        b. Risk and protective factors
        c. Other indicators used in developmental research
        d. Medical and clinical indicators
        e. Indicators of positive functioning
        f. Indicators of physical health
    4. Population-Level Indicators of Health and Well-being
    5. Contextual Indicators of Health and Well-being

PART II: CONSIDERATIONS IN PLANNING AND EVALUATION OF 4-H HEALTHY LIVING PROGRAMS

A. "Best Practices", Evidence-Based Practice, and Evidence-Based Programs
    1. "Best Practices" and Evidence-Based Practice
    2. Evidence-Based Programs
        a. Program theory
        b. Evidence of effectiveness
        c. Program dissemination
    3. Value of an Evidence-Based Approach
    4. Limitations of an Evidence-Based Approach
    5. Summary
B. A Brief Review of Some Current 4-H Programming in Healthy Living
    1. Program Categories
    2. Program Theories
    3. Evidence Base
    4. Content, Delivery, and Audience
    5. Summary
C. Considerations for Program Planning and Evaluation

PART III: FUTURE DIRECTIONS AND RECOMMENDATIONS

APPENDIX

Tables

1. Defining Terms of Prevention and Promotion
2. Prevention and Promotion: Descriptions, Strengths, and Weaknesses
3. Personal Assets Listed By the National Research Council as Indicators of Youth Well-being
4. Overview of Risk and Protective Factors
5. Features of Contexts that Promote Youth Development
6. Notable 4-H Programs by Health Domain
7. Description of 26 Notable Current 4-H Programs

7a. Sources for 4-H Program Information and Evidence of Effectiveness

8. Sample Measures Associated with Outcomes Presented in the Logic Model (Figure 5)
9. Recommended Measures for Indicators of Youth Well-being
10. Clearinghouse Sites for Measurement Tools and Information

AIMS

The purpose of this paper is twofold. Our first aim is to present current thinking about the health and well-being of children and youth in the contexts of their families and communities. To this end we discuss:

- Different perspectives that inform efforts to ensure healthy development,
- Definitions of health and well-being, and
- Indicators that are currently used to assess health and well-being.

Our second aim is to apply these perspectives and definitions to a discussion of the design and evaluation of 4-H Healthy Living Programs. Thus, in the second section of the paper, we:

- provide an overview of evidence-based practices and programs,
- discuss the perspectives, topic areas, and evidence base of current 4-H programming, and
- provide suggestions for the design and evaluation of 4-H Healthy Living programs.

We conclude with a section on future directions and recommendations for 4-H Healthy Living Program efforts.

The purpose of this paper is twofold. Our first aim is to present current thinking about the health and well-being of children and youth in the contexts of their families and communities. Our second aim is to apply these perspectives and definitions to a discussion of the design and evaluation of 4-H Healthy Living Programs.

PART I: PERSPECTIVES, DEFINITIONS, AND INDICATORS OF HEALTH AND WELL-BEING

In Part I we begin with a brief review of Bronfenbrenner's ecological model of development. This is the theoretical model we use as a framework for all aspects of our discussion of health and well-being and is also the model used by many youth development programs. We then highlight some of the challenges that may arise in considering how to target healthy living programming because of different perspectives, definitions, and approaches to the measurement of health and well-being.

Next, we examine risk prevention, resilience, and positive health promotion perspectives: their history, areas of commonality and difference, and their contextual approaches to defining health. We follow that with a look at the very different ways in which some national and international organizations define health.

In the last part of this section, we explore the different ways in which health is measured: global indicators of overall well-being and indicators of health in specific areas; health as a property of the individual and health as a property of the contexts in which individuals develop. We consider these different approaches to measurement of physical, emotional, and social health as they are used in youth development programs (assets, and risk and protective factors); other developmental contexts; and in medical and clinical fields.

The Ecological Model of Development: Urie Bronfenbrenner

Our discussion of child and adolescent health and well-being uses as its framework the ecological systems model of development set forth by Bronfenbrenner (1979). Bronfenbrenner's model conceives of child and youth development as a function of interactions between individuals and the contexts in which they live. These contexts, or systems, are defined as microsystems, mesosystems, exosystems, macrosystems, and chronosystem (see Figure 1).

The model provides guidance for decision making in complicated situations. For example, it demonstrates that there are multiple opportunities to promote health and well-being: we may be able to capitalize on strengths of some systems even when other systems are not functioning well.

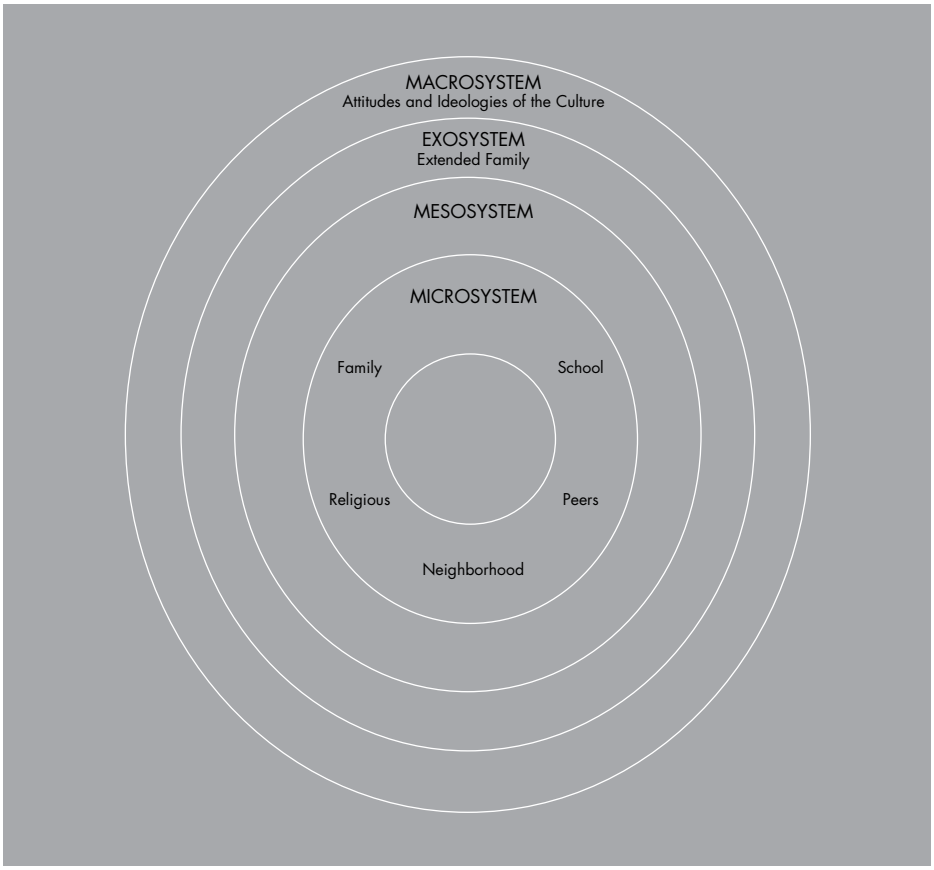

FIGURE 1. Bronfenbrenner's ecological model of development as presented by Ward, C. L. (2007). 'It feels like it's the end of the world': Cape Town's youth talk about gangs and community violence. Institute for Security Studies, Monograph No 136. Accessed June 17, 2008 at http://www.iss.co.za/index.php?link_id=23&slink_id=5152&link_ type=12&slink_type=12&tmpl_id=3.

The *microsystem* includes the immediate environments with which children and youth interact regularly. Initially this system is composed of family, but later the system expands to include new settings: childcare, preschools, schools, neighborhoods, and particular spiritual or cultural communities.

The *mesosystem* represents the interrelations of microsystem settings and the strength and diversity of their links to one another. A well-integrated mesosystem (for example: schools involved with neighborhoods and parents involved with schools) fosters healthy development in multiple contexts.

The *exosystem* represents more distant contexts which affect development indirectly through their influence on the adults in a child's world. Exosystem settings may include parents' workplaces, school governing boards, community organizations, and social service agencies. Examples of exosystem influence on development include workplace policies on maternity or paternity leave and school board policies on acceptable curriculum or educational practices.

The *macrosystem* represents the broadest social and cultural contexts in which development takes place. They shape and direct the functioning of lower-level exosystems and mesosystems through law, organization, ideology, economic opportunity and constraint.

Finally, the *chronosystem* represents the changes across time in children's development and environmental circumstances.

Several features of the Bronfenbrenner model are especially relevant to questions of program design and implementation for child and adolescent health and well-being. First and foremost, it focuses on the importance of thinking about relationships — both the relationship of individuals to their larger contexts as well as the relationships of those contexts to one another — as we define and promote health and well-being. Programs that address the interactions of systems with one another (e.g., parent involvement in after-school programs) may be as important as those that address individual children and adolescents (the after-school program itself).

Second, the model is developmental: it takes into account the changing importance of different contexts as children grow. In early childhood, the microsystem is most relevant, but as children grow, systems farther removed come to have a more direct influence on their health and well-being (e.g., community opportunities for youth volunteer work matter in adolescence but not in early childhood). Third, the model also enables us to think in terms of reciprocal interactions — for example, when a community youth development program mobilizes young volunteers, a community may become more connected to its adolescent members. This connection may then lead to increased opportunities for youth involvement with adults, which in turn provides a stronger foundation for social, emotional, and physical well-being.

Finally, the model provides guidance for decision making in complicated situations. For example, it demonstrates that there are multiple opportunities to promote health and well-being: we may be able to capitalize on strengths of some systems even when other systems are not functioning well.

Challenges in Defining and Assessing Child/Youth Health and Well-being

A decision to adopt the ecological perspective raises the question – where best to target efforts to maximize health and well-being? This question and several other challenges and themes recur in the literature on what constitutes child and adolescent health and well-being, how to measure it, and how to optimize health outcomes. An important philosophical theme, familiar to most of those who provide direct youth services, is whether we think about health in terms of promotion or enhancement of good health, of prevention of risk and management of poor health, or of both together, since they are not mutually exclusive. Another theme is whether we define and assess health as a property of the individual, of the context of a given individual (micro-, meso-, and exosystems), or of the population as a whole (macrosystem). In addition, we may choose to define health in specific and separate domains (e.g. physical, emotional, and social) or as a global attribute across domains (overall health). Finally, developmental considerations may change definitions of health, approaches to promoting health, and expected outcomes of healthy living programs.

In the following sections, we consider some of these themes and challenges in detail. We begin with a discussion of promotion and prevention perspectives – their historical roots, their philosophical and programmatic approaches to defining and securing the health and well-being of children, and similarities and differences between these

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approaches. Next, we present a brief overview of how health and well-being are conceived of by national and international health organizations. It is surprisingly difficult to find straightforward definitions of physical, social, and emotional health; instead, researchers and organizations rely on collections of global or domain-specific measures to describe health and well-being. Thus, we conclude this section with a review of the kinds of health indicators used by different organizations.

Perspectives: Problem Prevention and Promotion of Health and Well-being

Considerable philosophical debate exists about how programs that target the well-being of youth and adolescents should best focus their efforts: is it better to try to prevent or minimize risk, or instead to try to promote health (Catalano, Hawkins, Berglund & Pollard, 2002; Small & Memmo, 2004)? In the following section, we discuss this debate, including some background on the history and characteristics of approaches that emphasize prevention of problems versus those that emphasize promotion of health. We also note which levels of the Bronfenbrenner model are addressed in risk prevention and health promotion programs, and we discuss similarities and differences between these two approaches.

Prevention Science

Many social services functioned as crisis intervention resources, with treatment as a primary focus, until about 30 years ago, when prevention became recognized as a viable approach to social problems (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004; Coie, et al. 1993). This change was assisted by the emergence of longitudinal data supporting the idea that addressing some risk processes can prevent problem outcomes before they occur (see Table 1 for definitions of risk and protection, p. 40). The design of preventive socio-emotional interventions through identification of the mechanisms and processes of risk represented a translation of public health and epidemiological approaches to disease prevention (Brown & Liao,1999; Kellam, Koretz, Moscicki,1999). The field of prevention science now integrates theories and methodology from several disciplines (including behavioral science, economics, epidemiology, and public health policy and administration) in the service of exploring and preventing the development of physical, emotional and behavioral problems in children and youth (Dodge, 2001). In the last two decades of the 20th century, researchers and program developers produced programs that were demonstrated to be effective in reducing targeted problem outcomes such as substance use, teen pregnancy, suicide, and aggression (Greenberg, Domitrovich & Bumbarger, 2001).

The approach to research and intervention in this field is based on a theoretical framework known as the preventive intervention research cycle (see Figure 2), which guides the design, implementation, and evaluation of preventive intervention programs. This framework follows a phase model, starting with foundational or basic research grounded in developmental theory and theories of change, moving to formal tests of program efficacy in randomized clinical trials, to dissemination and evaluation in real world settings, and completing the cycle with information feeding back to researchers for continued program monitoring and development (Biglan, Mrazek, Carnine, & Flay, 2003; Mrazek & Haggerty, 1994). One result of this systematic approach is that many prevention programs emphasize standardization so that positive program results can be replicated across settings.

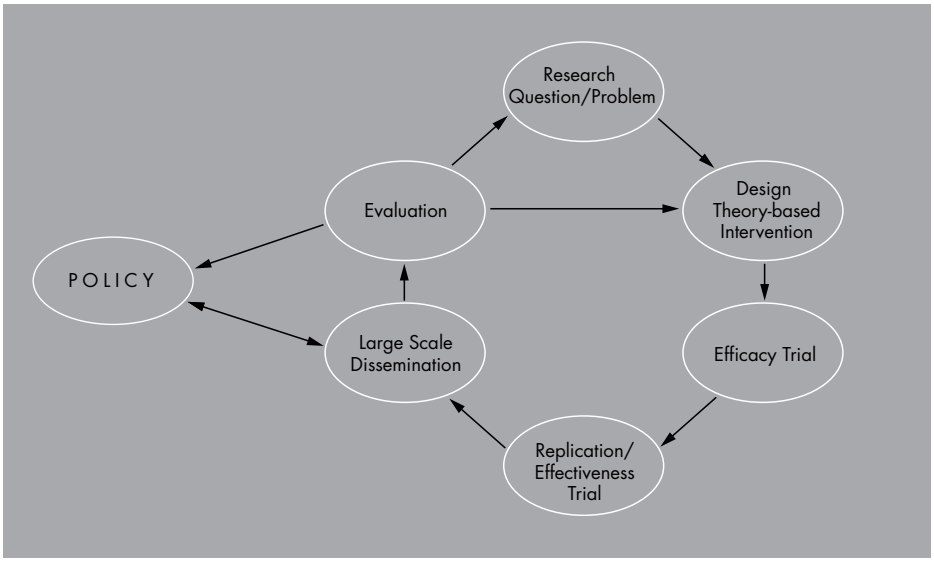

FIGURE 2. Prevention Research Cycle. (Adapted from Mrazek, P. J., & Haggerty, R. J. (Eds.). (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research*. Washington, DC: National Academy Press, p16.)

Resilience

Resilience studies grew out of research into the origins of developmental psychopathology (Cicchetti & Garmezy, 1993; Masten, 2001) and out of primary prevention efforts with disadvantaged children and youth (Werner, 1993). Researchers and clinicians working with children have long recognized that some do well despite experiencing multiple stressors or severe trauma, including physical and emotional abuse, poverty, war, disruptions from family due to death and divorce, serious illness, witnessing of violence, and other adversities. This recognition led to the study of resilience – the ability of children to adapt and function successfully under extremely difficult circumstances.

