The Matrix Comes to Youth Violence Prevention

A Strengths-Based, Ecologic, and Developmental Framework

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The field of youth violence prevention has produced a rich harvest over the past 30 years. Research and practice have yielded a wealth of information on both the causes of violence and its prevention. It has also led to much greater acceptance, among public health professionals and the general public of the notion that youth violence is preventable.

Until recently, when most people thought about violence prevention, they thought of simple interventions that could be delivered in one well-timed shot, much like a vaccination against smallpox. Interventions were designed to be delivered just at the time when violence is most likely to become a problem, usually in adolescence, and expected to have a prolonged effect. Unfortunately, we learned that, although this magic bullet is highly desired, it does not exist and that interventions of this nature are invariably too little, too late.

More recently, lessons from these early efforts at prevention, combined with a growing awareness of the importance of early development on later aggression,[1] have sparked a renaissance in our understanding of youth violence and its prevention. From research, we know now that for prevention programs to be effective, they must (1) start early in a young person's life; (2) last throughout childhood and adolescence; (3) engage individuals from multiple settings including the child's family, peer group, school, and community; and (4) seek not only to reduce risk and increase protection in a young person's life, but also to promote positive development and the attainment of core developmental competencies.[2,3] This is consistent with a growing body of evidence that indicates that both risk reduction and positive youth development approaches are needed to assure successful outcomes for young persons: risk reduction to avert problem behavior and positive development to assure that children attain their potential.[3]

Unfortunately, violence prevention programs tend to be focused either on risk reduction or positive development, and rarely encompass both approaches. Violence prevention programs grounded in theories of positive development attempt to foster acquisition of key developmental competencies believed to be associated with positive outcomes, and pay less attention to the reduction of risk factors associated with violence. Violence prevention programs grounded in theories of risk and protection focus primarily on the reduction or removal of risk factors associated with violence, and increases in protective factors, and may pay less attention to encouraging acquisition of general developmental competencies.[3,4]

Conceptual frameworks are needed to help researchers and practitioners integrate the two approaches, i.e., attend to risk and protection and developmental assets simultaneously. The Child Well-Being Matrix developed by the Task Force for Child Survival is a prevention framework that integrates the risk reduction focus found in public health prevention models, with developmental science and a focus on promoting positive development in youth. Comprehensive frameworks like the Matrix have important implications for healthcare professionals, many of whom still rely heavily on illness and deficit-based approaches to care. These integrative frameworks can help researchers and practitioners identify opportunities for prevention across settings and across a young person's early lifespan. They can assist health professionals, parents, and others involved in nurturing young lives to see and act on a much broader set of opportunities for violence prevention and to identify prevention opportunities that are frequently missed by the older, more restrictive frameworks.

In this article, we describe the Child Well-Being Matrix and its grounding in the public health approach to prevention and in developmental science, discuss its implications for healthcare practice in youth violence prevention, and then in light of this special supplement's focus, briefly describe its implications for healthcare professional training. By doing this, we hope to provide a tool that can assist the reader to see the fullest range of opportunities for practice-based violence prevention; and because education will be critical to the realization of these actions, to consider its implications for health professional training.

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Public Health Approach

In the United States, just 100 years ago, at the beginning of the last century the average life expectancy was only 45 years. Over the course of the 20th century, the life expectancy has increased to 75 years. That was the equivalent of adding 8 hours a day, every day for 100 years (Bill Foege, personal communication). How did this happen? This did not come about because of improvements in medical care. It was not because of better treatment of heart disease, cancer, and stroke. Rather, it happened as a result of focusing on health promotion during the very earliest years of a child's life. It came about because of better preventive care for mothers, infants, and children. It was the public health focus on providing infants and children better nutrition, clean drinking water, better housing, more exercise, and immunizations that helped to improve physical health and improve the life expectancy so markedly. It makes sense that we would seek to apply the same focus on the promotion of strengths and the prevention of psychological problems as well as physical problems.[5]

The Child Well-Being Matrix is grounded in three core principles of the public health approach. These principles are a focus on prevention, use of evidence-based interventions, and collaboration.

