SECTION I

A CONCEPTUAL MODEL OF COMMUNITY HEALTH

The way we define and measure individual and community health is evolving. Over the last two decades, the definition of health itself has expanded from simply the absence of disease to a state of complete physical, social, and mental well-being. This latter definition from the World Health Organization was recast in the 1990s, and it proposed that health is the degree to which individuals or groups are able to realize aspirations, satisfy needs, and cope with a changing environment.[1] Recognizing this evolution in our understanding of health is important and suggests that adjustments are required to our methods of improving the health of our community. Appropriate adjustments begin with acknowledging the many factors in the physical, social, and individual environments that interact in complex ways to govern and shape the health of individuals and communities.

Today researchers have developed new indicators of health status beyond standard morbidity and mortality. Such indicators include the quality of life, burden of disease, years lived with disability, and developmental delay. These health measures also reflect the enormous change of disease patterns over the last century, from mostly infectious to mostly chronic, as well as the migration of interventions upstream toward greater emphasis on prevention and health promotion. Accordingly, a broad contextual framework or conceptual model helps to clarify the relationships among a multitude of factors influencing the health of a population. For agencies, organizations, and policymakers responsible for the health of citizens and communities, a conceptual model can suggest different ways to leverage resources and collaboration toward more substantial gains in health status. Such a broad conceptual model for San Diego County is presented in this section.

MULTI-DETERMINANT MODEL OF HEALTH

Neither the process followed nor the components of the model proposed in this section are new. In an effort to identify risk factors for disease and a host of social ills, researchers have for many years investigated a multi-determinant model of community health. This type of research has led to different adaptations of such models in various communities, including variations of the personal health and well-being model depicted in Figure 1.

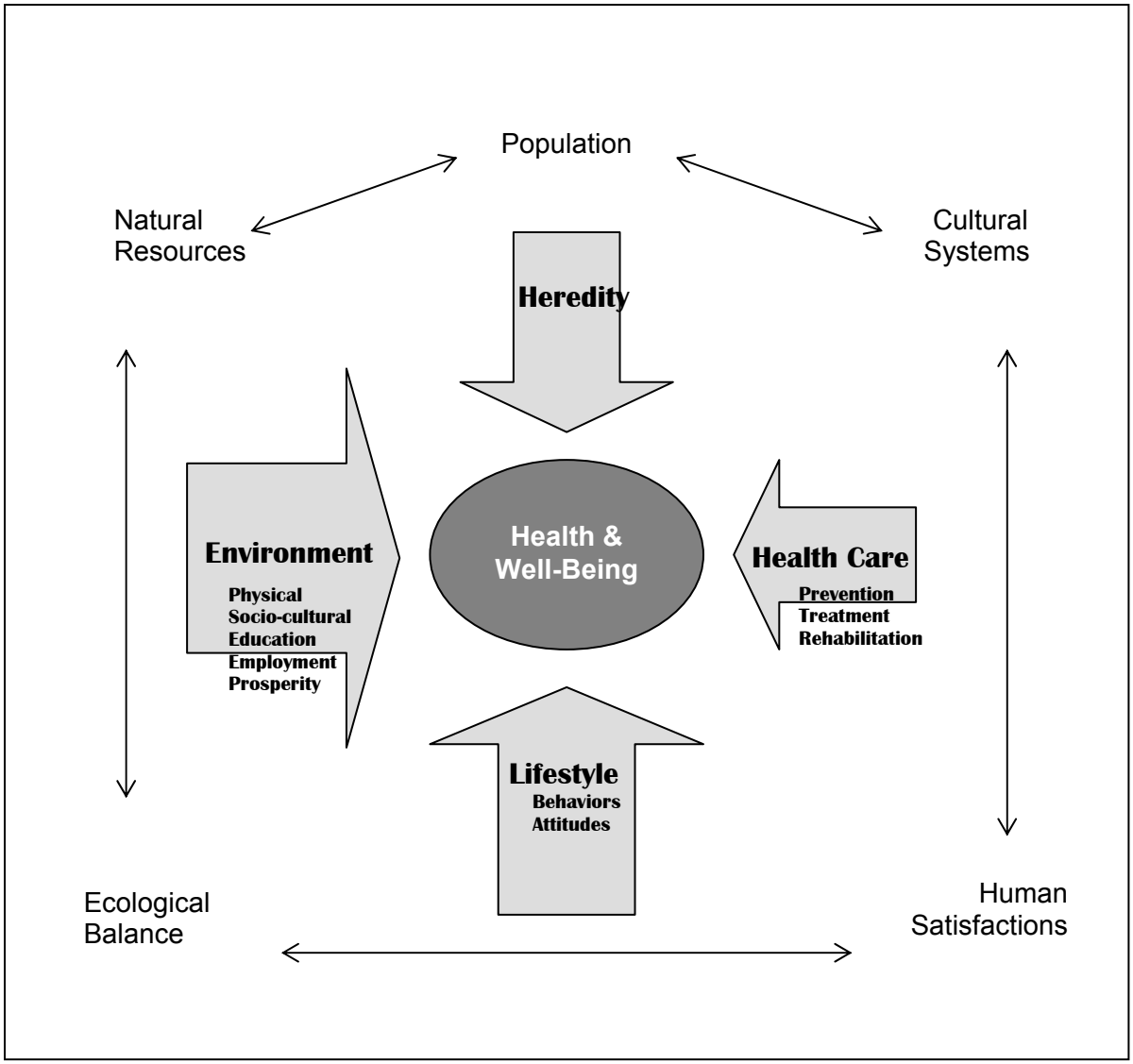
The Determinants of Health and Well-Being model, shown in Figure 1, depicts the various determinants of health and suggests three ideas for the current discussion:

1. The relative influence of heredity, the environment, lifestyle choices, and health care (institutional response) on health and well-being is not equal, as implied by the size of the arrows. Clearly the environment (as defined by culture, socio-economics, prosperity, employment) is the most significant determinant of health status. Subsequent determinants might include the myriad of choices that individuals make concerning their beliefs and behaviors.

2. The two most malleable areas of influence relative to a community health response include altering personal behaviors/attitudes and improving the institutions of health care themselves. Although the model presented in this report concentrates on these two areas, it does not theoretically exclude efforts to address determinants within the environment.

3. The outer arrows represent the interconnected nature of the determinants. None exist in isolation, for the relative impact for good or ill of each determinant is shaped by many influences.

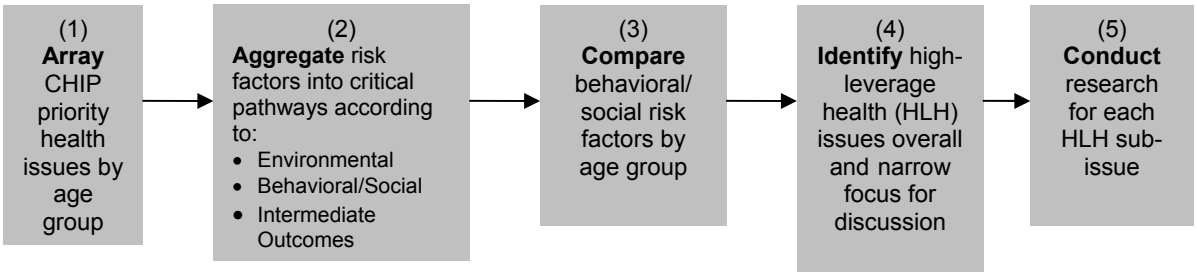
Figure 1. **Determinants of Health and Well-Being**



Adapted from H.L. Blum, *Planning for Health*, 1981.