The initial focus of resilience research on disadvantaged children and their ability to recover from trauma and stress has expanded to include study of the attributes and contexts that enable children to thrive across benign as well as stressful circumstances (Perkins, Borden, & Villarruel, 2001). This expansion of emphasis provides a bridge between risk prevention and health promotion approaches. Although there is abundant empirical and theoretical work on resilience (Garmezy,1994; Masten,1990; Masten, Best & Garmezy, 1990), for purposes of this paper, we simply note its relation to both prevention (through its focus on risk) and positive youth development (through its focus on health).

Positive Youth Development and Community Youth Development

As social programming approached the 21st century, researchers and practitioners began to critique the disease or medical model approach to youth programming (Lerner, Almerigi, Theokas, & Lerner, 2005). There was recognition that "problem free is not fully prepared" (Pittman,1991; Roth & Brooks-Gunn, 2003) and a need for "understanding what can go right in the development of young people" (Lerner et al. 2005, p. 13). Over the past two decades, the positive youth development (PYD) movement has arisen in response to the need to define and promote positive health, not simply to prevent problematic development.

Definitions of PYD vary (Small & Memmo, 2004), but for the present paper we define it as a philosophical approach that emphasizes promotion of physical, social, and emotional health in youth and children, with a focus on building strengths rather than on preventing undesirable outcomes. There is notable consistency across time and across researchers in defining the conditions needed for youth to develop optimally (Eccles & Gootman, 2002). Most agree that a safe environment, challenging experiences, and caring people are necessary for healthy development (Zeldin, Kimball, & Price, 1995). These themes are echoed in self-determination theory, which posits that youth need structure, choice, and relatedness to others in order to experience the mastery and autonomy that foster healthy development (Deci & Ryan, 1985). Similarly, these themes are echoed in three of the four Essential Elements of 4-H: Mastery, Independence, and Belonging (Brendtro, Brokenleg, & Van Bockern, n.d.; Kress, 2004) (see Figure 3).

There is a fourth Essential Element defined by 4-H that is missing from many lists of conditions necessary to positive development — the element of Generosity, defined as the "opportunity to value and practice service for others" (Brendtro, Brokenleg, & Van Bockern, n.d.; Kress, 2004). This fourth element reflects an integration of PYD with community development perspectives known as Community Youth Development (CYD). The CYD approach emphasizes the need for community mobilization in youth development, and also for the engagement of youth as partners in that mobilization.

Most authors define youth development programs as high-quality structured activities that include opportunities for youth to build relationships with caring adults and peers, involve youth in program development, and have clearly developed skills-based goals that are attained through a variety of engaging and purposeful activities (Eccles & Gootman, 2002; Mahoney, Larson & Eccles, 2005; Perkins & Borden, 2003). More specifically, program activities should increase youths' ability to construct and carry out plans for solving problems and obtaining defined goals. Additionally, Perkins and Borden (2003) state that high-quality youth programming should also be based on theories of adolescent development, recruit diverse staff and youth, and provide activities that engage the whole family, especially parents and other caregivers. Finally, high-quality programs engage youth with high frequency, endure over time, and have strong systems for checking progress and making adaptations when needed.

Common Ground Between Risk Prevention and PYD/CYD Approaches

The perception that the prevention framework is exclusively "deficit oriented" or that it views youth as problems to be fixed ignores the strengths of the framework's underlying goals, its flexibility, and its contextual approach. Consistent with its public health roots, the prevention framework has as its goal the long-term health both of the individual and of the population as a whole. Often, prevention (especially universal prevention) aims to address and improve the functioning of micro- and mesosystems, as opposed to simply tackling children's problems on the level of the individual, in order to maximize healthy development. Many prevention programs directly address family, school, or community contexts — for example, some prevention programs train parents and teachers to express warmth and to involve youth in decision making, in an effort to promote healthy connections of children and youth with important adults.

FIGURE 3

The Essential Elements of 4-H Youth Development: Distillation to Four Elements

BELONGING	MASTERY
1. A positive relationship with a caring adult A caring adult acts as an advisor, guide and mentor. The adult helps set boundaries and expectations for young people. The adult could be called supporter, friend and advocate. **2. An inclusive environment (affirming, belonging)** An inclusive environment is one that creates a sense of belonging, encourages and supports its members with positive and specific feedback. Healthy groups celebrate the success of all members – taking pride in the collective efforts of all. 3. A safe environment – physically and emotionally Youth should not fear physical or emotional harm while participating in a 4-H experience whether from the learning environment itself, adults, other participants or spectators.	**4. Engagement in Learning** An engaged youth is one who is mindful of the subject area, building relationships and connections in order to develop understanding. Through self-reflection, youth have the ability to self-correct and learn from experience. The engaged learner has a higher degree of self-motivation and an inexhaustible capacity to create. **5. Opportunity for Mastery** Mastery is the building of knowledge, skills and attitudes and then demonstrating the competent use of this knowledge and skills in the manner of a proficient practitioner. The level of mastery is dependent on the developmental ability of the individual child or youth. The development of mastery is a process over time.
INDEPENDENCE	**GENEROSITY**
6. Opportunity to see oneself as an active participant in the future The ability to see oneself in the future is to harness the hope and optimism to shape life choices to facilitate the transition into participating in the future. **7. Opportunity for Self-Determination** Believing that you have impact over life's events rather than passively submitting to the will and whims of others is self-determination. Youth must exercise a sense of influence over their lives, exercising their potential to become self-directing, autonomous adults.	**8. Opportunity to value and practice service for others** Finding one's self begins with losing yourself in the service of others. Service is a way for members to gain exposure to the larger community, indeed the world itself.

Prepared by Cathann A. Kress, Director, Youth Development, National 4-H Headquarters, CSREES, USDA. September 2004.

In 1999, a team of 5 evaluators from the National 4-H Impact Design Implementation Team was given the charge of answering the question, "What positive outcomes in youth, adults, and communities result from the presence of critical elements in a 4-H experience?" The eight critical elements identified by that group are distilled here into our current four Essential Elements.

However, some features of the prevention framework may obscure the existence of these common areas. Prevention researchers use epidemiological methods to identify the type and prevalence of risk factors within a community, and thus to guide programming decisions. In the eyes of a prevention researcher, who looks at risk on the aggregate level of the population, the problem to be fixed is a high concentration of risk, not individual children or youth. However, in the eyes of a practitioner, who is working with individuals, the approach is likely to seem as if it targets children and youth themselves as problems to be fixed.

Also, even when program content is focused on enhancing developmental contexts (e.g., improving parenting skills or family nutritional habits), a prevention program is often funded, and therefore tested, for its abilities to prevent specific problems (e.g., substance use or obesity). Much original prevention research took place in the 1980s and 1990s in response to societal alarm about high rates of adolescent substance use and delinquency, and much current prevention research has developed in response to the "obesity epidemic" and associated physical health problems. Thus, a prevention program may be similar in approach and content to PYD programs but be labeled in terms of the specific problem it has been shown to address, even though it results in improvement across a variety of health indicators.

Conversely, although the PYD/CYD perspective emphasizes a positive approach to youth development and asset building, it also acknowledges the importance of understanding and addressing individual or environmental problems that limit positive development. Some descriptions of positive youth development explicitly incorporate a risk and prevention framework while emphasizing the need to work towards building on the positive (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 1998).

Finally, an important commonality between most risk/resiliency and promotion approaches is the use of developmental theory to guide program design and evaluation. Grounding a program in theory provides a systematic framework for understanding the causes of health outcomes and thus for designing program content to produce those outcomes. Many other approaches to defining health and well-being are descriptive rather than theoretically based, which makes it harder to link program design and evaluation.

Differences Between Prevention and PYD/CYD Approaches

On the other hand, there are also significant differences between prevention and PYD approaches (see Table 2, p. 41). The PYD framework intentionally makes use of the tremendous power of metaphor in its insistence on the positive, and particularly in its view of youth as resources rather than as problems. In the 1980s and 1990s, a majority of adults in the U.S. perceived adolescents as incompetent, troubled, and irresponsible, if not downright dangerous (Duffet, Johnson, & Farkas, 1999; Holmbeck & Hill, 1988). Such perceptions directly affect expectations of individuals in ways that can negatively affect development. In terms of Bronfenbrenner's model, negative perceptions of youth are likely to limit opportunities for youth to interact with larger systems, or for those systems to interact effectively in the best interests of youth. In contrast, the expectation that youth can make a positive contribution is empowering.

Another difference arises from the historically strong emphasis in prevention science on the need for evidence-based programming, which has resulted in packaged programs that have been scientifically tested and are intended to be easily replicated across sites. Standardization helps to ensure fidelity of training and implementation and increases the likelihood of positive outcomes when programs are translated from research to real-world application. Although there are evidence-based PYD programs, many communities espouse PYD principles without clear ideas of how to implement them (Perkins, Borden, & Villarruel, 2001). This tendency may result in youth organizations implementing a variety of activities that are not grounded in developmental theory or whose effectiveness is not scientifically tested.

Levels of Intervention in Risk Prevention and Health Promotion

Prevention, PYD, and CYD approaches are all based on an ecological model of development. Because prevention science is rooted in public health methods, some prevention programs target change at both the individual level and in the macrosystem. For example, substance abuse prevention programs aim to minimize the likelihood of substance abuse for those individuals who attend the program, but their ultimate target may be reduction of rates of substance use in the population of a particular community, state, or nation. Comprehensive prevention programs target change at multiple levels. The FAST Track conduct disorder preventive intervention, for example, included components for aggressive children and their peers, parents, and teachers (Conduct Problems Prevention Research Group,1992). The program intervened at the individual level to reduce aggressive behaviors, but also at the contextual levels of microsystem (e.g., by training parents to reinforce good behaviors) and mesosystem (e.g., by encouraging family involvement with schools).

PYD approaches also focus on youth development through their interaction with more distant contexts. This can be seen in PYD proponents' attempts to reframe the public vision of adolescence (macrosystem), through their expectation of youth service and community involvement (microsystem), and an emphasis on moral and spiritual development (individual). CYD approaches, with their emphasis on the necessity of preparing communities to promote positive youth outcomes, explicitly target community organizations, social services, and schools (exosystem level) and interrelationships among those youth-serving organizations (mesosystem level), as well as relationships of youth to those systems (microsystem level).

Perspectives of Public Health Entities and National and International Organizations

Definitions of child and adolescent health and well-being vary according to who is doing the defining and to the unit of definition. Traditional medical and psychological approaches focus on the health of the individual and often on a single domain of health. However, the health and well-being of children and adolescents are inextricably intertwined with the systems within which they function, so organizations and public health entities that promote child health often focus on the health of those contexts in their definitions and assessments of health and well-being. These approaches are less commonly incorporated into youth development programs than are the risk, resilience and prevention approaches described above, but they offer additional perspectives that may provide food for thought in programming decisions.

Preeminent health and political organizations define health in holistic ways, or as an accumulation of multiple components or processes. The World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease, or infirmity" (WHO, 2006). Health is defined as a cumulative state, to be promoted throughout life in order to ensure that the full benefits of life are enjoyed in later years. Good health is considered vital to maintaining an acceptable quality of life (WHO, 1999). With regard to children, the WHO constitution explains that healthy development of the child is of basic importance, and that the ability to live harmoniously in a changing total environment is essential to such development. WHO also describes public health security as a foundation for health. In the past, the individual's experience of security has often been neglected as a component of health and well-being. However, with changing global trends that focus on security of all kinds (freedom from terrorism, financial security, public health security), it is important that modern approaches to health and well-being consider and incorporate the individual's experience of security in a variety of domains.

Some health organizations do not explicitly define "health" or do not specifically define health for children and youth. The Centers for Disease Control and Prevention (CDC), for example, do not provide a definition of health on their website. Rather, they outline topics of health and set objectives with associated programs for improvement in each topic. In the realm of healthy living for youth and adolescents, they identify the following topics: asthma, overweight, crisis preparedness and response, and injury and violence prevention including suicide, physical activity, nutrition, sexual risk behavior, and tobacco or substance use (CDC, 2008).

By situating health amid conceptualizations of global human rights, the United Nations Emergency Children's Fund (UNICEF) defines well-being as inextricably linked to social, environmental, and political contexts (UNICEF, 2008). The UN's Convention on the Rights of the Child states that environmental conditions of nondiscrimination, best interest of the child, survival and development, and respect for the view of the child are essential to healthy growth. UNICEF sets forth the basic rights of children to include: the rights to survival; to develop to the fullest; to protection from harmful influences, abuse and exploitation; and to full participation in family, cultural and social life. UNICEF's focus is primarily on the macrosystem in which children grow.

We can see that health is defined by these organizations not so much as a status but rather as a process that involves multiple components, contexts, and actions, and that most target primarily the macrosystem level, through provision of policy recommendations for public health. In addition, many organizational approaches to health are not based in developmental theory but simply represent aggregate lists of topics that reflect the priorities of a given agency or public health entity.

Unlike prevention and PYD frameworks, most of the approaches described in this section do not emphasize intervention at the level of the mesosystem and many do not address the microsystem. However, they do provide broader and more inclusive definitions of health than do many risk prevention and positive development approaches. For example, accidental injury is a frequent cause of poor physical and emotional health outcomes yet is infrequently addressed by prevention and PYD programs. 4-H does currently provide programming in risk prevention and similar areas

– for example, the 4-H Community ATV Safety Program (National 4-H Council, 2008) focuses on injury prevention.

Additional perspectives, less frequently addressed in the literature but an important area for healthy living programs to consider, are the definitions of health and healthy living formulated by parents, community members, and children and youth themselves. For example, authors of a research study conducted by the Girls Scouts of America found that girls aged 11-17 defined desirable health in terms of what they perceived to be "normal" rather than what might be considered optimal (Schoenberg, Salmond & Fleshman, 2006). Programs with definitions of health that are inconsistent with participant definitions are less likely to succeed, or even to attract participants.

Indicators of Child and Adolescent Health and Well-being

Researchers, program designers, and evaluators struggle with multiple challenges not only in defining but also in measuring health and well-being. Measurement considerations include whether indicators of well-being should be measured on the level of individuals, context, or populations; whether they should assess specific domains of health or global health across domains; whether they are valid, reliable, and developmentally appropriate; whether they reflect markers of health or causal processes that lead to health; and whether indicators are cumulative (more is better), specific (protective factor A leads to health outcome A), or interactive (protective factor A leads to health outcome A only in the absence of risk factor B).

Early research on indicators of health and well-being tended to focus on unidimensional assessments (e.g., IQ, BMI, or self esteem). The weakness of this approach is revealed when policy decisions about complex programs are considered in light of unidimensional evaluation findings. For instance, early evaluations of Head Start prematurely defined this program as a failure because there did not appear to be permanent, large-scale changes in the IQ of students who attended (Wu & Campbell, 1996). Evaluation of the program across multiple dimensions, however, has revealed gains in nutrition understanding (Hindin, Contento, & Gussow, 2004), cognitive processes (Wu & Campbell, 1996) and socio-emotional functioning (Chazen-Cohen et al., 2007) among Head Start participants. If early evaluations, using IQ as the single indicator, had been accepted at face value, the now undisputed value of early childhood education may not have been fully understood.