Focus on Prevention

The Matrix Makes Us Look Upstream

The public health approach places an emphasis on prevention. Consistent with this, the Child Well-Being Matrix emphasizes problem prevention beginning before birth and continuing across the early life span. The importance of focusing on prevention can most easily be illustrated through a legendary public health story:

One fall afternoon, two people are sitting on the bank of a river, quietly drinking coffee and reading their books when one of them sees a body floating down the river. She turns to her companion and says, "Hey, quick, there's somebody in trouble, hurt and floating down the river. We've got to go in and save him." They put down their books and coffee, run over to the canoe, paddle out furiously, reach the injured person, pull him into the boat, paddle back to shore, lift the person out, lay him down, start CPR, call 911 and when the rescue squad arrives they turn the person over to them, and go back to sitting down, drinking their coffee, and reading their books. Within minutes, the first person yells to the other, "Hey, quick, there's somebody else in trouble, hurt and floating down the river. We've got to go in and save him." And again, they put down their books and coffee, run over to the canoe, paddle out furiously, reach the injured person, pull him into the boat, paddle back to shore, pull the person out, lay him down, start CPR, call 911 and when the rescue squad arrives turn the person over to them, and go back to sitting down, drinking their coffee, and reading their books. Sure enough, two minutes later, the first person turns to the other and says, "Hey, quick, there's somebody in trouble, hurt and floating down the river. We've got to go in and save him." But this time the second person replies, "No, I am not going. You can go and save him if you want, but I am going upstream to find out who is throwing them in!"

Over the past 30 years, the application of the public health model has led efforts to prevent youth violence progressively upstream, emphasizing the need for interventions to begin before individuals are victimized and before individuals perpetrate violence. Public health looks upstream because it is concerned with the future health of the whole population, not just the health of particular individuals or groups within the population today. It is concerned with the health of those who float down the river in front of us, but it is also focused on those upstream whom we have not yet met or seen. This also means intervening earlier and earlier in the life cycle of violence and earlier and earlier in the life cycle of potential perpetrators and victims. The public health approach brings the potential for shifting the paradigm from providing services to victims and incarcerating perpetrators to preventing the victimization in the first place.

This means making services available for potential perpetrators, not just for current victims. This approach can be unpopular when there are scarcely enough resources available to pull victims out of the water. Sending someone upstream to work on prevention may mean there are not enough people to treat the victims. It is clear that professionals who work upstream have to be added to and not taken away from those available to help the victims. In the domestic violence field, it took 25 years of progress before advocates began requesting interventions for prevention efforts such as resources to help prevent men from becoming violent.

Evidence-Based Interventions

Like the Public Health Approach, the Matrix Is Based on Science

One of the most promising frameworks for understanding and preventing youth violence today is the evidence-based, four-step public health model, the same four-step model that has resulted in major advances in other areas, such as the prevention of motor vehicle injuries, cancer, and infectious diseases, and tobacco control. The questions that were asked in those fields are the same ones the model poses regarding the prevention of youth violence:

Step One: What is the problem? *Who* are the victims and perpetrators, *what* types of violent interactions hap-

pen and what are the consequences, *where* does it happen, *when* does the violence occur?
Step Two: What are the causes? What are the risk factors and what are the protective factors?
Step Three: What works to prevent violence? What interventions produce positive outcomes?
Step Four: How can it be done? How do we move from a controlled trial to a large-scale, well-disseminated program?

The success of a science-based approach is dependent on our ability to conduct effective program evaluation. Although our ability to critically evaluate the effectiveness of interventions has increased in the past 20 years, capacity is needed to enable us to separate population-based, demographically related shifts in rates of youth violence from specific program effects.

Collaboration

Consistent with the Public Health Approach, the Matrix Is Collaborative

Because the factors that affect the health and safety of populations are complex and not solved easily through simple interventions, effective youth violence prevention efforts require the input of multiple sectors: law enforcement, education, public health, health care, and social services. There have been outstanding examples of collaborative approaches at the national level among the U.S. Department of Health and Human Services (DHHS), the Department of Justice, and the Department of Education. Public health has a role to play in helping to bring together the critical actors and in providing the leadership necessary to make such collaborative ventures work.