ADAPTING THE MULTI-DETERMINANT MODEL FOR SAN DIEGO COUNTY

The method used to develop the model presented in this section was adapted from the *California Health Report*[2] published in 2000, and followed a 5-step process outlined below:



Step (1):
Array CHIP's Priority Health Issues by Age Group

The 1998 Needs Assessment made use of an extensive process to identify and prioritize community health issues and indicators. This process involved: conducting 13 focus groups with a cross-section of the community; assembling a comprehensive list of health issues; categorizing health issues by age group (0-14, 15-24, 25-64, 65+); scoring each health issue according to the size, seriousness, and community concern; and ranking health issues overall by age group. From this process, 12 major health issues were identified, along with several key indicators for each issue (See pp. 2-11 in the 1998 Report).

Development of the 2001 Needs Assessment involved a process for validating the priority health issues by age group. The process included attending community forums and reviewing their reports; selecting the top four priority health issues for each age group as well as several overarching issues; surveying CHIP members regarding other possible emerging health issues; and selecting one or two key indicators for each priority health issue. Figure 2 lists the priority health issues and indicators reviewed in this report.

Figure 2. **Priority Heath Issues: Overarching and by Age Group with Selected Key Indicators**

Overarching

Priority Health Issue	Key Indicator
1. Health Insurance Coverage	• Percent of adults and children with coverage
2. Dental Insurance Coverage	• Percent of adults and children with coverage
3. Usual Source of Medical Care	• Percent of adults and children with regular primary care provider
4. Prenatal Care	• Percent of women initiating prenatal care in 1st trimester

0-14 Infants and Children

Priority Health Issue	Key Indicator
1. Infant Health	• Low birth weight; infant mortality rate
2. Unintentional Injuries	• Rate of death due to drowning
3. Violent & Abusive Behaviors	• Rate of child abuse cases
4. Chronic & Disabling Conditions	• Rate of hospitalization for asthma; percent of overweight children

15-24 Adolescents & Young Adults

Priority Health Issue	Key Indicator
1. Substance Abuse	• Percent abusing tobacco, alcohol, drugs
2. Reproductive Health	• Teenage birth rate; percent having sexual intercourse
3. Unintentional Injuries	• Motor vehicle mortality rate
4. Violent & Abusive Behaviors	• Homicide rate
5. Mental Health	• Percent attempting suicide

25-64 Adults

Priority Health Issue	Key Indicator
1. Mental Health	• Rate of mental distress (depression/stress)
2. Substance Abuse	• Rate of drug-related mortality; percent engaging in binge drinking; smoking prevalence
3. Healthy Behaviors	• Percent not physically active; percent obese
4. Violent & Abusive Behaviors	• Domestic violence report rate

65+ Seniors

Priority Health Issue	Key Indicator
1. Cardiovascular Disease	• Coronary heart disease mortality rate; stroke mortality rate
2. Chronic & Disabling Conditions	• Diabetes mortality rate
3. Cancer	• Cancer mortality rate
4. Mental Health	• Suicide rate
5. Unintentional Injuries	• Mortality rates from fall

Step (2):
Aggregate Risk Factors into Critical Pathways by Key Indicator

The framework for presenting the risk factors for each key indicator followed a structure, process, and outcomes model. Risk factors are categorized and defined accordingly:

- Structure = Environmental Risk Factors
  Genetics, family history, race/ethnicity, age, gender
  Social, cultural, and family functioning
  Physical environment
  Prosperity (employment, income)

- Process = Behavioral + Societal Risk Factors
  Personal behaviors/choices
  Health status
  Educational attainment
  Accessibility of health and human services
  Appropriateness and quality of health care

- Outcomes = Intermediate Outcomes and Final Key Indicator
  Morbidity
  Prevalence of disease or unhealthy behaviors

For descriptive purposes, each key indicator (with its associated risk factors) was designated a *Critical Pathway* – a simple and illustrative representation of some of the major risk factors associated with an outcome indicator. A critical pathway was developed for each key indicator for the age group priority health issues. Although no critical pathways were developed for the overarching health issues per se, they do emerge as risk factors within the key indicators by age group. A general template for a critical pathway is described in Figure 3, as well as 16 specific examples. Risk factors for each key indicator were obtained from the scientific literature and publications from national public and private organizations. Specific critical pathways by age group are presented on the following pages. Some indicators are combined (e.g., teen use of tobacco, alcohol, marijuana), while some are categorized as an "intermediate outcome" because they generally occur in a shorter period of time than a key indicator event, thus they are termed "intermediate."