Recently, there have been two significant contributions to this important field. First, in 2008 there was the publication of an edited volume that included chapters about health, education, social, emotional and even contextual indicators from many of the world's preeminent developmental researchers (Brown, 2008). The volume represents decades of collaborative exploration by these researchers in their attempts to define indicators of child and youth well-being. A second major contribution to those concerned with measurement of well-being for children and adolescents is the initiation of the journal *Child Indicators Research*, also in 2008. We do not attempt a comprehensive review of these recent contributions. Instead, for the purposes of this review, we discuss the use of domain-specific and global indicators and then highlight some indicators of health on individual and contextual or population levels.

Domain-Specific versus Global or Aggregate Assessments of Health and Well-being

A challenging issue in the definition and measurement of health is whether to choose aggregate (global) indicators of health or domain-specific indicators of health; this topic warrants considerable attention as a foundation for how health promotion and prevention programs are developed and evaluated (cf. Mikkelsen & Einarsen, 2002). Briefly, an aggregate measure will usually yield one "score" per person that describes overall health and well-being, whereas a domain-specific measure assesses health in a single area or topic. For instance, the Diagnostic and Statistical Manual IV (DSM-IV) contains domain-specific indicators of mental health, such as those used to assess anxiety, conduct disorder, or schizophrenia (American Psychological Association, 1994). These indicators tell us whether a child has a diagnosis (e.g. anxiety) or multiple diagnoses (e.g. anxiety, substance abuse, and depression), but do not give an overall score for mental and physical health functioning. In contrast, children can receive a simple score from 1 to 100 on the Children's Global Assessment Scale (CGAS), which measures overall mental and physical functioning descriptively (Shaffer, Gould, Brasic, & Ambrosini, 1983). Some global assessments are calculated as a composite of scores from several more specific measures.

Individual and Contextual Indicators: Overview

To focus this section of the review, we begin our discussion of individual indicators with the National Research Council's list of personal assets that have been found through longitudinal studies to enhance socio-emotional development, followed by a mention of common indicators used in risk/resilience and health promotion approaches. Next, we consider indicators of individual physical health, and of personal security as defined by WHO. We then move to a review of health and well-being indicators at the contextual level. Throughout the discussion of individual and contextual indicators of health, we will describe both domain-specific and global measurements.

Indicators of Individual Health and Well-being

Individual indicators are those elements of a person or a person's behaviors that reflect well-being in that individual. Most programs hope to see changes in individual-level indicators even if their primary focus is on other social or contextual levels. Below we discuss some of the many possible indicators of individual health and well-being, starting with indicators of socio-emotional health and moving to indicators of physical health.

- **Personal assets:** The National Research Council (NRC) Panel on Community-Based Programs for Youth reviewed the extensive literature on developmental assets and resiliency and compiled a list of "Personal Assets that Facilitate Positive Youth Development" (Eccles & Gootman, 2002). The 28 assets are grouped into four major categories: physical health, cognitive development, psychological and emotional development, and social development (Table 3, p. 42). Each of these assets is linked to other indicators of well-being through empirical research; however, it is not known how each asset may enhance or diminish the importance of other assets. Eccles and colleagues drew three major conclusions about personal assets: first, it is important to have assets in each of the four categories; second, within each category having only a subset of assets is still protective; and third, more assets are better (Eccles, Brown, & Templeton, 2008).

- **Risk and protective factors.** Commonly used indicators in prevention and PYD approaches are risk and protective factors (Hawkins, Catalano, & Miller, 1992) (see Table 4, p. 43). Similar to the personal assets defined by NRC, risk factors are "markers" of potential risk — that is, they are descriptions of attributes or conditions that are known to be correlated with poor socio-emotional outcomes such as delinquency, aggression, or depression but may not themselves be the causes of those outcomes (see Table 1). Protective factors are those attributes that buffer the effects of risk factors (Rutter, 1985). As with personal assets, effects of risk and protective factors appear to be cumulative and nonspecific — a greater number of risk factors is associated with increased probability of poor outcomes, and a greater number of protective factors is associated with better outcomes for children with multiple risk factors. Thus, an aggregate of risk and protective factors may be used as a global indicator of health. However, risk and protective factors may also be assessed in specific domains. For example, the protective factor of youth attachment can be measured separately for parents, peers, school and neighborhood, depending on the goals of a particular program.

- **Other developmental research indicators.** There is an abundance of measures of health and well-being to be found in developmental research literature. These measures are too numerous to review, and many of them overlap with indicators of personal assets or risk and protective factors. However, some indicators (e.g., measures assessing body image) describe specific aspects of health beyond those covered in lists of assets and risk and protective factors.

- **Medical and clinical indicators.** In medical and clinical settings, indicators of social and emotional health generally define health problems rather than describing positive health or well-being. The International Classification of Diseases ICD-10 (published by WHO and used internationally) and the DSM-IV (published by the American Psychological Association and used primarily in the U.S.) provide domain-specific diagnostic criteria for disorders of psychological development (e.g., autism), behavioral disorders (e.g., conduct disorder), and emotional disorders (e.g., separation anxiety) that appear in childhood or adolescence. In contrast, some global indicators rate individuals with a single score on a continuum from poor health to good health. For example, children are rated with a score between 1 and 100 on the Children's Global Assessment Scale (CGAS), which is often used in clinical settings. They receive one of the lowest scores (1-10) when they meet this description: "Needs constant supervision (24-hour care) due to severely aggressive or self-destructive behavior or gross impairment in reality testing, communication, cognition, affect, or personal hygiene." However, one of the highest scores (91-100) were reached when they met this description: "Superior functioning in all areas. Secure in family, school, and with peers. There may be transient difficulties and 'everyday' worries that occasionally get out of hand (e.g., mild anxiety associated with an important exam, occasional 'blow-ups' with siblings, parents, or peers.)"

- **Positive functioning indicators.** In addition to measures of problematic function, there are numerous measures of positive functioning, including coping skills, mindfulness, and openness to experience and to learning. Indicators of protective

factors fall into this category as well. Many of the indicators used in the current 4-H Study of Positive Youth Development (Lerner, Lerner, Phelps, and Colleagues, 2008) assess positive functioning by using measures that assess the 5 C's (Competence, Confidence, Connection, Character, and Caring).

- **Physical health indicators.** In the realm of physical health, indicators have tended to be domain-specific, and health and well-being are measured in each of many domains at the individual level. For example, as noted earlier, the CDC provides a list of eight current health topics (i.e., asthma, overweight, crisis preparedness and response, injury and violence prevention [including suicide], physical activity, nutrition, sexual risk behavior, and tobacco use) within which each individual's health status and health habits can be measured (CDC, 2008). When assessing the well-being of individual participants in healthy living programs, it may be warranted to measure health status and health behaviors in multiple domains, even for broad-based programs, or for programs that focus on only one domain. The driving philosophy of such a strategy would be that health in more domains is better, and poor health in one domain might mitigate the benefit of health in another domain.

Population-Level Health And Well-being Indicators

In public health or epidemiological approaches, many indicators used to measure individual health are also used to describe the health of an entire population (e.g., the population of a school, community, state, or nation). For example, the same index that is used in the Monitoring the Future survey (Bachman, Johnston & O'Malley, 2001) to describe national rates of adolescent substance use is also used as a pretest and posttest indicator of individual change in many evaluations of substance abuse prevention programs. As noted earlier, risk and protective factors are often assessed at a community level, and overall rates of risk and protective factors are then used to determine where or what type of programming is needed. Needs assessments may also be conducted through community-level measurement of developmental assets.

On the other hand, individual and population-level indicators for the same topic may differ. For example, a program that aims to reduce sexual risk taking among adolescents may assess individual changes in indicators of sexual attitudes and behaviors from before to after a program. In contrast, measurement of sexual risk taking at a population level might include more distant indicators such as rates of teen pregnancy and HIV infection.

Although they may use the same indicators, we separate individual-level from population-level measurement because the distinction may be important in program planning and evaluation. For example, in communities where a specific program is offered at all schools, program evaluation can assess the impact of that program on the community as a whole. However, in programs that are offered only to smaller groups, it may be unrealistic to expect changes in community assets or risk and protective factors.

Contextual Health And Well-being Indicators

The National Research Council identified features of contexts that promote youth development (see Table 5, p. 44). Definitions of child and youth health set forth by the United Nations' Commission on Rights of the Child and the World Health Organization are almost completely contextual (e.g., lack of poverty, environmental

security, survival, and non-discriminatory environment). The CDC also acknowledges context as an important prerequisite for health in programs focused on poverty, and ethnic and sexual minority youth. Each of these indicators provides a marker for how to assess the context of youth, and how best to intervene programmatically to promote health. For example, in a context where an individual is suffering from overt, significant discrimination, an individually-focused health program may be less successful until the discrimination is mitigated. Additionally, a program may choose to measure its success not through changes in individual's health behaviors, but rather through changes in indicators of the context such as fewer school wide reports of harassment or teasing or more pervasive endorsement of prosocial norms.

PART II: CONSIDERATIONS IN PLANNING AND EVALUATION OF 4-H HEALTHY LIVING PROGRAMS

We begin this second part of the paper with a look at the definitions of evidence-based practices. Because those who work in 4-H Youth Development face pressure to use evidence-based programs or to provide evidence that their programs work, this section describes in some detail how programs come to be designated evidence-based and the value and limitations of relying on evidence-based programming.

We then briefly review a selection of 4-H programs in light of the definitions, perspectives, and challenges discussed in Part I. The purpose of this section is to highlight areas of health and well-being that are addressed by current 4-H Healthy Living Programs, and areas that are underrepresented. We also examine the evidence base and availability of evaluation material for these programs.

In the last part of this section, we present a series of considerations that may be useful in informing the selection, design and evaluation of 4-H Healthy Living Programs. These considerations are derived from: (1) our use of the ecological systems model of development as a unifying framework; (2) the earlier discussion (Part I) of challenges in the definition and measurement of health and well-being; and (3) the intent of 4-H programming to represent "best practices" in the promotion of health and well-being — theoretical grounding, a logic model with clearly specified activities leading to measurable goals, and documentation of program effects through careful selection of indicators.

"Best Practices", Evidence-Based Practice and Evidence-Based Programs

The terms "best practices," "evidence-based practices," and "evidence-based programs" are often used interchangeably. The push to document evidence of the effectiveness of programs and practices is associated primarily with 1) the failure of some social programs, especially in the era of Great Society policies, to demonstrate success (Campbell, 1969); and 2) the anecdotal nature of much clinical practice in medicine (Jacobson, Edwards, Granier, & Butler, 1997). Establishing that a practice is evidence based is accomplished through application of systematic inquiry and has gained importance in response to calls for accountability in policy-making and use of resources. Because there is often pressure to use evidence-based programs, or to demonstrate that a program follows "best practices", we cover the topic in some detail. Below we discuss some commonly agreed-upon definitions for these terms, and we outline

how a program comes to be formally designated "evidence based" by funding agencies. We also discuss some of the pros and cons of relying on an evidence-based approach.

"Best Practices" and Evidence-Based Practice

In recent history, the term "best practices" has gained popularity across most human service fields that address physical, social, and emotional health. The term "best practices" refers to methods of service delivery and organization that have either been experienced or evaluated as effective in creating a desired outcome. However, it is difficult to find a universally accepted definition of "best practices", even within a single field. Most scholars discuss "best practices" as a list of procedures that have either individually or systemically created desired outcomes. Sometimes the procedures discussed are very specific. For example, Darington and Feeney (2007) describe specific ways in which to increase interagency collaboration among agencies working with families involved with Child Protective Services, and Embry and Biglan (2008) identify 52 "kernels", or units of behavioral influence that effect preventive change. Other "best practices" may be broad: for example, conducting an assessment of community needs, resources and readiness is considered a best practice in determining choice of programs (Substance Abuse and Mental Health Services Administration, 2008).

Definition of the term "evidence-based practice" (EBP) is also widely varied and has much overlap with, or is used in place of, the term "best practices". Dunifon and colleagues emphasize the historical base of the term and its development as a specific methodological approach in the medical field (Dunifon, Duttweiler, Pillemer, Tobias, & Trochim, 2004). In this context, EBPs are those which have been identified through systematic review, statistical analysis, and summary of the existing literature on a topic. Once effective practices have been identified through this review process, they are incorporated as recommendations for practitioners and disseminated. For example, one review of the literature on substance abuse prevention programs has shown that interactive exercises are significantly more effective than simple didactic methods (Tobler, 1992). Databases of such reviews are available through the Cochrane Collaboration (2008) and the Campbell Collaboration (2008), which exist for the sole purpose of conducting systematic reviews of practices and programs and disseminating their results. In addition, individual scholars may conduct and publish their own systematic reviews or meta-analyses.

Evidence-Based Programs

Evidence-based programs are a subtype of evidencebased practice (Bartholomew, Parcel, & Kok, 1998). How does a program come to be designated "evidence based," "science based," "model," "exemplary," or "promising? " Numerous agencies have established specific criteria and procedures for assessing whether a program should be considered evidence based and worthy of widespread adoption (see, for example, the Substance Abuse and Mental Health Services Administration's National Registry of Effective Prevention Programs, 2008). Most have three primary criteria in common: first, the program must be theory based; second, there must be strong evidence that a program works; and third, the program must be ready for dissemination.

1) Program theory. Theories provide models of human behavior that: (1) present a coherent approach to understanding complicated phenomena; (2) allow us to make

predictions; and (3) can be tested. The ability to predict ("If we do X, then Y will result") is important because it guides both program planning and evaluation. It allows us to match specific activities to desired outcomes and tells us what we can reasonably aim to measure as a program outcome (Gottfredson, 1984; Weiss, 1995). The ability to test (measure program results) is important because it tells us whether and how well our program is working.

Program theory is often represented in a logic model, a useful tool that provides a graphic representation of how a theory of change gets translated into action. Development of a logic model allows program providers to articulate their assumptions and set forth to measure indicators that will test these assumptions. For instance, a program provider may articulate a belief that when individuals have knowledge of healthy eating patterns, they will be motivated to engage in healthy eating behaviors. This assumption can be tested by measuring indicators of knowledge, motivation, and behavior. If individuals who increase more in knowledge also increase in motivation, the assumption is supported. If the evaluation also reveals that changes in motivation are not associated with changes in actual behavior, than a rethinking of the theory of change is in order (Shadish, Cook & Campbell, 2001; Shadish, Cook & Leviton, 1991).

Optimally, theories and logic models are used proactively in the development of programs. However, often an existing program must be "mined" in order to determine its theoretical foundation (or logic model). In either case, it is most efficient to rely on existing theoretical frameworks in developing a logic model. Theories of change and development abound, but some lend themselves more easily to programs that engage youth in new behaviors or behavioral change in the promotion of physical, social, and emotional health.

2) Evidence of effectiveness. The quality of a program's research base provides the basis for evaluating whether it works, and research quality is generally assessed using standard scientific criteria: validity and reliability of measures; strength of study design and implementation; and quality of research data and statistical analyses. When reviewers assess programs, they give the highest marks to programs that have: (1) been developed based on a logical theory of change; (2) been studied experimentally (e.g., with random assignment to program versus control groups); (3) demonstrated high-quality implementation in the study; (4) followed participants longitudinally to ensure that program effects last; (5) used strong and previously tested measures; and (6) been replicated by someone independent of the researcher (although most current evidence-based programs have not had an independent replication).

3) Program dissemination. The degree to which a program can easily be adopted and implemented on a large scale provides the basis for judging its readiness for dissemination. Highest marks in this category go to programs that provide standardized training and implementation materials, offer ongoing support and technical assistance, and have strong quality assurance procedures (e.g., training certification and measures of implementation quality).