Consistent with this, prevention programs based on the public health approach typically adopt an ecologic framework. The **ecologic** approach is an extension of Bronfenbrenner's model, originally proposed in 1979 to explain aspects of human development.[6] This approach suggests that several different levels of influence can affect both protective and risk factors for youth violence: the individual himself or herself, close relationships, the community in which the person lives and spends time, society-wide forces, and the historical times in which the person lives. The interaction among factors at the different levels is just as important as the influence of factors within a single level. In turn, this implies that effective prevention must work across different levels. Jim Mercy and Linda Dahlberg have been instrumental in bringing the developmental and ecologic perspective to youth violence prevention.[7]

Contributions of the Science of Child Development

The Matrix is also grounded in **developmental** science. At different stages in human development there are significant differences in one's sense of self, connectedness to others, ability to learn from others, and in one's competencies, skills, and activities, all of which have implications for prevention and intervention in youth violence. The Matrix builds on the recognition that strengths and skills develop and are affected by different external influences across the life course, and considers the attainment of core developmental competencies not just in the physical and cognitive domains but also in the socio-emotional domain. The developmental competencies that are critical to positive youth outcomes are becoming more evident as research on child development moves forward. As developmental science progresses, these findings can be incorporated into the Matrix and used to guide the focus and content of prevention efforts in the healthcare setting. For example, Guerra and Williams[4] identify five core developmental competencies that are important for healthy social and emotional development and are associated with youth violence prevention. They are: (1) formation of a positive identify or self-concept, (2) development of personal agency (or self-efficacy), (3) self-regulation, (4) social relationship skills, and (5) formation of a positive system of beliefs.

The Matrix allows for the traditional problem identification and risk reduction efforts of public health but places equal emphasis on promoting the development of a young person's strengths and competencies. This emphasis on the promotion of positive development begins at or near birth and continues across the lifespan, building the capabilities, values, and skills that will help the individual avoid perpetrating violence or becoming a victim of violence.

Combining the Public Health Approach with the Developmental Approach

Combining the public health approach, the framework that guided the first 30 years of youth violence prevention, with developmental theory produces a framework that creates a multidimensional, evidence-driven, developmentally sensitive framework from which to identify opportunities for youth violence prevention that involve not only prevention and risk reduction but also the promotion of positive development. Instead of thinking about interventions that take place in one setting, at one time, through one institution and set of actors, the Matrix provides a three-dimensional space where multiple interventions can be planned and fit together, occurring either simultaneously or sequentially or both. The interventions pattern can be sequential along the stages of the lifespan or interventions can be