Figure 3. **Critical Pathway – Template**

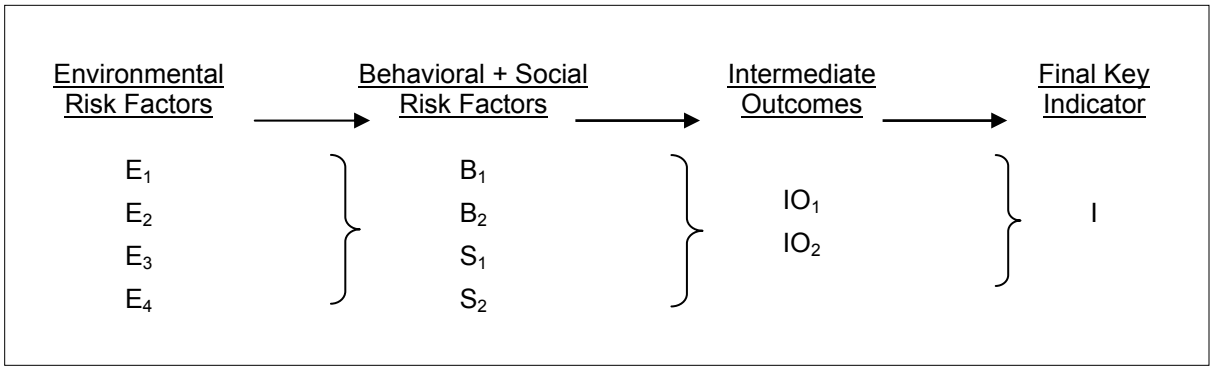
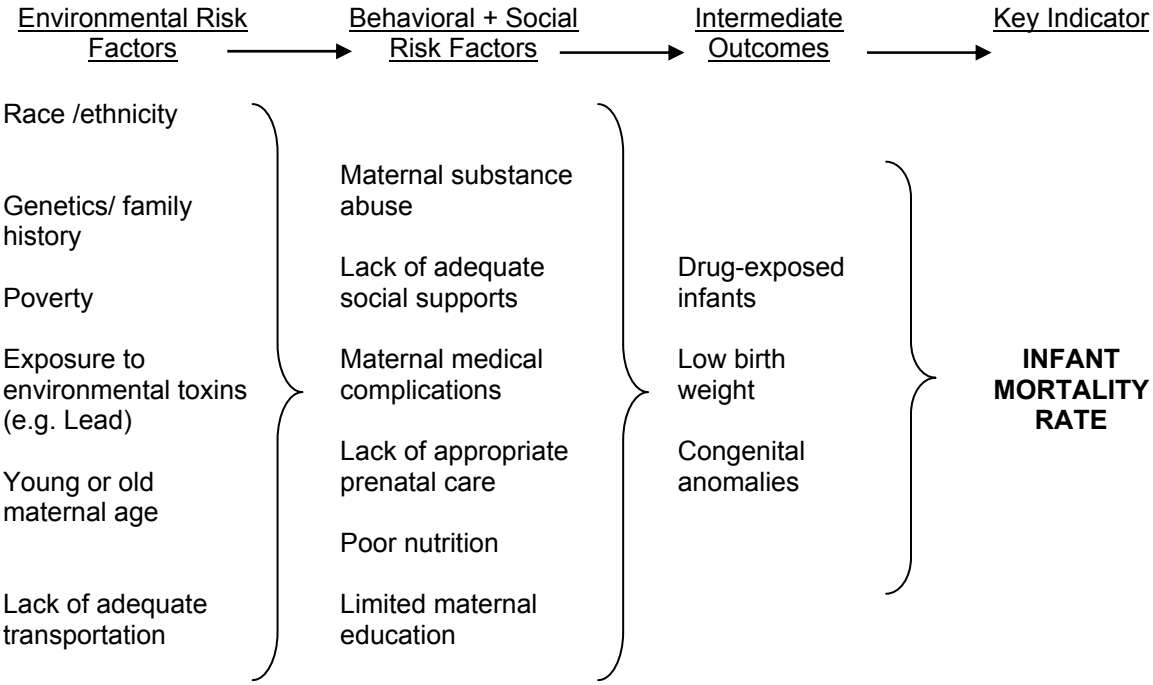


Figure 3 (continued)

Critical Pathway: *INFANT HEALTH* (Population: 0-14)



Critical Pathway: *UNINTENTIONAL INJURIES* (Population: 0-14)

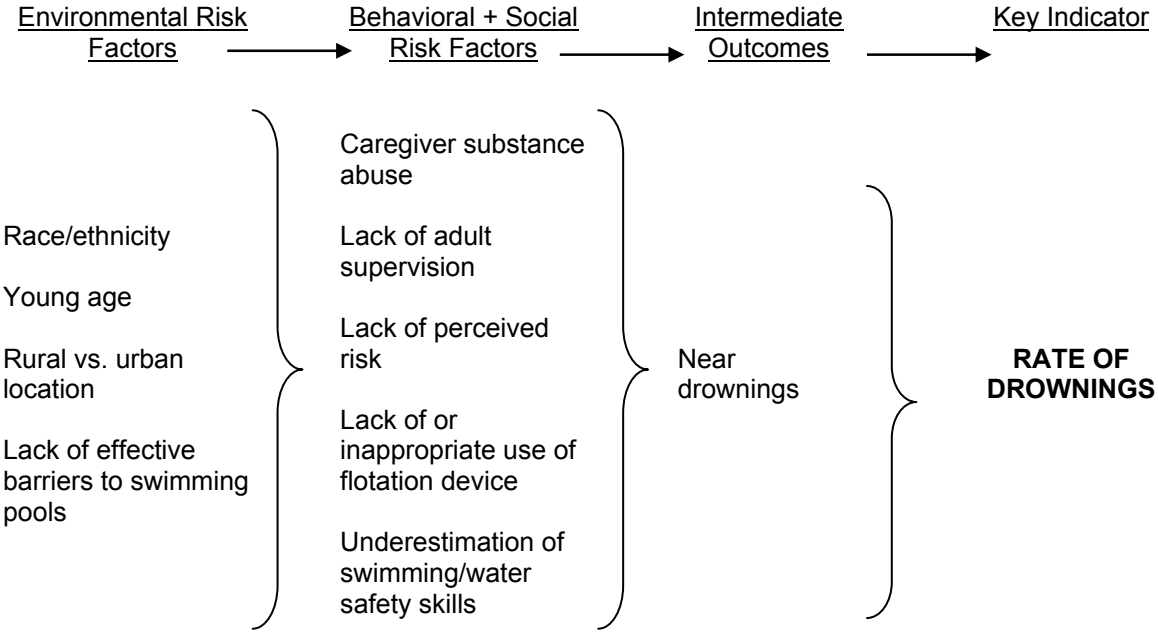
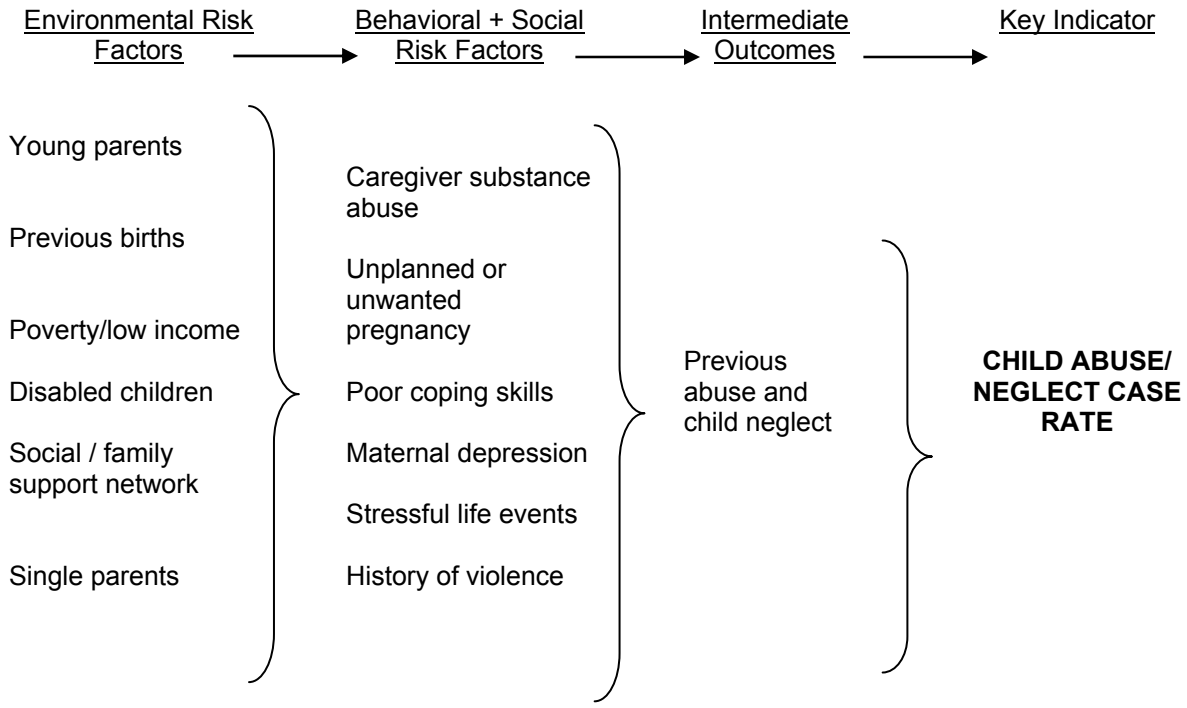