Programs that have been shown to work in controlled experiments are considered efficacious. Efficacious programs that have then been shown to work in real-world

settings with different populations are considered effective. And finally, effective programs that can be transported across settings with fidelity are considered ready for dissemination (Figure 4).

FIGURE 4. Evidence-Based Program Progress from Efficacy and Effectiveness Trials to Dissemination

These last programs, which have passed the efficacy and effectiveness gates and are ready for dissemination, are the ones labeled "exemplary" or "model" by various organizations. Other programs, for example those which have been shown to work in experimental conditions but have not been studied in real-world circumstances, may also be considered evidence based but labeled "promising" rather than "exemplary."

The process of acquiring a designation of model or exemplary is lengthy and arduous. Program developers who are not themselves researchers must find research partners and funding to conduct expensive longitudinal studies and publish findings, then submit those findings to one or more agencies that assign ratings and evidence-based labels after review of a program's research basis and supporting materials. Because so many local, state, and federal agencies now require that a certain portion of funded programs be evidence based, there is a large demand for such reviews and often a backlog in their processing. For example, as of this writing, SAMHSA's National Registry of Effective Prevention Programs (NREPP) will not be accepting new programs for review for the next year and a half.

Value of an Evidence-Based Approach

The primary value of using evidence-based programs and practices is that they provide convincing evidence of accountability in the use of limited resources. Many policies,

programs, and activities are popular, enjoyable, and seem to work but when put to the test do not produce positive results. One example of this problem is the widely disseminated Drug Abuse Resistance Education program (D.A.R.E.). Hundreds of communities have spent millions of dollars on the implementation of D.A.R.E. over the years, and parents, school officials, and police organizations clearly believed that the program successfully prevented drug use. However, repeated evaluations have shown definitively that the program does not prevent or decrease substance use and in some populations, the program is actually associated with increased drug use (Ringwalt, Ennet & Holt, 1991). Similarly, many school curricula and teaching strategies have eventually been shown to be ineffective despite widespread popularity and only after expensive curriculum revisions (Marzano, 2003). The tendency to believe that activities and programs that should work, do work, is universal — for this reason, unbiased and repeated documentation of program effects is important. It may also be necessary, as federal and state agencies and foundations are increasingly likely to require evidence of accountability when funding programs. Finally, evaluation of evidence-based programs is often relatively straightforward, since program theory is explicit, and for most programs, useful outcome indicators have already been developed and tested..

An additional advantage of evidence-based programs is that they are classified according to the groups they are intended to serve (Mrazek & Haggerty, 1994). Universal programs are those that target the general population and are intended to prevent the initial development of a problem. Selective programs target the segment of the population considered to be at risk for development of a problem. Indicated programs target individuals who may already be exhibiting initial indicators of a problem and are intended to manage current problem levels and to prevent development of a full-blown syndrome.

Limitations of an Evidence-Based Approach

As noted above, scientific documentation of a program's effectiveness, or of the evidence base for a practice, is resource intensive. Synthesis and statistical analysis of multiple studies to document that a practice is evidence based requires specific technical skills. Unless a program is designed for large-scale implementation, funding for longitudinal research and obtaining the "model program" designation may be difficult. However, there are intermediate solutions that can be used to provide reasonable evidence of program effectiveness without the expense of a full-blown randomized clinical trial or the generation of a meta-analysis (Shadish, Cook & Campbell, 2002). Some of these solutions include innovative research methods: use of a matched comparison group (e.g. comparing school performance of students who attend an after-school program with students who do not, matched for demographics, school performance, and adjustment); wait list comparisons (randomly assign some students to participate now and others later, using the "later" students as a control group for the earlier participants); construction of a control group through statistical matching using available public data (known as "propensity scoring"); careful construction of unbiased pretest/posttest evaluations; and use of independent raters (e.g. teachers or parents rather than self report) to assess change. Another promising approach is the systematic incorporation of brief, evidence-based, behavioral interventions (or "kernels") into 4-H Healthy Living Programs and activities (Embry & Biglan, 2008). Kernels are easy to incorporate into a variety of contexts (e.g. after-school programs), and they are simpler to implement and measure than large-scale programs.

A second limitation is that packaged programs designated as evidence based are often standardized and developers emphasize the need for fidelity to program content, but there is rarely guidance about how much adaptation to a standardized program is too much or which types of adaptation may affect outcomes (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). The emphasis on fidelity without specific guidelines limits a practitioner's ability to tailor a program to the unique needs of his/her audience (i.e., to take into account contextual factors) and still remain confident of program effectiveness. Similarly, an exclusive focus on evidence-based practices and programs may limit autonomy and innovation. Dunifon and colleagues note that the EBP approach may be foreign to the culture of Extension for these reasons (Dunifon et al., 2004).

Systems that emphasize an evidence-based approach should keep these limitations in mind by allocating resources to innovative programming and evaluation methods (e.g., accepting evaluation of short-term indicators that may reasonably be assumed to mediate long-term change).

Summary

We can derive some general "best practice" principles relevant to 4-H program development and evaluation from this review of evidence-based practices and programs. First, all 4-H programs should be explicitly based on a theoretical model of change, optimally in the form of a logic model available as part of the program materials. Program goals should be clearly articulated in the logic model, and program activities should be designed to produce outcomes that will achieve those goals. A logic model should also specify the audience for which a program is intended and the level of ecosystem for which change is targeted. Second, program outcomes should be documented, and evidence of program effectiveness should be readily accessible through peer-reviewed publication or through evaluation outcome reports available online in a central repository. Evaluation should be budgeted for and funded as a standard part of program costs. Third, programs that work should be disseminated and evaluated in a variety of settings.

Some additional "best practice" principles are suggested by the earlier review of definitions of health and well-being. First, prevention and promotion approaches are compatible and may even be synergistic (Lerner et al., 2008). Program developers should be aware of this and incorporate elements of both approaches. Second, "health" is a broad construct, and definitional issues abound. Program developers and evaluators should be clear about whether they are addressing global health and well-being or a specific domain of health, and whether they intend to affect the health of an individual, an individual's context, or both. These considerations can be addressed as part of the formulation of a program's logic model and will help to narrow the choice of outcome program indicators. We provide more specific guidance for program evaluation later but turn now to a brief review of current 4-H programming in light of these best practice principles.

A Brief Review of Some Current 4-H Programming in Healthy Living

The extent and diversity of 4-H programming did not allow for an exhaustive review of available programs, so for the purposes of this report, we examine 26 programs highlighted on the 4-H Headquarters website (**http://www.national4-Hheadquarters.gov/about/4-H_programs.htm**) in terms of the best practice considerations outlined above. Although this is not a comprehensive review of 4-H programs, these 26 notable programs are good examples of current, strong 4-H programming. Our discussion focuses primarily on Programs of Distinction but when adequate descriptive information was accessible, other programs, such as the Programs of Excellence, were included. We begin with an analysis of programs based on the definitions and approaches defined in Section III above. Next, we attempt to identify basic program theories for each of these curricula and summarize the evidence base in support of the curricula. Finally, we summarize the content areas, delivery mode, and audience for each of the programs. (See Table 7a, pages 56-59 for sources of information for each program.)

Program Categories

Table 6 (pp. 45-46) provides a listing of each of the 26 programs and its categorization in terms of whether they address individual vs. context and global vs. domain-specific health. We note that these are rough categorizations, applied for purposes of illustration, rather than definitive descriptions. From the table, we see that there is a good mix of individual vs. context focused programs (9 vs. 11), with the remaining six including elements of both. There is also a good mix of global vs. domain-specific programs (8 vs. 18). Among the domain-specific-programs, a broad array of content areas is represented, including physical health and nutrition, substance use, healthy relationships, and sexual health. Furthermore, many programs listed as domain-specific may also focus on more global constructs. Similarly, most programs on the list could be considered as combining both prevention and promotion approaches. For example, although the Strengthening Families Program for Parents and Youth 10-14 is often referred to as a program designed to prevent substance use (domain-specific prevention), the bulk of the program is in fact aimed at promoting the development of a strong family context.

Program Theories

For eight of the programs, a program theory could not be readily identified. The remaining 18 either had explicit theory (n= 9) or easily identifiable implicit theories (n= 9) (Table 7, pp. 47-55). Some of these programs used a combination of theories or perspectives, such as theories about resiliency coupled with the ecological model (e.g., Project Magic). Some programs did not have clear theories because their focus was on disseminating a variety of curricula rather than a single program. Most of these programs are well suited to developing a theory of change and logic model ex post facto.

Evidence Base

Eighteen of these programs are classified as Programs of Distinction, with five of the Programs of Distinction being classified as evidence based due to the rigor of their evaluations (see Table 7, pp. 47-55). The remaining eight programs have been named as Programs of Excellence. Of the five programs which had randomly assigned control

Therefore, we believe it critical that the establishment of a strong and publicly available evidence base for 4-H Healthy Living Programs become a task force priority.

groups, four target substance use prevention (DARE to be You, PROSPER, Project ALERT, and the Strengthening Families Program). This clustering of evidence-based programs in a specific domain reflects the fact that longitudinal randomized trials are expensive, and funding agencies are more likely to award large-scale grants to academics who are researching programs that target specific problems. Several of the programs have had or are currently undergoing outside evaluation with promising approaches (separate from randomized controlled trials) such as wait-list and matched-pair control group comparisons. However, some of the programs on the list still have significant improvements to make in their evaluation designs (i.e., those with only post-program data or those with minimal pretest/posttest evaluation designs).

Content, Delivery and Audience

Most of the programs (21 of 26) focus on physical health and well-being, through the promotion of exercise and nutrition, substance use prevention, abstinence from sex, injury prevention, or parenting skills and knowledge. Four of the remaining programs emphasize delinquency prevention through either healthy relationships or life skills training; the final program (UNL for Families) is designed to promote healthy family relationships to enhance youth overall well-being and adjustment.

Most of the programs provide direct services (24). Three noted programs (Building Partnerships for Youth, PROSPER, and UNL for Families) focus their energies at the community level, providing systematic resources and support for effective program development, implementation, and evaluation. The audiences range from K-12th grade. Most of the programs focus on typical youth; however, a number of them are designed for youth who are identified as at risk (n=4), or were referred through the juvenile court system (n=4).

We note that there were few programs specifically targeting diverse, high-risk, or minority audiences, though a number of the programs appear to include a variety of demographics. There is also an absence of programs designed as adaptations for specific audiences. This is not surprising since systematic adaptation and evaluation of evidence-based programs is rare.

Summary

4-H Programs of Distinction and notable programs represent an array of approaches. Most combine both prevention and promotion principles, even when they are billed as primarily one or the other. Most are domain-specific, and most focus on some type of physical health. But some of those also address global health and well-being through an emphasis on enhancing the health of children's contexts, and thus promote their physical health targets (e.g. substance use prevention) in a context of social and emotional well-being (e.g. attachment to and involvement with parents). Direct interventions with children are balanced with programs that target larger contexts, including families, schools, and communities (primarily microsystem and mesosystem). Although a minority of programs explicitly stated their theory base, for most programs a theoretical underpinning was easy to derive.

In other words, 4-H's "portfolio" of programs includes a spectrum of approaches, targets a variety of audiences, addresses both specific domains and global health and well-being, and is generally based in theory. However, the program review did not

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Considerations for 4-H Program Planning and Evaluation

As noted earlier, the establishment of a program's evidence base — that is, documenting that a program achieves its goals — is important for several reasons. First and most importantly, evaluation tells us whether our programming works and thus serves as a method of quality control and improvement. Second, it provides evidence of accountability in a time of limited resources and increased calls for justification of expenditures. Third, availability of evaluation data increases the likelihood of external funding for programming from local, state, and federal agencies and private sector sources. Therefore, we believe it critical that the establishment of a strong and publicly available evidence base for 4-H Healthy Living Programs become a task force priority. This will increase the quality, visibility, and credibility of 4-H Healthy Living Programs. Below, we present recommendations toward the goal of establishing such an evidence base and additional recommendations for future directions of 4-Healthy Living Programs.

Therefore, we believe it critical that the establishment of a strong and publicly available evidence base for 4-H Healthy Living Programs become a task force priority.

FUTURE DIRECTIONS AND RECOMMENDATIONS

Based on the previous review of health promotion literature, theoretical approaches to prevention/promotion, and related "best practices", the following recommendations are offered to the 4-H system. We have organized the recommendations into three overarching priorities:

- *Use a Unifying Theoretical Framework to Establish Strategic Goals and Priorities.*
- *Expand the Evidence Base for 4-H Healthy Living Programs.*
- *Expand the Scope, Targets, and Delivery Modes of Healthy Living Programs.*

Use a Unifying Theoretical Framework to Establish Strategic Goals and Priorities

1) Adopt a Uniform Theoretical Framework for Healthy Living Programs

There are some significant barriers to creating a strong evidence base across the variety of programs encompassed under the umbrella of "healthy living." First, as is evident from the earlier part of this paper, the domain of physical, social, and emotional health is broad, difficult to define, and encompasses not only individuals but also their contexts, from family all the way up to society at large. By extension, evaluation of health outcomes and selection of indicators to measure health and changes in health is potentially a broad and diffuse task. Adoption of a uniform theoretical framework for healthy living programs and a uniform set of indicators for assessing health outcomes will be necessary to create a manageable evaluation system and to allow for comparison of results across studies.