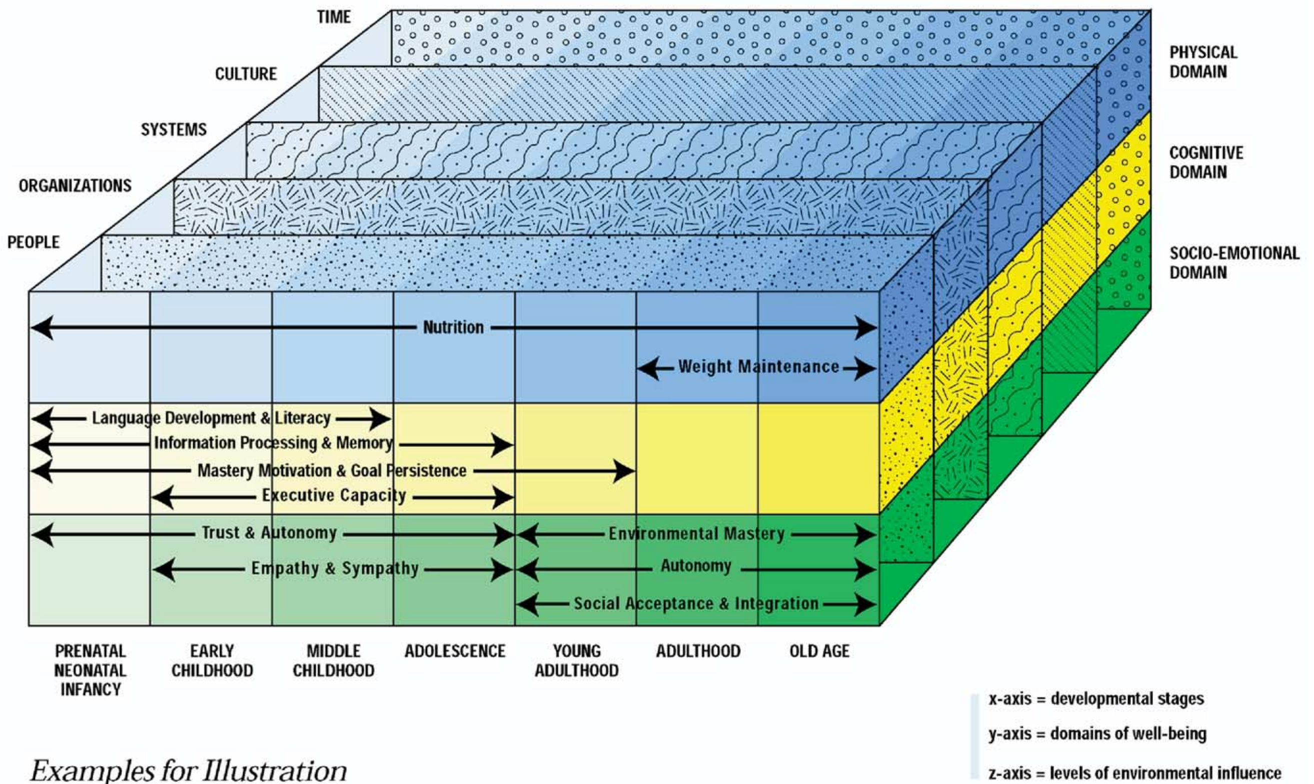

Figure 1. Child well-being matrix.

mounted simultaneously at different ecologic levels or environments to look at their combined impact over time. The matrix helps us think about youth violence prevention as a three-dimensional space rather than as a single point. It also encourages us to think about interventions that promote strengths as well as those that are designed to reduce risk.

Figure 1 provides a visual representation of the Well-Being Matrix. The x-axis represents developmental phases, the y-axis represents developmental domains, and the z-axis represents the ecologic levels of influence. The z-axis, or ecologic axis, also suggests who the partners might be for the various interventions. Under-girding the stages of human development is public health's concern with prevention, evidence-based practice, and collaboration. This illuminates a wide range of opportunities for parents, peers, healthcare providers, community workers, and many others. Each group can also see where other interventions that will complement their own efforts might fit into this space. Visualizing the collective impact of various programs in this way underscores why collaboration will be critical. The interplay of solutions can be "win–win" rather than "either–or."

Implications of the Matrix for Healthcare Professionals

The Matrix and other integrative models of problem behavior prevention and positive youth development have important implications for healthcare practice in violence prevention. First, they suggest that healthcare provider efforts in youth violence prevention have two foci: one on risk reduction, and a second on promoting the development of core developmental competencies in children and the environmental and familial resources necessary to accomplish this.

Second, these models suggest that health professionals should begin violence prevention activities early; ideally before the child's birth, during regular prenatal care for the parent, and continue into early adulthood. The content of these activities, screening, assessing, counseling, and referring, should be developmentally linked, culturally sensitive, and tailored to the unique situation and contexts of the child and the family.

Third, healthcare professionals should be prepared to work with caregivers and children and youth to activate and engage the many environments and settings that affect the child and that contribute to his or

her level of risk or promote or impede the acquisition of core developmental competencies. In most instances this would include, at minimum, the child's home, school, and community.