Figure 3 (continued)

Critical Pathway: *VIOLENCE & ABUSE* (Population: 0-14)



Critical Pathway: *CHRONIC CONDITIONS* (Population: 0-14)

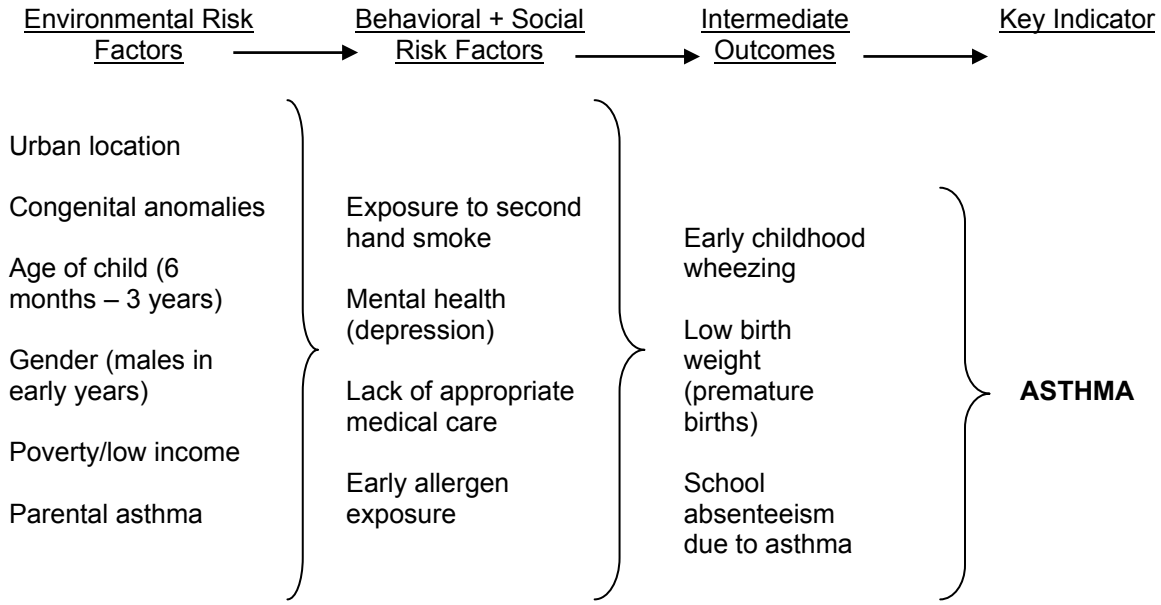
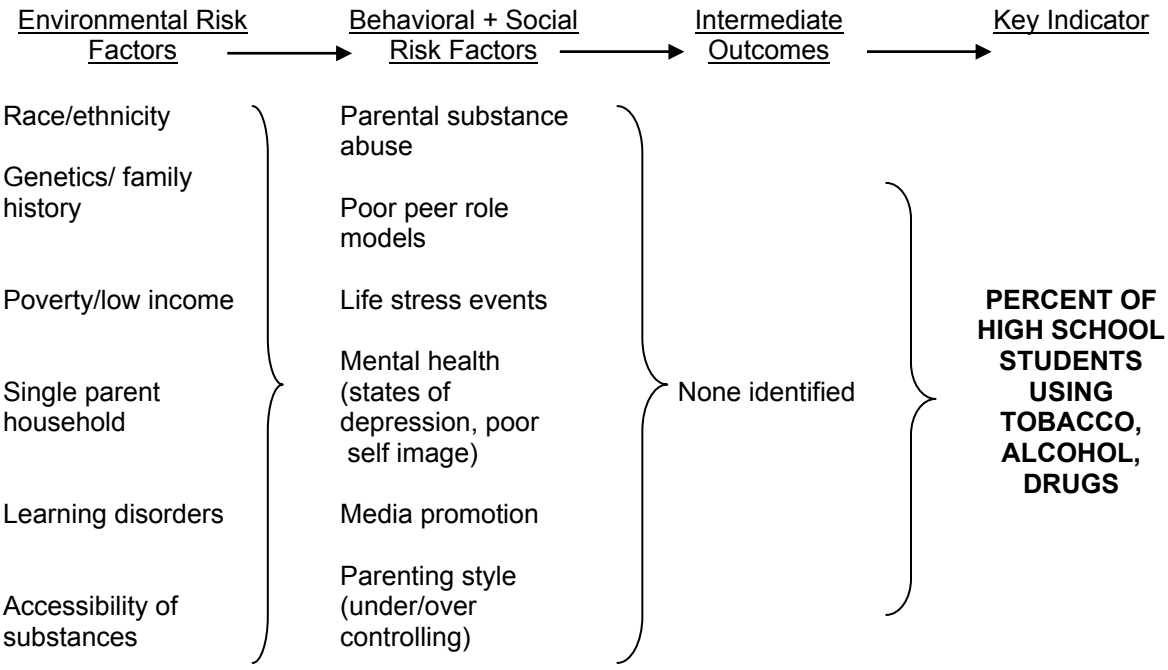


Figure 3 (continued)

Critical Pathway: *SUBSTANCE ABUSE* (Population: 15-24)



Critical Pathway: *REPRODUCTIVE HEALTH* (Population: 15-24)