We recommend use of the National Research Council's personal assets and contextual features as a unifying conceptual framework for developing and assessing 4-H Healthy Living Programs. These represent a distillation of developmental theory and research about what children and youth need to grow and thrive. They lend themselves easily to logic modeling of desired outcomes for individuals, and they are consistent with the Essential Elements of 4-H (which represent an even more concen-

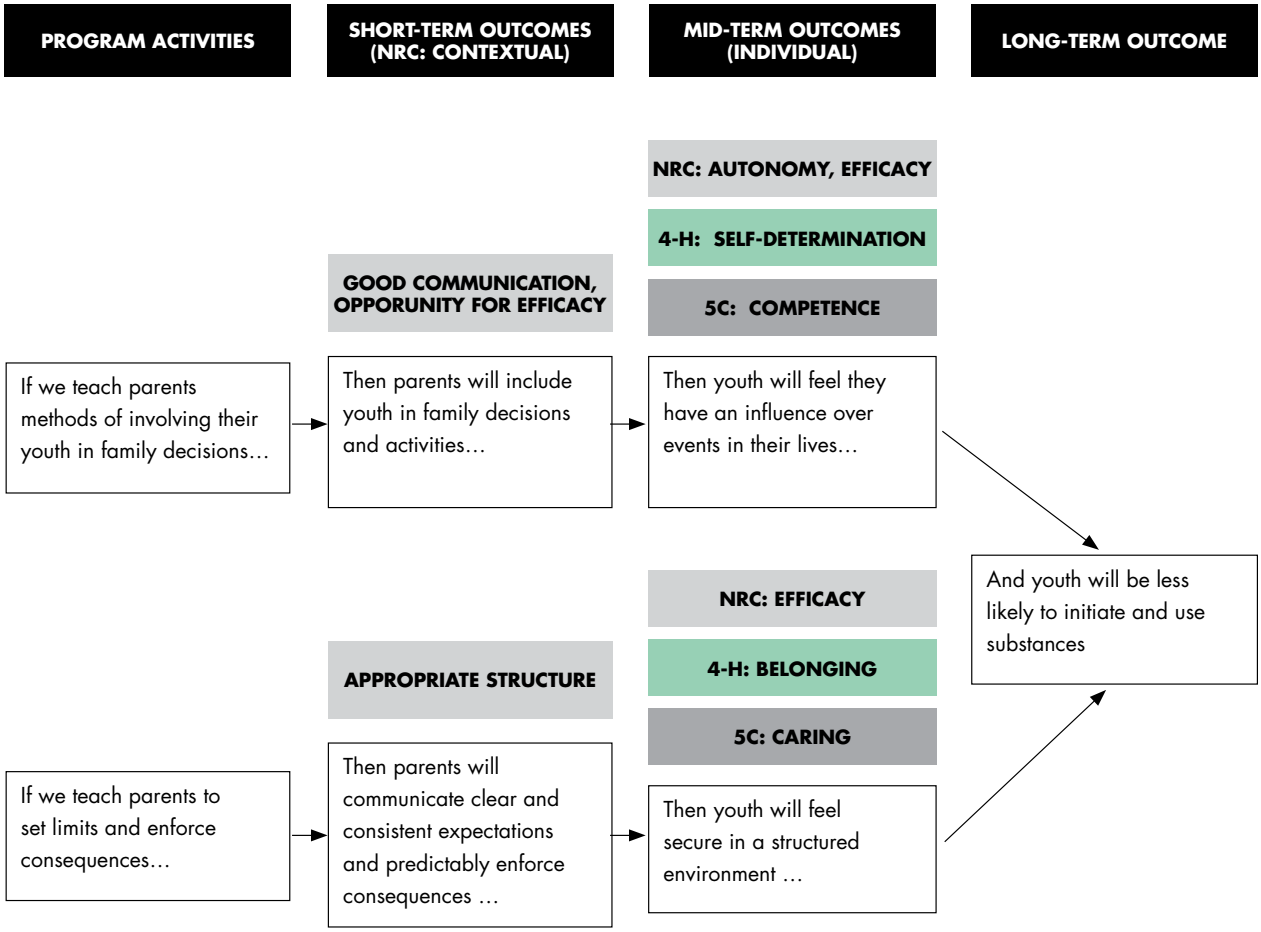

FIGURE 5. Simplified Logic Model of the Strengthening Families Program with Contextual and Individual Outcomes

trated distillation of theory and research). They are easily mapped onto other similar and frequently used frameworks (e.g. the 5Cs used in the 4-H Study of Positive Youth Development). In Figure 5, we present a highly simplified logic model of a 4-H Program of Distinction, the Strengthening Families Program 10-14, to illustrate how the NRC's assets can be used to construct a logic model of the theory underlying a program and how the Essential Elements and the 5Cs can be mapped onto individual outcomes defined by the NRC assets.

In Table 8 (p. 60), we also suggest measures that can be used to assess the outcomes listed in Figure 5. Although not presented in Figure 5, standard risk and protective factors can also be easily mapped onto NRC assets and contextual factors. Thus, the NRC assets provide a flexible and comprehensive set of outcomes that can be used in theory development, program planning, and evaluation.

We also recommend supplementing NRC indicators with indicators associated with prevention research (e.g. substance abuse, depression, risk behaviors, and delinquency) where applicable. Change in these outcomes is more often apparent over a longer time frame than that targeted by many 4-H programs, and they should be assessed in longitudinal studies. However, some youth, and particularly higher-risk youth, may show gains on these adjustment measures over even shorter time periods. Incorporating evidence-based behavioral kernels (Embry & Biglan, 2008) into programs also provides a means of assessing short-term, well-defined behavioral change with relative ease.

Finally, specification of a common set of targeted outcomes across programs simplifies the task of evaluation and enables a comparison of results on common outcomes across different programs. Such a comparison is possible even when evaluators use different measures of the same indicator — for example, depression may be measured using the Beck Depression Inventory or the Center for Epidemiologic Studies Depression Scale, as both provide valid and reliable estimates of depression levels. However, we strongly recommend use of existing measures with documented properties of validity and reliability and especially measures that have already been used in existing 4-H program evaluations to facilitate cross-study comparison and to ensure validity of results.

It is difficult to recommend a single "correct" measure for each of the personal assets or contextual features since circumstances will often dictate the need for different measures from study to study. For example, younger children generally require different measures and evaluation techniques from older youth; a physically safe environment would be measured differently in a home from in a school; and a research study with funding to pay participants can afford to use longer measures than an evaluation which uses program time to administer pretests and posttests. That being said, we present in Table 9 (pp. 61-62) initial recommendations for some measures that could be used across many 4-H Healthy Living Programs to promote uniformity of evaluation, and in Table 10 (p. 63) we present useful clearinghouse websites with excellent information on solid measures that can be used with children and youth.

4-H systems and organizations at national and state levels should be strategic in identifying specific health-related issues and outcomes they will choose to address.

2) Establish Strategic Plans for 4-H Healthy Living Programs

The mission mandate for these programs is intentionally broad, spanning the domains of physical, social, and emotional health. While this breadth accurately reflects the complexity of factors contributing to health and well-being, it also creates the danger of characterizing all the work done in 4-H under the generous umbrella of healthy living. To do so would dilute the potential visibility and impact that 4-H could establish in its health-related programming.

To counteract this tendency, 4-H systems and organizations at national and state levels should be strategic in identifying specific health-related issues and outcomes they will choose to address. The 4-H Essential Elements, Five C's, and 28 Assets reviewed in this paper provide a framework that can be used to guide priority-setting in strategic planning processes around 4-H Healthy Living Programs across all levels of the Extension system. In choosing priorities, educators should consider not only where 4-H is currently well positioned to impact health outcomes for youth and families, but also areas in which 4-H needs to build capacity to address emerging and urgent health issues in coming years. It will be important to acknowledge competing priorities in the already full slate of extension educators' activities and to create room for healthy living priorities. Plans for future staffing, professional development, and program support should also be an integral part of the strategic planning process around healthy living.

Expand the Evidence Base for 4-H Healthy Living Programs

1) Include Evidence-Based Models and Curricula that Address Health Across Domains as Parts of the 4-H Program Delivery Mix

Having land-grant universities as our institutional homes, Extension organizations are committed to the mission to integrate research and outreach. However, too often our educational programs are not connected to current research agendas at our own institutions or in the broader youth development field. The adoption of evidence-based models not only offers Extension the opportunity to extend programs with a track record of successful impacts, but also to play a role in research on the effective dissemination of those programs to real-world settings. In fact, some have described Extension as "a broad-based existing natural laboratory that can be utilized to implement evidence-based results and to evaluate the effectiveness of such efforts" (Dunifon, et.al., 2004). Expanding Extension's traditional role of disseminating research to the broader arena of translating research from controlled to community settings could potentially elevate the institutional profile and perceived value of 4-H Youth Development programs at both state and national levels.

A second advantage of adopting evidence-based programs for 4-H delivery is the increased potential for leveraging state and federal funding for prevention work. Partnerships with federal agencies that have research agendas related to health issues could lead to branded funding arrangements that would support integrated research/Extension projects. Many federal and state agencies establish funding priorities based on the designation of programs as "evidence based" or "best practice." Should they choose to include evidence-based models in their program delivery mix, 4-H practitioners may be in a better position to access grants and contracts to carry out prevention work.

2) Use Theory-Based Program Planning and Evaluation Processes

Another tool that can establish focus in the broad arena of 4-H Healthy Living is a strong program planning process. Deliberate program planning processes assure that the strategic priorities Extension establishes are well aligned with the priorities of their constituents. Careful needs assessment should be conducted prior to program adoption, insuring that local health data and agency partners contribute to the definition of strategic priorities at state and community levels.

In 4-H Youth Development programs, many activities and events have a long history and are offered on an annual or ongoing basis. While many of these activities may not traditionally be articulated as "healthy living" programs, some may have implications for physical, mental, or emotional health domains. Extension practitioners may want to reexamine their slate of activities and events in light of the health outcomes and indicators discussed in this report, and reframe the content and processes of long-standing events and activities to address prevention and/or health promotion topics and issues more directly.

Many youth development organizations engage young people in activities that may be recreational or oriented to special skills or interests. Few have the broad educational mission of 4-H Extension. As outreach partners in universities, 4-H has the strategic advantage of an affiliation with research and higher education (Mincemoyer et al., 2008). This advantage can best be realized if 4-H practitioners are intentional about grounding their work in solid program planning and evaluation processes. In relation

to prevention and health promotion work, 4-H can wear the mantle of educational leaders in the youth development field by modeling and training around outcome-focused health programs.

3) Invest in Research Partnerships and in Building Evaluation Capacity
Selection of measures, longitudinal research designs, and statistical comparisons across studies, all necessary to the establishment of a strong evidence base, require technical expertise in research methods. These facts represent a second barrier to developing an evidence base for 4-H Healthy Living Programs: rigorous evaluation is complicated, time consuming, and expensive. *Significant investment in partnerships with researchers and in building evaluation capacity will be necessary to create a strong and sustainable program of research and evaluation.*

Effective longitudinal research on promising programs requires partnerships between Extension educators and researchers. There are currently several large-scale longitudinal funded research projects on 4-H initiatives (e.g. the PROSPER Project and the Positive Youth Development Study) that involve researchers and Extension educators, but opportunities for collaborative work of this nature are hard to come by. Initiatives to support such partnerships, both small and large scale, would produce multiple benefits, including increased scholarship opportunities for 4-H educators, increased visibility of 4-H in peer-reviewed literature, and an increased roster of evidence-based programs associated with 4-H Healthy Living. In addition to funding research partnerships on new programs, 4-H is in a unique position to support such partnerships because of its location in the land-grant university system. Similarly, because of the disseminated network of Extension educators, 4-H is in an excellent position to conduct research on adaptations of existing evidence-based programs to new populations.

Rigorous evaluation designs contribute the most to our understanding of how best to intervene to support healthy youth development. Not all programs require large-scale, longitudinal evaluation, but almost all programs should be evaluated regularly. Although Extension has invested substantial resources in creating capacity for evaluation through training in use of logic models and evaluation (including some excellent websites with tutorials and extensive libraries of resource materials), evaluation practice lags. As noted earlier, we had difficulty locating evidence of evaluation online or in the peer-reviewed literature for many 4-H Programs of Distinction. Some funding to explore this gap between recommended practice and actual use of logic models and evaluation materials would be helpful. More importantly, it may be necessary to focus on cultural change at a systems level, such that evaluation comes to be seen as an integral and necessary part of program delivery (the 3000-mile oil change) and not as an add-on or accessory (the leather seats). For example, good evaluation should be not only encouraged but required, and rigorous evaluation should be a precondition of acknowledgment for excellence. Although full-scale scientific evaluation of all programming is not feasible, program leaders should invest time in strategic selection of "evaluable" programs and building capacity for creative, smaller-scale evaluation techniques (Bamberger, Rugh, & Mabry, 2006; Friedman, 2008; Wetta-Hall, Ablah, Oler-Manske, Berry, & Molgaard, 2004).

Expand the Scope, Targets, and Delivery Modes of Healthy Living Programs

Expand the Scope of Health Programming to Include Family and Community Contexts in Addition to Targeting Individual Youth.

The literature clearly establishes that significant and sustained improvement in health outcomes requires a systems approach. In Extension, opportunities to work across 4-H youth and family program areas are an organizational advantage that often remains unexplored. Many other youth development organizations do not have family development professionals available as partners to design and deliver educational programs for parents that support healthy choices for their children. Although some collaboration between 4-H and family professionals is noted in recent nutrition and physical activity curricula (Michigan State University "Jump Into Foods and Fitness" and Maryland Cooperative Extension "Up for the Challenge") and in community-based prevention systems organized by Extension ("PROSPER" in Iowa and Pennsylvania) (Spoth & Greenberg, 2007), the systematic creation of integrated family and youth program models would strengthen both the outreach capacity and potential impacts of 4-H work in the arena of healthy living.

The 4-H system also has the opportunity to apply its experience with community youth development approaches to health programming. While CYD has been successful in programs emphasizing service learning and citizenship, health-related programs remain largely focused at the level of individual change. Engaging 4-H youth in assessing and impacting factors that affect health at the community level could potentially increase the visibility of Extension's work to a larger set of constituents, as well as improve policies and local conditions to better support healthy choices for families and youth.

Recognize the Importance of Cultural Differences in Designing and Delivering Programs that Address Health Indicators

The equity, access, and opportunity domain of the 4-H Professional Research Knowledge Competencies (PRKC) system clearly defines the commitment of 4-H to "interacting effectively and equitably with diverse individuals and building long-term relationships with diverse communities." In the context of 4-H Healthy Living Programs, it suggests that priority audiences are youth and family populations with multiple risk factors who are underserved by traditional health care systems and are disproportionately affected by chronic disease. While CYFAR programs have a long history of serving at-risk audiences, it will be important for state and community practitioners to carefully assess whether their 4-H programs are reaching culturally diverse youth and families across delivery modalities in proportions that mirror the demographics of their population.

It will also be important to recognize that health programs developed for general youth audiences may require significant adaptation to successfully reach diverse audiences. This will require an increased understanding of the interface between cultural values/practices and health outcomes, and will extend well beyond the translation of materials from English to the languages of diverse participants.

As is generally true when focusing outreach to specific cultural groups, 4-H's efforts to reach diverse youth with health programs will require skilled collaboration with or-

ganizations that serve those cultural communities (Gonzalez, et.al, 1991). Collaborators can facilitate access to diverse youth and insure that the program is designed and delivered in a culturally relevant manner.

Incorporate Health Programming into the Variety of Delivery Modes Utilized by the 4-H System

The brief review of 4-H curricula in this report notes a number of delivery mechanisms for current health-related programs. One challenge for 4-H practitioners is to creatively apply and adapt materials designed for a particular delivery mode (e.g., school enrichment, after school) to other outreach mechanisms in 4-H. In order to achieve maximum impact in improving health outcomes for youth, it will be important to guard against health-related programs becoming marginalized into one delivery mode. The integration of health programs into the 4-H club program merits particular attention, given the numbers of youth engaged and the opportunities for sustained activities and impacts offered by the club delivery model.

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APPENDIX: TABLES

TABLE 1

Defining Terms of Prevention and Promotion		
Term	Definition/Description	Examples
Risk factor	A marker of risk (not an explanation of why risk exists) A probability marker, statistically related to likelihood of a negative outcome Cumulative, and apparently non-specific (at least in research to date): more risk markers = greater probability of negative outcome, regardless of which risk markers The presence of risk may lead to problems regardless of assets Tells us where to target efforts	Poverty Child abuse Neighborhood disorganization Low achievement
Protective factor	A buffer of risk, operates only when risk factors are present Protective factors modify and compensate for risk	Strong attachment to school may act as a protective factor for youth from families with multiple risk factors Strong attachment to adults may buffer risk associated with poverty
Developmental asset	Developmental assets are "building blocks that are crucial for promoting healthy youth development and well-being" (Small & Memmo, 2004; Benson, 2002). These may include community affordances (resources, experiences) as well as individuals' personal skills, competencies, experiences necessary for healthy development and responsible and productive adulthood.	4-H Essential Elements: Mastery, Challenge, Belonging, Generosity The 6 Cs: Competence, Character, Compassion, Connection, Confidence, Contribution 4 Hs: Heart, Hands, Head, Health 40 Assets: Support, Empowerment, Boundaries/ Expectations, Constructive use of time
Risk process	Causes of negative outcomes Tells us what to do to decrease probability of negative outcome	Harsh discipline (may lead to lower sense of attachment to caregivers) Rejection by peers (may lead to low self-esteem and poor attachment) Presence of multiple risk factors may result in fewer opportunities for asset building
Protective process	Causes of positive outcomes in presence of risk (resilience) Tells us *what* to do to increase probability of positive outcome	Activities that provide choice and increase intrinsic motivation; provision of structure increases feelings of safety and self-efficacy. Intrinsic motivation, safety, and self-efficacy all promote feelings of competence and self-determination.