Family Practice–Based Example of the Integrated Model

To imagine this integrated model in practice, consider the following example. A pregnant mother presents for prenatal care at a community clinic in her area during her second trimester. The physician conducts a history and physical and provides counseling appropriate to her stage of pregnancy on nutrition and alcohol, among other pregnancy-related concerns. Along with this, the mother-to-be receives health education directed toward increasing her competency as a parent and building the skills she will need to: (1) reduce risk factors that can negatively impact her child's development across all domains including physical, cognitive, social, and emotional; and (2) promote core developmental competencies in her child that promote positive development.[8]

Ideally, in a full implementation of this approach, a comprehensive assessment of the mother and father's (or primary caregiver's) resources, social support system, developmental knowledge, and parenting skills is conducted on-site by a social worker or other allied-health professional, or in lieu of this, a nearby family service organization in the community assists with this process in collaboration with the provider.

As part of this early intervention process, the provider works with the parents to develop an individualized and comprehensive "strategic plan" for reducing risk and building competencies in their child that details the actions, resources, and parenting practices most closely associated with these desired outcomes. The plan takes into consideration the child in the context of the unique situation of the parents and the family and considers the role individuals across the child's and family's ecology play in supporting these actions. A central component of the plan is ensuring that the parent has a good working knowledge of the process of healthy development of young children, parenting strategies associated with positive development, and effective strategies for risk reduction around violent victimization and perpetration.

The health professional works with the parents to acquire this knowledge and associated skills either through in-house education or referral to resources in their community. The provider, parents, and eventually the child evaluate this "strategic plan" at subsequent healthcare visits to assess progress and continue to make additions and modifications based on the child's developmental stage, unique constellation of strengths and needs, and the family's life context. Ideally these efforts are supported by and coordinated with evidence-based efforts in other arenas that affect the child, such as school.

For this to occur in a clinical setting, health professionals will need training beyond the concepts of preventing and treating illness and reducing risk, to include concepts of promoting positive development. In addition to solid training in violence prevention, providers will need comprehensive training on the benchmarks and competencies associated with positive child and youth development. Evidence-based practice tools including assessment tools, patient education interventions, and support materials will need to be developed to support practice in this area. Reminder and documentation systems will need to be established to support the delivery of these services, perhaps similar to those being developed currently in chronic disease care. Research will need to be conducted to show that this type of comprehensive approach to a child's development actually produces improved health and life outcomes, and health plans and other regulatory bodies will need to support the additional time this care will require.

The good news is that resources are becoming available to support this type of comprehensive approach. The American Academy of Pediatrics *Connected Kids: Safe, Strong, Secure* is designed to support comprehensive, provider-delivered interventions to reduce risk for violence and promote positive development among children and youth. The program is designed for use with children from birth to age 21 and provides developmentally linked parent and patient education resources on risk reduction as well as the acquisition of core developmental competencies.[9] It is described in detail later in this supplement. Other practice tools and the evidence to support their effectiveness will be needed, along with relevant and accessible provider training.

Discussion

The field of youth violence seems to be on the cusp of exciting breakthroughs. Significant progress has been made in violence prevention by designing and testing discrete evidence-based interventions that work. This has been a major step forward. We must continue to collect this information and data as we go. If we exclude certain types of approaches because of political bias or fear, or if we continue to invest large resources into approaches for which there is no evidence of effectiveness, we will clearly reduce our chances for successfully preventing youth violence. Similarly, we can't refuse to try approaches that have not yet been tested adequately. If we invest only in approaches that have been proven effective we may hinder both our efforts to discover what works and our efforts to continue to improve approaches that do work. We also must ensure a comprehensive approach by testing a range of inter-

ventions that include reducing access to lethal weapons. The Centers for Disease Control and Prevention (CDC) and public health researchers collaborating with criminal justice researchers have made a good start at developing a scientific ground for approaching this highly politicized area and this must continue to advance.

If we really want to make a difference in youth violence, there is also more to be done in addition to building our evidence base. Goethe told us "Willing is not enough; we must do." We would suggest a slight improvement on this and say that "Doing is not enough; we must do together." If we can keep in mind the faces of all those who have been affected so deeply by youth violence and those at risk for such an impact, and if we can work with these advocates and potential advocates, we will be able to create the demand that is needed for change. These are truly exciting times. We hope this volume will help to share the excitement and energize the work that lies ahead.

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