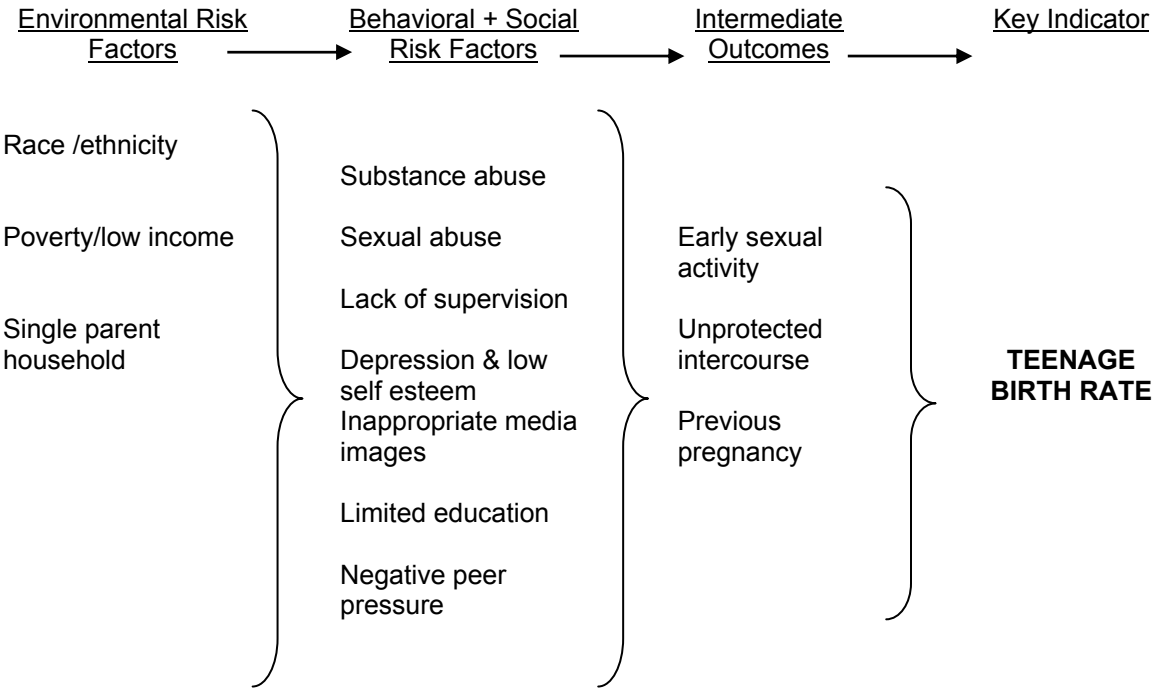
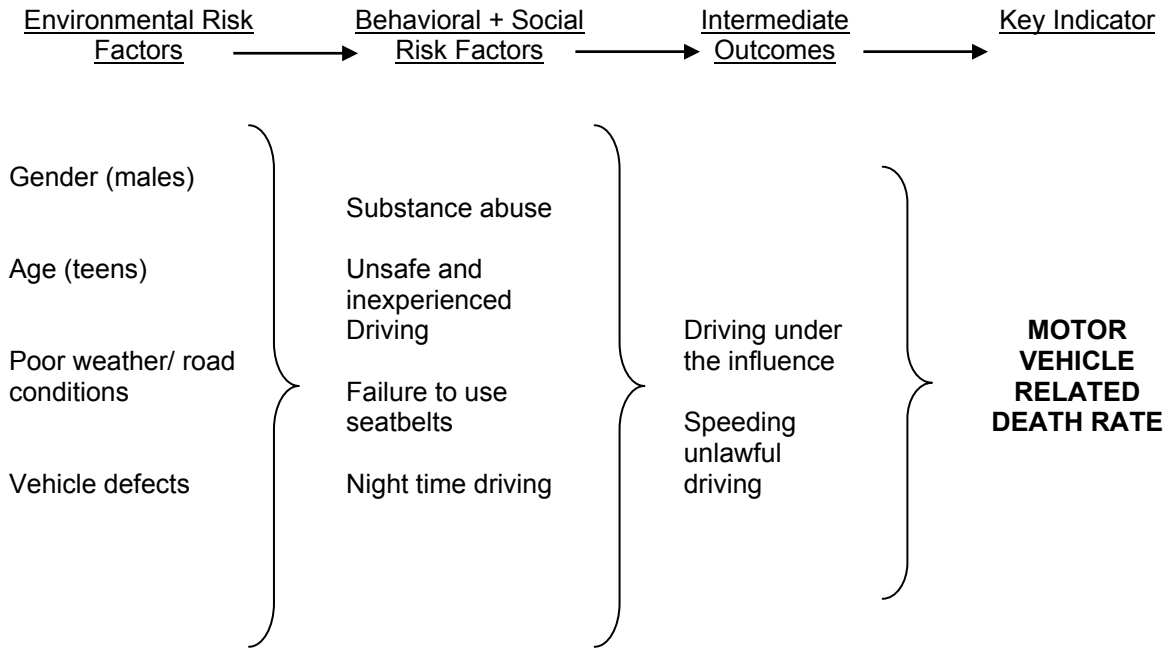


Figure 3 (continued)

Critical Pathway: *UNINTENTIONAL INJURIES* (Population: 15-24)



Critical Pathway: *VIOLENCE & ABUSE* (Population: 15-24)

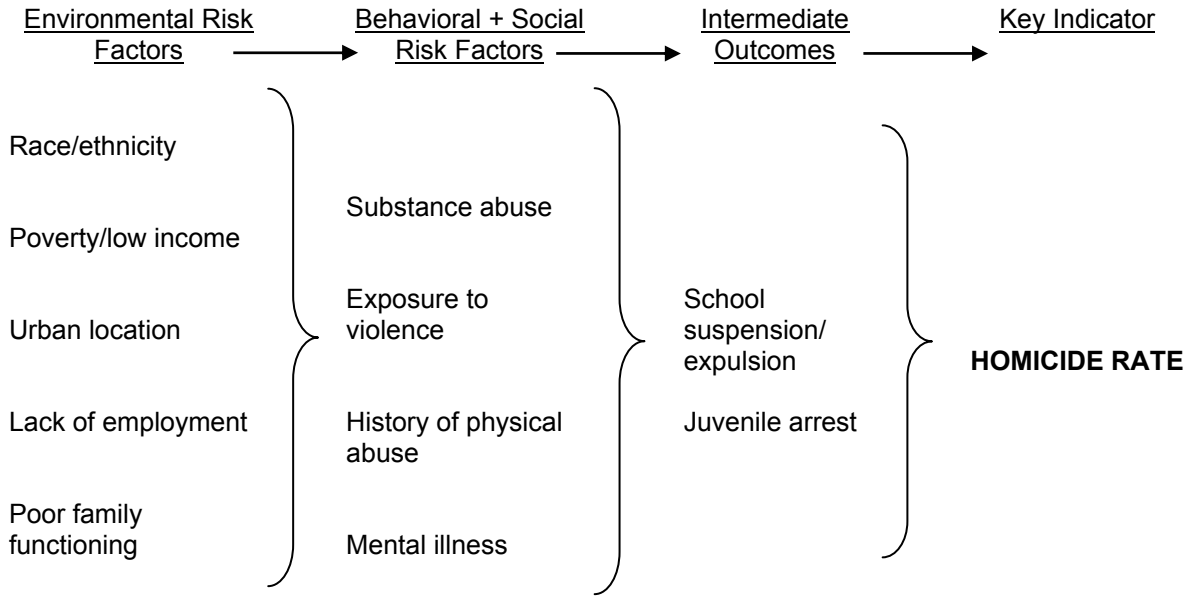
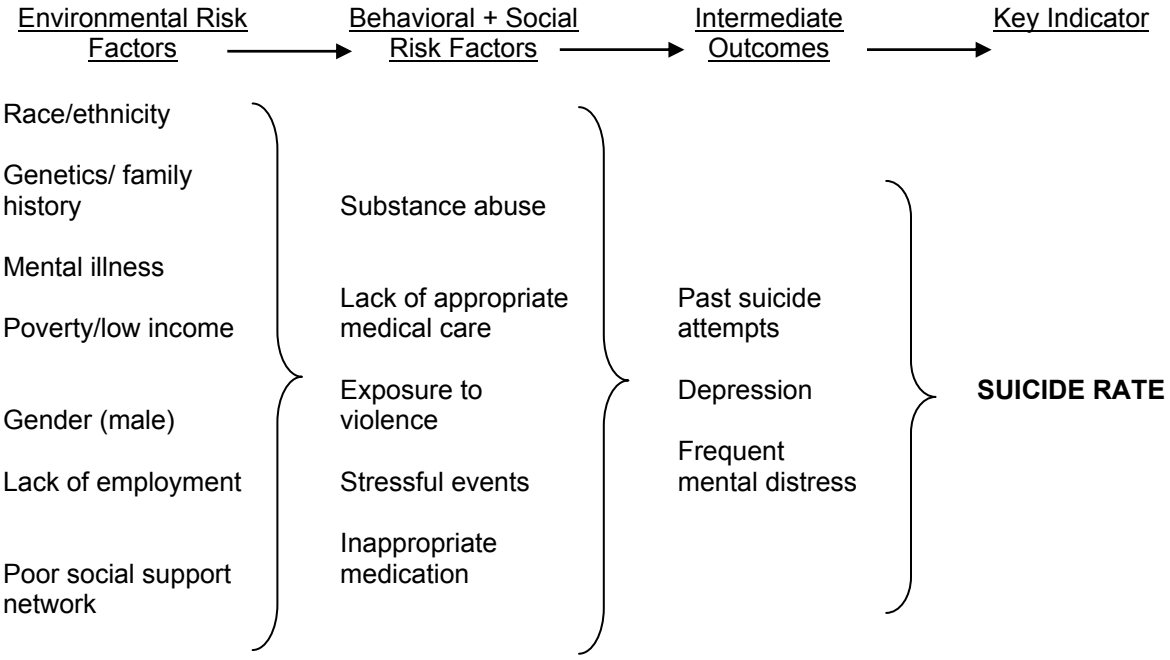