TABLE 2

Prevention and Promotion: Descriptions, Strengths, and Weaknesses			
Approach	Description	Strengths	Weaknesses
Prevention	Focus on the prevention of the most common (preventable) developmental problems: aggression, delinquency and conduct disorder; substance use; suicide; pregnancy Has methodological roots in traditional epidemiological and public health approaches to disease prevention Originated in the mental health field Reduce risk, foster protection, build competencies	Strongest research base Theoretical and empirical evidence for implications of different risk factors (i.e. risk importance varies by age) Most evidence-based programs have been developed using a prevention framework Contextual approach Flexibility in target audiences for programming – covers universal, selected, and indicated populations	A focus on problems, "deficit orientation" More attention to risk than to strength Little attention to normative developmental markers and processes or on how to promote healthy development Little known about importance of risk and protective factors as markers for specific problems; hard to distinguish between risk factors and causal risk processes Less intuitively appealing to practitioners
Resilience	Rooted in prevention research, originally defined as healthy development in the face of extremely adverse circumstances, multiple stressors, or as recovery from such circumstances Resilience research focuses on the need to identify stable and malleable individual or environmental characteristics that enable youth to overcome extreme barriers to success or to recover from traumatic events	Appealing because it provides hope for helping youth who have experienced trauma or who grow up under adverse conditions Strong research based on protective processes that lead to resilience Provides a bridge between prevention and asset-building approaches	Emphasis on individual (as opposed to contextual) attributes and competencies may place unfair burden on youth Underemphasis on contextual approaches Many definitional problems. For example, does resilience cross domains and developmental stages, or is it situationally specific? Does not directly apply to youth who are not experiencing extreme stressors
Positive Youth Development & Community Youth Development	Capitalizes on individual strengths of youth to promote optimal development, irrespective of risk status Response to perceived overemphasis on the "deficit approach" (youth as problems that need to be fixed) Proponents note that "problem free is not fully prepared" (Pittman, 1991) and emphasize a proactive approach to foster healthy development CYD builds on PYD through its emphasis on community mobilization and on engaging youth as full partners through community service and participation Has implicitly been a focus of many organizations that work with children and youth. Has provided explicit framework for program planning and research	Intuitively appealing to practitioners, as well as to families and organizations Emphasis on the importance of community and relationship between youth and community May be more empowering to youth who are not being seen as problems Unlike other approaches, emphasizes importance of character (moral development, spiritual development, and identity development) and sees youth as societal resources, emphasizing need for positive expectations of youth Has led to research that challenges public myths about adolescence as a necessarily troubled and turbulent phase of development	romotion of assets may be ineffective or less effective if risks are ignored – risk may undermine strength of foundational building blocks Importance and specific outcomes of various assets or combinations of assets is under-researched – to date the assumption is that more is better – a cumulative model (like that for risks) Need for more specific definitions of assets. Current often include protective factors, coping, recovery, developmental outcomes, etc. Assets should be limited to those that are "crucial for promoting healthy youth development and well being" (Benson, 2003) Definitional problems and sometimes vague theoretical framework can impede rigorous research (i.e. what constitutes moral development or mentoring)

TABLE 3

Personal Assets Listed By the National Research Council as Indicators of Youth Well-being

Physical development
- Good health habits
- Good health risk management skills

Intellectual development
- Knowledge of essential life skills
- Knowledge of essential vocational skills
- School success
- Rational habits of mind—critical thinking and reasoning skills
- In-depth knowledge of more than one culture
- Good decision-making skills
- Knowledge of skills needed to navigate through multiple cultural contexts

Psychological and emotional development
- Good mental health including positive self-regard
- Good emotional self-regulation skills
- Good coping skills
- Good conflict resolution skills
- Mastery motivation and positive achievement motivation
- Confidence in one's personal efficacy
- "Planfulness"—planning for the future and future life events
- Sense of personal autonomy/responsibility for self
- Optimism coupled with realism
- Coherent and positive personal and social identity
- Pro-social and culturally sensitive values
- Spirituality or a sense of a "larger" purpose in life
- Strong moral character
- A commitment to good use of time

Social development
- Connectedness—perceived good relationships and trust with parents, peers, and some other adults
- Sense of social place/integration—being connected and valued by larger social networks
- Attachment to pro-social/conventional institutions, such as school, church, nonschool youth programs
- Ability to navigate in multiple cultural contexts
- Commitment to civic engagement

From Eccles, J. S., Brown, B. V., & Templeton, J. (2008). A developmental framework for selecting indicators of well-being during the adolescent and young adult years. In B. Brown (Ed.) Key Indicators of Child and Youth Well-Being (pp. 197-236). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

TABLE 4

Overview of Risk and Protective Factors		
	Risk Factors	Protective Factors
Individual	• Antisocial or delinquent behavior and beliefs • Gun possession/ownership/carrying • Teen parenthood • Pro-drug attitudes/early onset and/or use of ATOD • Early onset of aggression/violence • Intellectual and/or development disabilities • Victimization and exposure to violence • Poor refusal skills • Life stressors • Early sexual involvement • Mental health problem/disorder	• Positive/resilient temperament • Religiosity/valuing involvement in organized religious activities • Social competencies and problem-solving skills • Healthy sense of self • Positive expectations/optimism for the future • High expectations
Family	• Family history of problem/criminal behavior • Poor family management, parental monitoring • Poor family attachment • Child victimization and maltreatment • Pattern of high family conflict • Family violence • Having a young mother • Broken home • Sibling antisocial behavior • Family transitions • Parental use of physical, harsh, and/or erratic discipline • Low parent education level/illiteracy • Maternal depression	• Good relationships with parents/attachment to family • Opportunities and rewards for prosocial family involvement • Having a stable family • High family expectations
School	• Low academic achievement • Negative attitude toward school/low attachment • Truancy/frequent absences • Suspension • Dropping out of school • Poor school climate/disorganized schools/ negative labeling by teachers • Identified as learning disabled • Frequent school transitions	• Positive attitude toward school • Student bonding and connectedness • Academic achievement • Opportunities and rewards for prosocial school involvement • Clear standards and rules • High expectations of students • Presence and involvement of caring, supportive adult
Peer	• Gang involvement • Peer ATPD use • Association with delinquent/aggressive peers • Peer rejection	• Involvement with positive peer group activities and norms • Good peer relationships • Parental approval of friends
Community	• Availability/use of ATOD in neighborhood • Availability of firearms • High-crime neighborhood • Community instability • Low community attachment • Poverty • Neighborhood youth in trouble • Feeling unsafe in neighborhood • Socially and physically disorganized community	• Economically stable community • Safe and health-promoting environment • Positive social norms • Opportunities and rewards for prosocial community involvement • Available neighborhood resources • Social cohesion

Adapted from "Introduction to Risk Factors and Protective Factors". Accessed 30-June, 2008 at http://guide.helpingamericasyouth.gov/programtool-factors.cfm

TABLE 5

Features of Contexts that Promote Youth Development		
Context	Descriptors	Opposite poles
Appropriate Structure	• Age appropriate monitoring • Limit setting • Clear and consistent rules and expectations • Age appropriate controls and rules continuity • Predictability • Clear boundaries	• Chaotic • Disorganized • Laissez faire • Rigid • Over controlled • Autocratic
Physical and Psychological Safety	• Safe and health promoting facilities • Practices that increase safe peer group interaction • Practices that decrease unsafe or confrontational peer interactions	• Physical and health dangers • Fear • Feelings of insecurity • Sexual and physical harassment • Verbal abuse
Emotional and Instrumental Support	• Warmth • Closeness • Connectedness • Good communication • Caring • Support • Guidance • Responsiveness	• Cold • Over controlling • Ambiguous support • Untrustworthy • Focus on winning rather than mastery • Inattentive • Unresponsive • Rejecting
Opportunities to Belong	• Opportunities for meaningful inclusion, regardless of one's gender, ethnicity, or disability • Social inclusion • Social engagement and integration • Opportunities for social-cultural identity formation • Support for cultural and bicultural competence	• Exclusion • Marginalization • Intergroup conflict • Tolerance of bullying and discriminative behaviors
ProSocial Norms	• Prosocial rules of behavior • Strong expectations for pro-social and moral behaviors • Prosocial values and morals • Obligations for service and for helping within program	• Normlessness • Anomie • Tolerance for antisocial and amoral norms and behaviors such as those linked to violence, reckless behavior, bullying, consumerism, and poor health practices • Tolerance of peer pressures to conform
Opportunity for Efficacy and for Mattering	• Youth-based, empowerment practices that support autonomy, mattering, and being taken seriously • Practices that include enabling, responsibility granting, and meaningful challenges • Opportunities to demonstrate and acquire mastery in valued activities • Service opportunity • Stress on improvement	• Unchallenging • Over control • Disempowerment • Disabling • Failure experiences without opportunity to improve • Stress on social comparative performance rather than mastery and improvement • Lack of role in governance and program planning

From Eccles, J. S., Brown, B. V., & Templeton, J. (2008). A developmental framework for selecting indicators of well-being during the adolescent and young adult years. In B. Brown (Ed.) Key Indicators of Child and Youth Well-Being (pp. 197-236). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

TABLE 6

Notable 4-H Programs by Health Domain		
Program	Individual vs. Context	Global vs. Domain Specific
4-H Health Jam, Kentucky	INDIVIDUAL	DOMAIN physical health, nutrition, obesity
4-H Healthy Lifestyles: Food and Nutrition Education for Children, Georgia	INDIVIDUAL	DOMAIN physical health, nutrition, obesity
Just Be It! Healthy and Fit, New Mexico	INDIVIDUAL	DOMAIN physical health, nutrition, diabetes prevention
On the Move to Better Health, North Dakota	INDIVIDUAL	DOMAIN physical health, nutrition, exercise
Project ALERT, Pennsylvania	INDIVIDUAL	DOMAIN substance use prevention
Taking Charge, New Jersey	INDIVIDUAL	GLOBAL
Teen Parent Conference, Pennsylvania	INDIVIDUAL	DOMAIN parenting and child well-being
Tools for Schools Meth Prevention, Montana	INDIVIDUAL	DOMAIN substance use prevention
Building Partnerships for Youth, Arizona	CONTEXT	GLOBAL
CATCH (Coordinated Approach To Child Health), Texas	CONTEXT	DOMAIN physical health, nutrition, obesity
DARE to be You Bridges and other DTBY curricula, Colorado	CONTEXT	GLOBAL
DARE to be You, CARE to Wait, Colorado	CONTEXT	GLOBAL
Family Camp: A Strengthening Families Curriculum, New Jersey	CONTEXT	DOMAIN
Journey 4-H Mentoring	CONTEXT	DOMAIN healthy relationships, delinquency prevention
The Family Fitness Program, Pennsylvania	INDIVIDUAL	DOMAIN physical health, nutrition, exercise
Kinship Kare, Arizona	CONTEXT	DOMAIN healthy caretaker-child relationship, support networks
PROSPER, Pennsylvania & Iowa	CONTEXT	GLOBAL
Smart Bodies, Louisiana	CONTEXT	DOMAIN physical health, nutrition, exercise
UNL for Families, Nebraska	CONTEXT	GLOBAL
Youth and Families with Promise, Utah	CONTEXT	GLOBAL
4-H Community ATV Safety Program, Indiana	BOTH	DOMAIN physical safety, injury prevention

TABLE 6– CONTINUED

Notable 4-H Programs by Health Domain		
4-H Living Interactive Family Education (LIFE), Missouri	BOTH	DOMAIN Healthy relationships and support networks
Health Rocks!, Mississippi	BOTH	GLOBAL
Mentors and Adolescents Partnership Program (MAPP), North Carolina	BOTH	DOMAIN sexual health and abstinence
Project MAGIC, Nevada	BOTH	GLOBAL
Strengthening Families Program, Iowa	BOTH	DOMAIN substance use prevention

TABLE 7

Description of 26 Notable Current 4-H Programs

	PROGRAM INFORMATION	DESIGN	EVIDENCE BASE	FINDINGS
Physical Health, Exercise, & Nutrition				
1	**4-H Health Jam, Kentucky** Theory: Curriculum suggests Social Learning Theory Audience: 4th and 5th graders at risk for health problems	In school: 9-week program utilizing both "Jump into Food and Fitness" and "Get Moving Kentucky" curricula; plus a 2-night pre-program camping trip	Program of Distinction: Pretest/posttest using the School Health Education Evaluation (SHEE)	When compared to the pretest scores, participating youth demonstrated improvement in knowledge, attitudes, and beliefs regarding healthy lifestyles. At end of program, 80% of youth were exercising 30 minutes a day. N=38 with only immediate posttest.
2	**4-H Healthy Lifestyles: Food and Nutrition Education for Children, Georgia** Theory: Curriculum suggests Social Learning Theory Audience: 5th and 6th grade 4-H Club members	Out of school: 19 projects which include lecture, activities, and food sampling designed for 4-H Club meetings; Students wear pedometers and write in a food/activity journal. Variety of curricula used from multiple sources	Program of Distinction: Youth pretest/posttest knowledge gained assessment created by program designers	Unable to locate information
3	**CATCH (Coordinated Approach To Child Health), Texas** Theory: Holistic approach suggests Ecological systems model Audience: Elementary age children, their schools, and their families	Out of school: Targets multiple aspects of a child's environment through teachers, food service staff, students' families, and the broader school community to promote a range of activities for children, grades K-5. Core components of CATCH include a school cafeteria nutrition program, physical activity and healthy eating classroom curricula, a physical education program, and a family education/ involvement program.	Evidence-based program using randomized controlled clinical trial evaluated from 1991-1994 in 96 schools (56 intervention, 40 control) and multiple replications in various communities	Original trials demonstrated strong evidence for programs ability to improve children's knowledge, skills, and behaviors regarding healthy food choices and lifestyles. Replication studies showed decreases in school-wide obesity and the cost-effectiveness of preventing obesity in children.
4	**The Family Fitness Program, Pennsylvania** Theory: Transtheoretical (Stages of Change) and Motivational Interviewing Audience: 8-12 year olds and their families	Out of school: 9 youth sessions plus 5 parent session (3 of which the youth attends) lasting 1.5 hours long covering curriculum about food choices, physical activity, and healthy family development. Developed by a team of specialists, each session includes 30 minutes of physical activity, hands-on learning, taste-testing, food preparation, and goal setting.	Program of Distinction: Pre/post tests with five 6-month follow-ups to evaluate youths' body mass index, percent body fat, waist circumference, blood pressure, and accelerometer measures. Parent-reported eating habits, exercise, and attitudes were measured and compared to a control group.	Increases in healthy eating habits and family physical activity, 68% of the youth maintained their BMI at the first 6 month follow-up and nearly half did not have increased BMIs in the following year. Research in progress, but no scholarly publication available to date.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
5	**Just Be It! Healthy and Fit, New Mexico** Theory: Unable to locate information Audience: K-8th grade students	In-school: 250 free copies of curriculum developed by a Wellness Network was given to schools across the state	Program of Excellence, 2001: Experimental design with control group (unclear if the control group was randomly assigned) with 62 control and 121 treatment participants in three counties.	Treatment group had significantly higher scores on nutritional knowledge than the control group. Data in diet and exercise recall was not useable due to students' difficulties in remembering what they ate in the last week. The parent survey had a return rate of 26% and was a post-then-pre design which cannot render much confidence in the results. It is unclear how the control group was selected, making it difficult to judge the strength of the findings.
6	**On the Move to Better Health, North Dakota** Theory: Social Cognitive Theory Audience: 4th and 5th grade students	In-school: 5 session program with hands-on learning, supplemental activities, visual promotion materials, and take home parent newsletter; adapted newsletter for Native American families	Program of Distinction: Youth pre/post test; Parent posttest; and 1-year follow-up at one site; No control group	Pre/post tests and tally sheets used to evaluate student knowledge and self-reported behavior. Demonstrated increases in % of youth eating five or more servings of fruits and vegetables and three or more milk group servings per day. Also reported increase in % of youth exercising 5+ times per week. For the Native American program, youth reported eating more fruits and vegetables, drinking less soda, and exercised more that at the pretest.
7	**Smart Bodies, Louisiana** Theory: Unable to locate information Audience: Elementary aged children	In-school: 12 week school-wide interactive curriculum with monthly parent newsletter and a student health assessment which is mailed to parents	Program of Distinction: 2-year stratified, clustered and pair-matched control group trial with pre/post test survey, BMI measures, activity monitors, and randomly surveyed parents	Participants were more willing to try fruits and vegetables at school, had increased awareness of the benefits of physical activity and their own weight status, and were more active. Follow-up height and weight measures were scheduled to be taken in 2007, but results cannot be located.