Figure 3 (continued)

Critical Pathway: *MENTAL HEALTH* (Population: 25-64)



Critical Pathway: *SUBSTANCE ABUSE* (Population: 25-64)

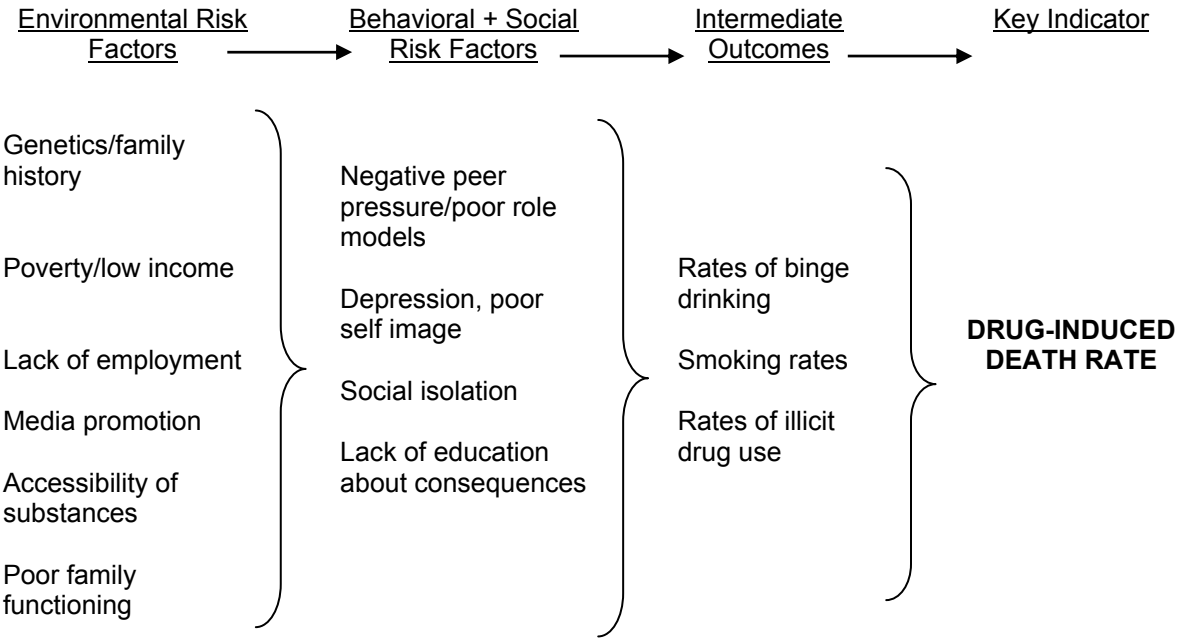
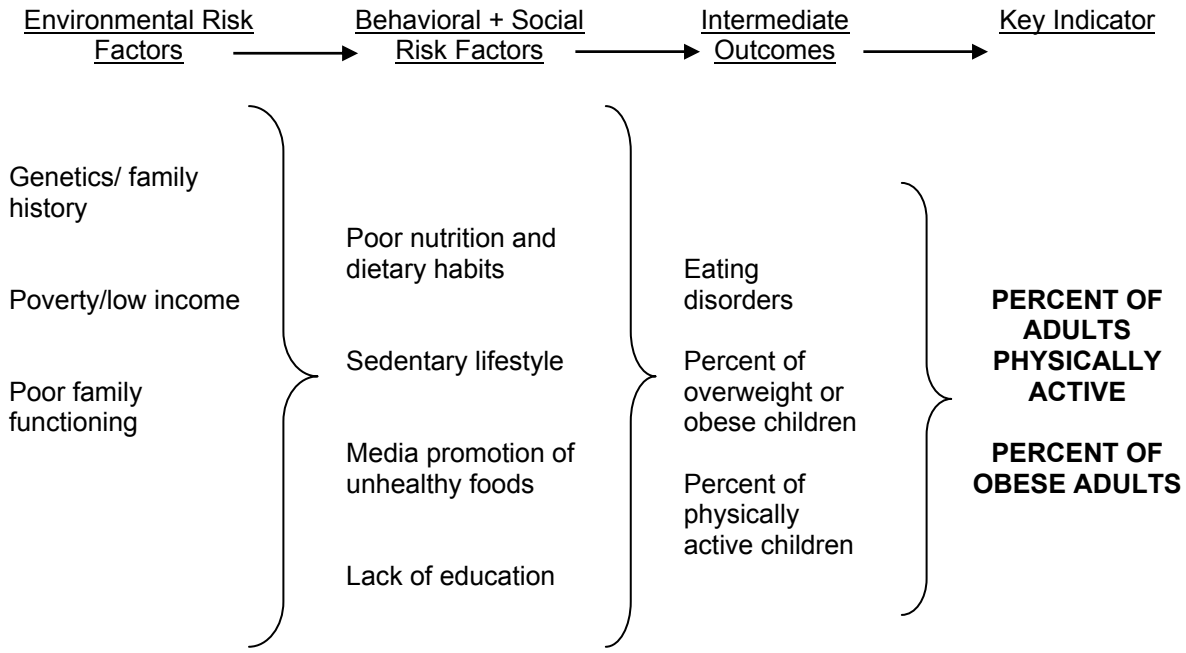


Figure 3 (continued)

Critical Pathway: *UNHEALTHY BEHAVIORS* (Population: 25-64)



Critical Pathway: *VIOLENCE & ABUSE* (Population: 25-64)

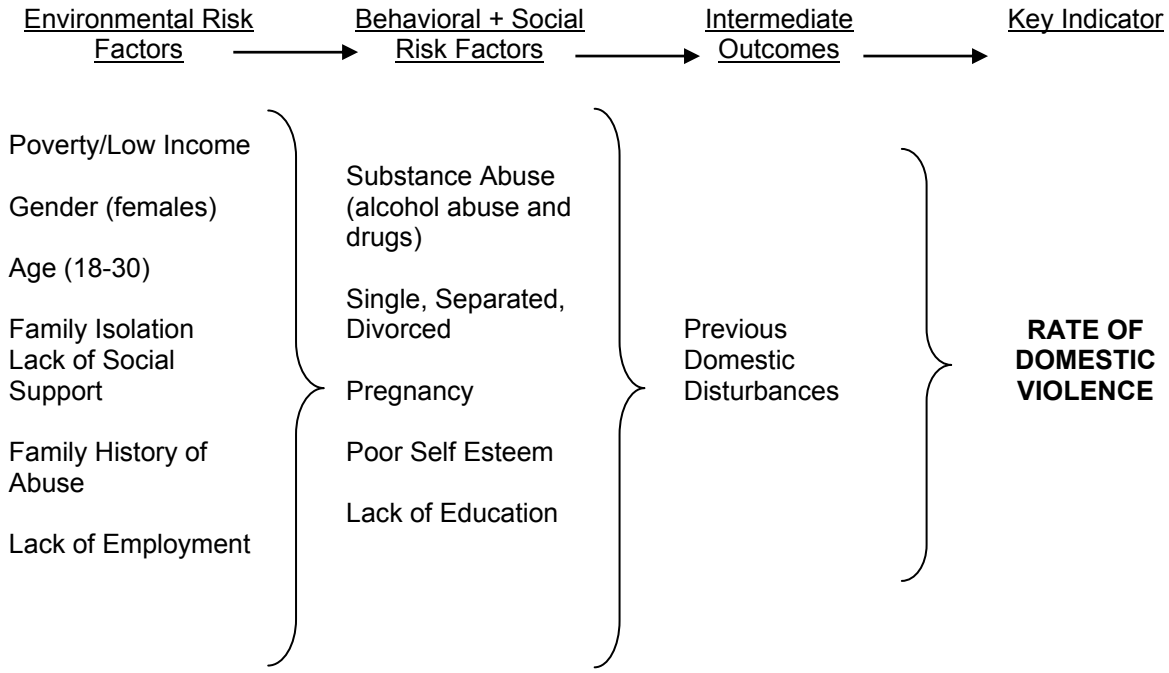
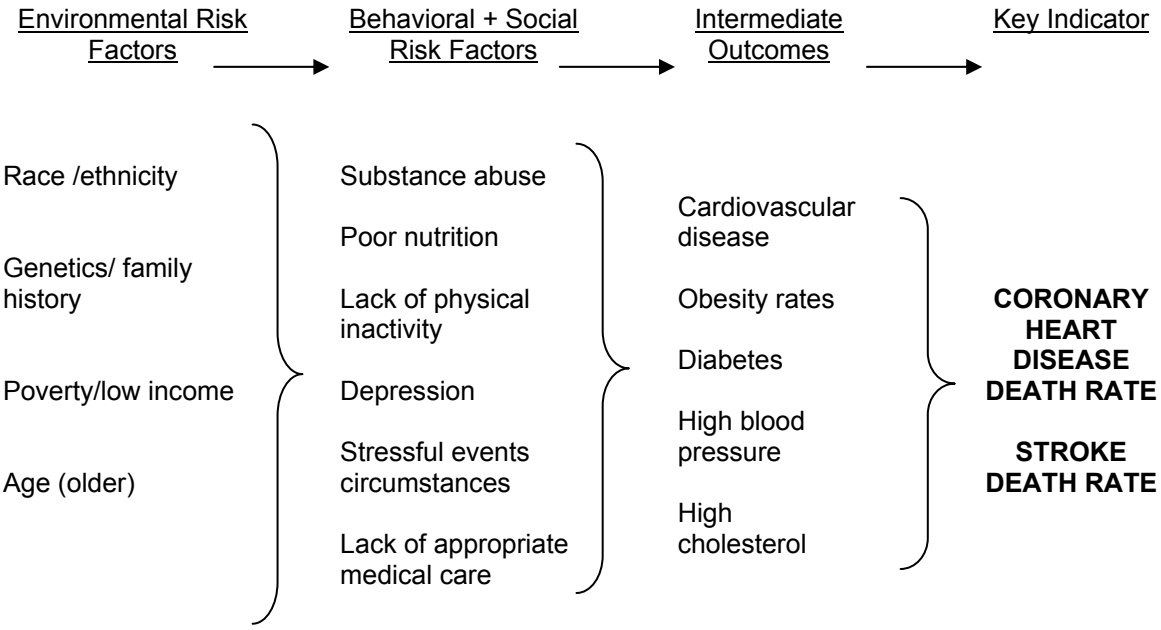


Figure 3 (continued)

Critical Pathway: *CARDIOVASCULAR DISEASE* (Population: 65+)



Critical Pathway: *CHRONIC CONDITIONS* (Population: 65+)