TABLE 7– CONTINUED

	PROGRAM INFORMATION	DESIGN	EVIDENCE BASE	FINDINGS
Safety & Injury Prevention				
8	**4-H Community ATV Safety Program, Indiana** Theory: Social Norms, Haddon Phase-Factor Matrix, Targeting Life Skills Model Audience: School-aged children	Outside-of-school: 7-lesson curriculum to teach at 4-H club meetings.	Program of Distinction and CDC "Best Bractices": Outside evaluator, Halley Research - youth pre/post test with self-reported accident rates, documented process and some evaluation since 1990	Findings of pre/post test suggest youth are more likely to wear protective gear and are less likely to ride with a passenger, on paved roads or along roadsides and reported fewer accidents at completion; Leader's Guide comes with optional pre-program/post-program evaluation - appears there is no systematic evaluation underway.
Substance Use Prevention				
9	**DARE to be You Bridges and other DTBY curricula, Colorado** Theory: Social Learning Theory and Ecological Systems Model Audience: Programming and curricula specifically developed for 2-5 year-olds, K-2nd graders, 3-4th graders, 6-8th graders and their families	Out-of-school: 11-week series of 2.5 hour long workshops involving K-2 students, their parents/caregivers, and their teachers. Includes meal and social time, a parent-teacher-child activity (10-20 minutes) focusing on building the child's self esteem, responsibility, or other key concept. Then, parents and teachers work together while youth have separate but concurrent workshops. Curriculum is a combination of DTBY's youth, teacher training, and family program. Program includes a semiannual 12 hour reinforcement component.	Evidence-based program with multiple publications in peer-reviewed journals; 4-H Family Strengthening Award; Oral delivery of parent, youth, and teacher pretest/post test surveys with 6-, 12-, and 18- mo. follow-ups; Randomized trials conducted in 4-sites with 496 experimental and 301 control families with 1 and 2 year follow-ups	Evaluations of DTBY programming with 2-5 year-olds and their families has shown to be effective in changing harsh parenting behaviors and increasing positive parent-child interactions. Interventions for older youth shows better self-reported child self-management and family communication. A statistically significant decrease or delay in onset of alcohol and tobacco use in the experimental group compared with controls. A significant increase in satisfaction with support systems and self-sufficiency. Increase in healthy parenting techniques.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
10	**Health Rocks!, Mississippi** Theory: Botvin's Life Skills Training approach based on Social Learning Theory and Problem Behavior Theory Audience: 8 to 12-year-olds	Out-of-school: Interactive, experiential curriculum designed to enhance decision-making and life skills	Program of Distinction: Part of 4-H Longitudinal Study, matched control group. For program implementation, posttest youth surveying tools available with Decisions Skills and Healthy Lifestyle Scales from Tennessee Extension	Although HR youth reported experiencing more peer pressure to smoke, their smoking rates were similar to those who did not receive HR and who did not experience such intense levels of peer pressure. HR youth were less likely to use any substances, had lower rates of delinquency, bullying, and peers who engaged in risky behaviors. They also had fewer smokers in their homes and were not as depressed.
11	**Project ALERT, Pennsylvania** Theory: Social influence Model of Prevention Audience: 6-8th grade students	In-school: Curriculum focuses on knowledge of consequences of using, benefits of nonuse, changing social norms, and building of resistance skills. Consists of 11 lessons in the first year and 3 lessons in the second year which involve small-group activities, question-and-answer sessions, role-playing, and the rehearsal of new skills to stimulate students' interest and participation.	Evidence-based SAMHSA Model Program & Program of Distinction: Evaluated by RAND Corp with randomized-control pretest/posttest in CA and SD; Multiple replications and publications in peer reviewed journals	Selected findings indicate at 15 mos used marijuana and 24% less likely to have used alcohol; Initially, prodrug attitudes were lessened, but effect diminished by high school. However, knowledge and beliefs about the risks of dependency persisted through 10th grade. Random design involving 85 schools provides very strong support for the researcher's findings.
12	**PROSPER, Pennsylvania & Iowa** Theory: Capacity-Building Partnership Model, PROSPER Capacity-Enhancing Partnership Model Audience: Pre/early adolescents and their families, communities	Both out-of-school and in-school: Creating a collaboration between University/Extension/School for community level intervention for families and students; Systematic implementation and evaluation	Evidence-based Program of Distinction: Numerous studies on randomized controlled trials (longitudinal) of program effectiveness in peer-reviewed journals	Overall, PROSPER delivers effective, evidence-based prevention programs to youth and their families, improves family interactions, reduces adolescent substance use, and enhances the relationship between extension, schools, and communities.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
13	**Strengthening Families Program, Iowa** Theory: Biopsychosocial Vulnerability Model, Resiliency Model, Family Process Model Audience: 10-14 year olds and their parents	Outside-of-school: Youth/parent (1 hour, separately) and family (1 hour together) sessions with interactive exercises, discussion, and homework	Evidence-based Program of Distinction: Numerous studies on randomized controlled, longitudinal trials of program effectiveness in peer-reviewed journals	Overall, the Strengthening Families Program decreases in youth substance use and problem behaviors and increases in effective parenting strategies.
14	**Tools for Schools Meth Prevention, Montana** Theory: Curriculum suggests Reasoned action, Family systems, Social norms Audience: 6-12th grade students	In-school: set of 10 Power Point programs with supplemental experiential activities	Program of Distinction: Process feedback at initial teacher training workshops; Post-program knowledge and attitudinal & assessment of statewide longitudinal use rates among youth	Post-teacher training feedback from 58 of 100 attendees indicates strong satisfaction and anticipated applicability, although there is likely response bias. Posttest of youth's knowledge and attitudes about meth shows 80-100% responded accurately or have anti-meth attitudes. However, these outcomes cannot be accurately assessed because of the lack of a pretest or a comparison group. Statewide self-reported meth use among middle and high school students has decreased by a large margin between 1999 and 2005. However, there are no controls in place to make the claim that this is the result of this program.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
Healthy Relationships				
15	**4-H Living Interactive Family Education (LIFE), Missouri** Theory: Curriculum used suggests Family Strength Perspective Audience: Incarcerated fathers and their children, grandchildren, and other impacted family members	Out-of-school: Strengthens incarcerated father-child bond through enhanced visitation environment, parent-child involvement in monthly 4-H meeting with curricula-based activities focused on healthy living, and monthly parenting class; Variety of curricula used from multiple sources	Program of Distinction: Focus groups with LIFE fathers; Life Skills Survey of youth every 6 mos.	Focus group fathers indicate changes in parenting approaches and parent-child relationship that are anticipated as preliminary to long-term benefits; Youth surveyed in first year improved from an average of 67% to 75% on perceived life skills; However, only 7 youth participated in time 1 and 9 youth participated in time 2. It is unclear how old youth were and if the original 7 were retained at time 2.
16	**Family Camp: A Strengthening Families Curriculum, New Jersey** Theory: Family systems theory Audience: 10-14 year olds and their families	Out-of-school: Adventure-based 3 day program designed to enhance family relationships with "hands-on adventure activities and powerful metaphors [that] make learning meaningful and memorable for families"	Program of Distinction: pretest/posttest (at 4-8 weeks post program)	Unable to locate information
17	**Kinship Kare of Northern Arizona, Arizona** Theory: Approach suggests Family Support Model Audience: Grandparents raising their grandchildren	Out-of-school: Support groups, grandparent-grandchild activities, grandchild coping activities, grandparent mentor and advocate for service acquisition, newsletter, workshops for agencies	Program of Distinction: Curriculum for grandchildren has been piloted, but reports are available.	Evaluation data consists of participation rates and self-reported increases in receipt of social services. No formal evaluation or survey appears to have occurred.
18	**Teen Parent Conference, Pennsylvania** Theory: Approach suggests Family Support Model Audience; Pregnant and parenting teens	Outside-of-school: Conference with seminars about parenting, nutrition, health, life skills, and ways for teens to connect with local services	Program of Excellence: Post-event survey	Post-event open-ended survey answers indicated increased knowledge of community resources, parenting, and life skills. No formal evaluation or follow-up survey appears to have occurred.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
19	**UNL for Families, Nebraska** Theory: Family Strengths Perspective Audience: Family with at-home children	Outside-of-school: Web-based resources for orgs and parents to access effective youth development programming and evidence-based information that will increase family appreciation & affection, positive communication, spiritual well-being, commitment, enjoyable time together, and the ability to manage stress and crisis effectively	Program of Distinction: Tracking of number of people/agencies who use the materials and web-site	Available information indicates families and agencies are accessing the service. Unclear if follow-up has occurred to explore to what extent the information is being used or if the recommended programs are being rigorously evaluated.
Sexual Health & Abstinence				
20	**Building Partnerships for Youth, Arizona** Theory: Community building Audience: 9-13 year-olds and their communities	Out-of-school: Web-based resources for orgs to access effective youth development programming through provided curricula and guidance on training older youth to mentor 9-13 year-old youth	Partnered with National 4-H; Unable to locate information	Unable to locate information
21	**DARE to be You, CARE to Wait, Colorado** Theory: Social Learning Theory and Ecological Systems Model Audience: 12-14 year-olds and their parents	Out-of-school: 10 week program (2-hr session/wk) which focuses on healthy communication habits, positive decision-making and the benefits of abstinence through meal time, parent-child activities, and separate parents-only and children-only activities with comparable, appropriate sibling activities.	Family Strengthening Award; Based on previously successful DTBY programs	Parents report improved parent-child relationships, talking more frequently about sex and intimacy, and that their children are less likely to hang out with kids who might be negative influences. Youth report greater confidence and effectiveness in making decisions. An early analysis of the program's graduates shows that youth are postponing sex longer than their peers. Youth who previously were sexually active have committed to wait.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
22	**Mentors and Adolescents Partnership Program (MAPP), North Carolina** Theory: Unable to locate information Audience: 10-19 year olds and parenting teens	Both in- & out-of-school: Monthly mentoring, 4-H participation, and fieldtrips; Mentors use "Sex Can Wait" curriculum, schools are provided with "Baby Think it Over", youth talk to younger students are "peer helpers", and teen parents participate in the "Support for Teen Parents" component	Program of Excellence, 2000: Search Institute Population Survey comparison of in-program and out-of-program youth on developmental assets	Unable to locate information; on-line, it does not appear this program is still in operation
Delinquency Prevention				
23	**Journey 4-H Mentoring, Michigan** Theory: Unable to locate information Audience: Court involved 8-17 year-olds	Out-of-school: One-on-one community-based mentoring tailored to individual pairings; Mentors attend 9-hours of training to prepare for building positive relationships with the youth; Curriculum for this training is compiled from several sources	Program of Distinction: Assessment of youth and mentor assets developed by the National Mentoring Partnership every 6 months, tracking of re-offending	In-house evaluation of youth's perceptions of themselves indicates improvement in feelings of connectedness and self-efficacy. Additionally, re-offending rates are low - unknown if this is significant because there is no control group this court does not track youth re-offending rates.
24	**Project MAGIC, Nevada** Theory: Resiliency theoretical model, Ecological framework, Locus of control Audience: Court-involved 12-18 year old and their parents	Out-of-school: 20-hour 8-week program for youth addressing life skills for avoiding risk and enhancing protective factors, plus 3 small group or self-guided parenting sessions	Program of Distinction: pre/post test youth surveys; posttest parent survey; observation; portfolio development; 1-year follow-up qualitative interviews	In 1999 article, parents participated through self-paced interactive postcards
25	**Taking Charge, New Jersey** Theory: Social development strategy and the Iowa State Targeting Life Skills Model Audience: First-time juvenile offenders	Outside-of-school: 16 2-hour sessions of curricula compiled from various sources to encourage personal development, social skills, and goal setting/attainment	Program of Distinction: pretest/posttest raw mean comparisons; no control group	Based on (28), changes in raw mean scores show improvements in anger management, leadership, self-awareness, problem solving, interpersonal skills, and workplace skills. Small sample size challenges the accuracy of these findings.

TABLE 7– CONTINUED

PROGRAM INFORMATION		DESIGN	EVIDENCE BASE	FINDINGS
26	**Youth and Families with Promise, Utah** Theory: Ecological systems theory Audience: At-risk 10-14 year olds and their families	Outside-of-school: One-on-one mentoring (1 hour/week); family participation events; 4-H activity participation; Goals are to increase academic performance, enhance social competency, and strengthen family bonds; Formal mentor training, but no set 'visiting curriculum'	Program of Distinction: Outside evaluator compared program youth with statewide data on risk and protective factors; Internal data collected from youth, parents, and mentors on retrospective post-then-pretests; Wait-list controlled comparison; Multi-year Justice Research and Statistics Association initiated outside evaluation of process and outcomes began in 2005	Comparisons with statewide youth shows program youth are more at-risk than the general public (good since this is a targeted program; Internal data collection indicates youth, parents, and mentors reflexively see improvements in youths' behaviors, beliefs, and support networks; Could not locate information on wait-list control group study or the multi-year Justice Research and Statistics Association study

* See Table 7a below for resources used to create this table

TABLE 7a

Sources for 4-H Program Information and Evidence of Effectiveness	
PROGRAM	REFERENCE
4-H Community ATV Safety Program, Indiana	**http://www.atv-youth.org/.** Halbert, S. (1994). National 4-H community ATV safety 1990-1993: Evaluation research progress report. Chevy Chase, MD: National 4-H Council. Halbert, S., & Mead, J. (2003). 4-H Community ATV Safety Program: Changing behaviors, saving lives. Evaluation summary report, 1990-2003. Chevy Chase, MD: National 4-H Council. Tormoehlen, R. L., & Sheldon, E. J. (1996). ATV use, safety practices, and injuries among Indiana's youth. Journal of Safety Research, 27(3), 147-155.
4-H Health Jam, Kentucky	Weese, M., & Woods, K. (2005). 4-H Health Jam. University of Illinois Cooperative Extension Service. Accessed 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/health_jam.pdf.**
4-H Healthy Lifestyles: Food and Nutrition Education for Children, Georgia	Dotson, V. R., & Gill, M. (2007). 4-H Healthy Lifestyles/Food and nutrition education for children. University of Georgia Cooperative Extension. Accessed 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/HLS-NutrEd.pdf.**
4-H Living Interactive Family Education (LIFE), Missouri	Lawson, L. (2005). 4-H Living Interactive Family Education Program. University of Missouri. Accessed 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-leadership/4hlife.pdf.**
Building Partnerships for Youth, Arizona	**http://cals-cf.calsnet.arizona.edu/fcs/bpy/.** Tepper, K. H., & Peterson, D. (2007). Building Partnerships for Youth. University of Arizona. Accessed 5-June, 2008 at **http://cals-cf.calsnet.arizona.edu/fcs/bpy/index.cfm.**
CATCH (Coordinated Approach To Child Health), Texas	**http://www.sph.uth.tmc.edu/catch/.** Nearly 100 publications cited on their web-site
DARE to be You Bridges and other DTBY curricula, Colorado	**http://www.coopext.colostate.edu/DTBY/.** Miller-Heyl, J., MacPhee, D., & Fritz, J.J. (1998). DARE to be You: A family-support, early prevention program. Journal of Primary Prevention, 18(3), 257-285. Miller-Heyl, J. (2005). DARE to be You. Colorado State University Cooperative Extension. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/dtby.pdf.**
DARE to be You, CARE to Wait, Colorado	Miller-Heyl, J. (2007). "DARE to be You. CARE to wait": Family Strengthening Award. Colorado State University Cooperative Extension. Accessed 6-June, 2008 at **http://www.fourhcouncil.edu/WorkArea/showcontent.aspx?id=356.** Miller-Heyl, J., Washington, D., & Podunovich, R. (2007). DARE to be You, CARE to Wait Program: Family-based abstinence education program for middle school youth. Powerpoint presentation accessed 5-June, 2008 at **www.dgimeetings.com/preventionconference/Agenda/9.26.3.45pm%20Podunovich.ppt.**

Sources for 4-H Program Information and Evidence of Effectiveness	
PROGRAM	REFERENCE
Family Camp: A Strengthening Families Curriculum, New Jersey	Torretta, A., & Blalock, L. B. (2005). Family Camp: Strengthening at-risk families through adventure based initiatives. Rutgers Cooperative Research and Extension of Warren County. Accessed 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/familycamp.pdf.** Torretta, A. (2004). Family Camp: Strengthening at-risk families through adventure based initiatives. Journal of Extension, 42(2). Accessed 5-June, 2008 at **http://www.joe.org/joe/2004april/iw6.shtml.** Torretta, A. (2006). Family Camp: A Strengthening Families Curriculum. Rutgers Cooperative Research and Extension of Warren County. Accessed 5-June, 2008 at **http://njaes.rutgers.edu/pubs/publication.asp?pid=E304.**
The Family Fitness Program, Pennsylvania	James, L. (2008). The Family Fitness Program. Pennsylvania State Cooperative Extension. Accessed June 27, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/family_fitness.pdf.**
Health Rocks!, Mississippi	h**ttp://msucares.com/4h_Youth/health_rocks/.** Lerner, R. M. Lerner, J. V., Phelps, J., et al. (2008). The positive development of youth technical report, The 4-H study of posive youth development: Report of he findings from the first four waves of data collection: 2002-2003, 2003-2004, 2004-2005, and 2005-2006. Institute for Applied Research in Youth Development, Tufts University. Accessed 11-June, 2008 at **http://ase.tufts.edu/iaryd/documents/4HStudyAnnualReport2008.pdf**
Journey 4-H Mentoring, Michigan	Bottomley, L. (2007). Journey 4-H Mentoring. Ottawa County Michigan State University Extension. Accessed 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-leadership/journey_4h_mentoring.pdf.**
Just Be It! Healthy and Fit, New Mexico	**http://cahe.nmsu.edu/ces/nmcyfar/resources.html.** Del Campo, D. (2007). Children, Youth, and Famlies at Risk – Sustainable community grant project: Just Be It! Healthy and Fit. Impact Reports. New Mexico State University. Accessed 11-June, 2008 at **http://pow.nmsu.edu/view_plan.php?plan_id=31.**
Kinship Kare of Northern Arizona, Arizona	Tucker, B. K. (2007). Kinship Kare of Northern Arizona. University of Arizona. Accessed 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-leadership/kkona.pdf.**
Mentors and Adolescents Partnership Program (MAPP), North Carolina	National 4-H Headquarters. (2000). 4-H Youth Development: 2000 programs of excellence. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/poe/2000/poe2000healthy.pdf.**
On the Move to Better Health, North Dakota	Garden-Robinson, J., & Ussatis, R. (2006). On The Move to Better Health. North Dakota State University Extension Service. Accessed on 5-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/otmb_health.pdf.** Garden-Robinson, J., Ussatis, R., & Lipetzky, K. (2007). P58 On the Move to Better Health: Motivating children to improve eating and physical activity habits. Journal of Nutrition Education and Behavior, 39(4), S126-S127. (poster abstract)
Project ALERT	**www.projectalert.com.** Multiple peer-reviewed articles listed on web-site

TABLE 7a– CONTINUED

Sources for 4-H Program Information and Evidence of Effectiveness	
PROGRAM	REFERENCE
Project MAGIC, Nevada	**http://www.gbcnv.edu/magic/.** Smith, M. (2004). Project MAGIC. University of Nevada Cooperative Extension. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/magic.pdf.** Smith, M. (2007). Children, youth and families programs: Project MAGIC. University of Nevada Cooperative Extension. Accessed 6-June, 2008 at **http://www.unce.unr.edu/programs/childyouthfam/index.asp?ID=53.**
PROSPER, Pennsylvania & Iowa	**http://www.prosper.ppsi.iastate.edu/.** Mincemoyer, C., & Perkins, D. (2006). PROSPER. Pennsylvania State University. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/prosper.pdf.**
Smart Bodies, Louisiana	**www.smartbodies.org.** LSU AgCenter. (2006). Smart Bodies research component. Accessed 27-June, 2008 at **http://www.smartbodies.org/smart%20bodies/Research.aspx.** Tassin, M., Murphy, E., Holston, D., & Tuuri, G. (2007). Smart Bodies. Louisiana State University AgCenter. Accessed 27-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/smart_bodies.pdf.**
Strengthening Families Program, Iowa	**http://www.strengtheningfamiliesprogram.org/.** Over 50 peer-reviewed publications listed on web-site.
Taking Charge, New Jersey	Cole, D. L. (2004). 4-H Taking Charge: A framework for personal empowerment. Rutgers Cooperative Extension. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-org/takingcharge.pdf.**
Teen Parent Conference, Pennsylvania	National 4-H Headquarters. (2000). 4-H Youth Development: 2000 programs of excellence. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/poe/2000/poe2000healthy.pdf.**
Tools for Schools Meth Prevention, 6-12 grade, Montana	**http://www.opi.state.mt.us/meth/.** Astroth, K. (2007). Tools for schools: the MSU meth prevention education initiative. Montana 4-H Center for Youth Development. Accessed June 6, 2008 at **http://www.national4-hheadquarters.gov/about/pod-health/tools_for_schools.pdf.** McCulloch, L. (2007). Meth prevention. Montana Office of Public Instruction. Accessed 6-June, 2008 at **http://www.opi.state.mt.us/meth/.**
UNL for Families, Nebraska	**http://unlforfamilies.unl.edu/.** Lodl, K. (2006). UNL for Families. University of Nebraska – Lincoln 4-H Extension. Accessed 27-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-leadership/unlfamilies.pdf.** Birstihl, E., & Lodl, K. (2005). UNL for Families: 2005 Family Strengthening Award. University of Nebraska – Lincoln 4-H Extension. Accessed 27-June, 2008 at **http://www.aecf.org/upload/pdffiles/familiescount/fsa2005/4h_nebraska_web.pdf.**

Sources for 4-H Program Information and Evidence of Effectiveness	
PROGRAM	REFERENCE
Youth and Families with Promise, Utah	**http://extension.usu.edu/yfp/.** Higginbotham, B. (2006). 4-H Mentoring: Youth and Families with Promise. Utah State University. Accessed 6-June, 2008 at **http://www.national4-hheadquarters.gov/about/pod-leadership/4h_mentoring.pdf.** Higginbotham, B., Henderson, K., & Riggs, K. (March, 2007). 4-H mentoring: Youth and Families with Promise. Report No. 4-H/YFP/2007-01. Logan, UT: Utah State University. Poulin, M. E., Orchowsky, S., & Nellis, A. M. (2008). Preliminary process evaluation: 4-H Mentoring/Youth and Families with Promise (YFP) Program. Washington, DC: Justice Research and Statistics Association.

TABLE 8

Sample Measures Associated with Outcomes Presented in the Logic Model (Figure 5)		
Indicators	Measures Used to Assess Outcomes	Source of Measures
Short-Term Outcomes (Contextual)		
Good Communication	Family Management	CTC
Opportunity for Efficacy	Perceptions of Involvement	SDT
	Opportunities for Prosocial Involvement	CTC
	Rewards for Prosocial Involvement	CTC
Appropriate Structure	Family Management	CTC
	Family Conflict	CTC
Mid-Term Outcomes (Individual)		
Opportunities for Autonomy	Perceptions of Autonomy Support	SDT
Efficacy	Self-Perceived Competence	SPPC
Long-Term Outcome (Individual)		
Substance Use	30-Day Substance Use Index	YRBS

CTC = Communities that Care Survey (SAMHSA, 2009); SDT = Self-Determination Theory Questionnaires (Deci & Ryan, n.d.); SPPC = Self Perception Profile for Children (Harter, 1982); YRBS = Youth Risk Behavior Survey (National Center for Chronic Disease Prevention and Health Promotion, 2008).

TABLE 9

Recommended Measures for Indicators of Youth Well-being
Our primary recommendation is the use of scales from 3 large batteries: the *Youth Risk Behavior Survey (YRBS)* of the CDC (http://www.opi.mt.gov/YRBS/index.html), the *Self-Determination Theory Questionnaires (SDT)* (Deci & Ryan, 1985), and the *Communities that Care Survey (CTC)* (http://ncadi.samhsa.gov/features/ctc/ resources.aspx). Scales from these batteries cover many of the 5Cs, 4-H Essential Elements, and the NRC's individual and contextual factors that contribute to positive youth development. Also, these batteries cover risk and protective factors as well as risky and positive individual behaviors, attitudes, and practices. Unlike many measures used in countless studies, most of the scales from these batteries have been shown to be valid and reliable measures of the constructs they purport to assess. They are free, and scoring information is easily available. Because they are used in many studies, schools and national surveys, they provide a good source of comparison data. We caution that some of these measures have not been validated for use with younger children or across multiple races, cultures, and ethnicities. Some are available only in English. Not all assets are covered by these batteries, so we recommend some supplementary measures. In Table 11, we provide resources for searching out additional measures as needed.

TABLE 9— CONTINUED

Physical Development (Individual)

For assessment of physical health behaviors we recommend the *YRBS* and *Adolescent Health Promotion Scale* (Chen, Wang, Lang, & Liou, 2003). The *YRB* is especially useful since it covers many areas of risk and safety behaviors, and it is frequently adminstered in schools, so data for comparison are readily available. The *Adolescent Health Promotion Scale* also covers some positive behaviors (e.g. nutritional habits).

Specialized measures (e.g. of BMI, different types and rates of physical activity, disease management, and so forth may be found through some of the clearinghouse resources listed in Table 11).

Intellectual Development (Individual)

Measures of intellectual development are numerous, and selection will depend on content of the program. For example, after-school programs may want to look at individual indicators such as homework completion rate or grade point average, whereas programs teaching specific skills (such as critical thinking or reading comprehension) will need to seek suitable measures to match content.

However, for assessing intrinsic motivation (IM), which has been associated with academic achievement as well as with creativity and well-being in other areas, we recommend use of the IM scales from the *SDT*.

Psychological and Emotional Development (Individual) / **Opportunity for Efficacy and Mattering** (Context)

We recommend use of the SDT for measuring many of the constructs in these categories. They cover Efficacy, Autonomy, Self-Regulation, Mastery, Belonging, Mindfulness, Religiosity, Aspirations, and other relevant constructs.

Additional useful measures include:

- *Student Self Perception Profile* — Good mental health and positive self-regard) (Harter, 1992)
- *Coping Inventories* — Coping skills across multiple domains (Compas, Connor-Smith, Saltzman, & Thomsen, 2001)
- *Optimism* (Carver & Scheier, 2002, from the Handbook of Positive Psychology)
- *Sympathy Scale* (Eisenberg et al., 1996)
- Spirituality measures (see Sexson, 2004)

Social Development (Individual)/**Opportunities to Belong** (Context)/**Emotional and Instrumental Support** (Context)

Scales from the *CTC* and *SDT* are useful in this area and include measures of Connectedness and Attachment to pro-social institutions (school and community). The *Peer Support Inventory* (Armsden & Greenberg, 1997) assesses children's perceptions of their attachment to peers.

There are few measures of cultural competence or comfort, and none for youth and children that we feel are worth recommending. There are good measures of civic engagement (cf. Flanagan, 2004), but specification of these measures will likely be done by the 4-H Citizenship task force so we do not recommend measures in this area.

Appropriate Structure / **Physical and Psychological Safety** (Context) / **Pro-social Norms** (Context)

We recommend use of scales from the SDT and the CTC for structure in various domains (e.g. Family Management, Peer/Parent Attitudes Toward Substance Abuse and Antisocial Behavior, Family/School Opportunities and Rewards for Pro-social Involvement).

For research, several batteries of environmental surveys are available commercially. The MOOS surveys of family and school environment, and the ECERS (Early Childhood Environment Rating Scale) are especially noteworthy examples of tools used to rate environmental safety, norms, and climate.

Brief measures of perceived safety are available in the public domain, including in the YRBS and the CTC surveys.

TABLE 10

Clearinghouse Sites for Measurement Tools and Information			
RESOURCE	CONTENT AREA	INFORMATION PROVIDED	NOTES
Buros Institute of Mental Measurements The Seventeenth Mental Measurements Yearbook **http://www.unl.edu/buros/**	Education and Psychology	Bibliographic references on measurement construction, use, and validity Critical reviews of measurement tools Listing of measurement books Free on-line search tool	Actual tools are not provided Most tools must be purchased from publishers
Children, Youth, and Families Education and Research Network **http://www.cyfernet.org/**	Physical activity, nutrition, developmental and behavioral health, risky behaviors, and positive youth development	Author and publisher information Brief description Link to either the actual tool or the publisher's web-site	Many tools are available for free Not all tools have demonstrated validity and reliability
Center for Substance Abuse Prevention Core Measures Initiative **http://www.activeguidellc.com/cmi/menu_frameset.htm**	Substance use and related individual, peer, school, family, and community factors	Organized by domain, there are recommended constructs and links to measurement tools	Web-site is "in progress" and was last updated in 2001 The concept and setup is very user-friendly and easy to access
Fast-Track **http://www.fasttrackproject.org/**	Anti-social behavior and related individual, school, family, and community factors	Alphabetical listing of hundreds of measures Author and publisher information Bibliographical information Brief description	Cannot search specific topic, title, or author Many measures must be purchased through publisher
Collaborative for Academic, Social, and Emotional Learning	Social and emotional learning, both school and community-based	Brief description Link to actual tool or the publisher's web-site	Cannot search specific topic, title, or author Includes many free measurement tools