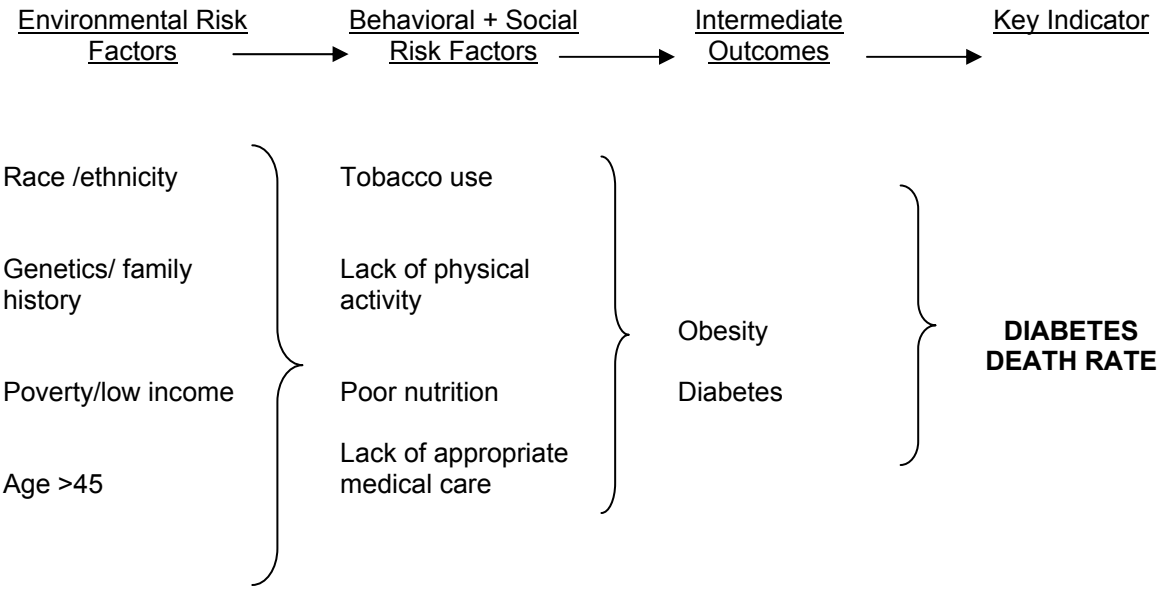
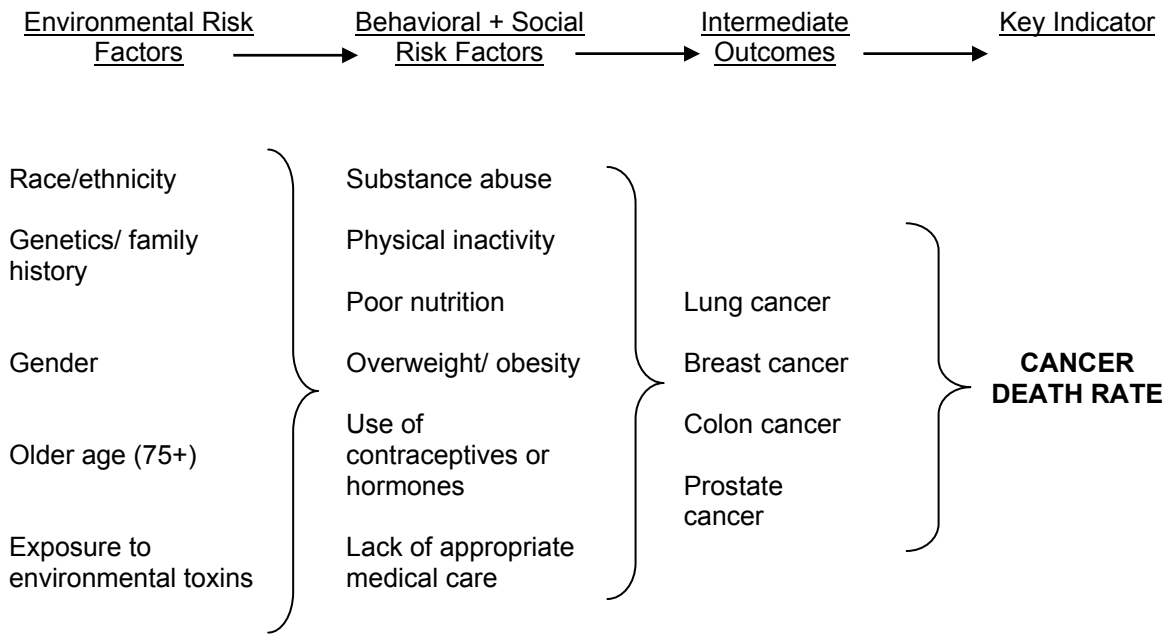
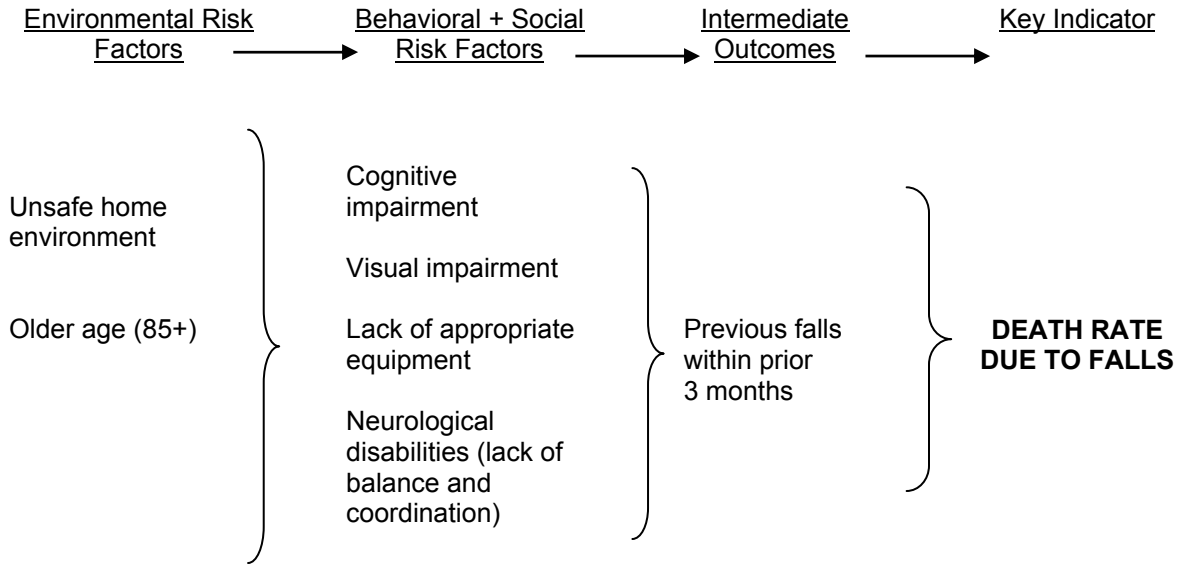


Figure 3 (continued)

Critical Pathway: *CANCER* (Population: 65+)



Critical Pathway: *UNINTENTIONAL INJURIES* (Population: 65+)



Step (3):
Compare Behavioral/Social Risk Factors by Age Group to Identify Meta-Risk Factors

Because environmental risk factors tend to be less amenable to change, they were not analyzed in this report. All behavioral/social risk factors were compared to identify those factors found in multiple critical pathways. Reoccurring behavioral/social risk factors represent "meta-risk factors"—risk factors that influence multiple health outcomes. This comparative process yielded the following meta-risk factors by age group (Figure 4.).

Figure 4: **Meta-Risk Factors by Age (years)**

0-14	15-24	25-64	65+
• Caregiver substance abuse • Maternal depression • Lack of appropriate medical care including prenatal care	• Parental substance abuse • Poor mental health (depression and self image)	• Substance abuse • Poor mental health (depression/isolation) • Lack of access to appropriate medical care • Poor nutrition • Physicial inactivity (sedentary lifestyle)	• Substance abuse • Poor nutrition • Physical inactivity • Poor mental health • Lack of access to appropriate medical care

Step (4):
Identify High-Leverage Health (HLH) Issues Overall and Narrow Focus for Discussion

Review of the meta-risk factors by age group revealed common meta-risk factors across all age groups. Because these risk factors appear in multiple pathways, effective intervention strategies would theoretically impact multiple health outcomes. It is possible, therefore, to view these meta-risk factors as leverage points— targeted areas where improvement efforts might yield the greatest potential gains to overall health status. Referred to as "high-leverage health (HLH) issues, the four common meta-risk factors can be categorized into four HLH issues as:

1. Substance abuse
2. Mental health
3. Healthy behaviors
4. Access to appropriate medical care.

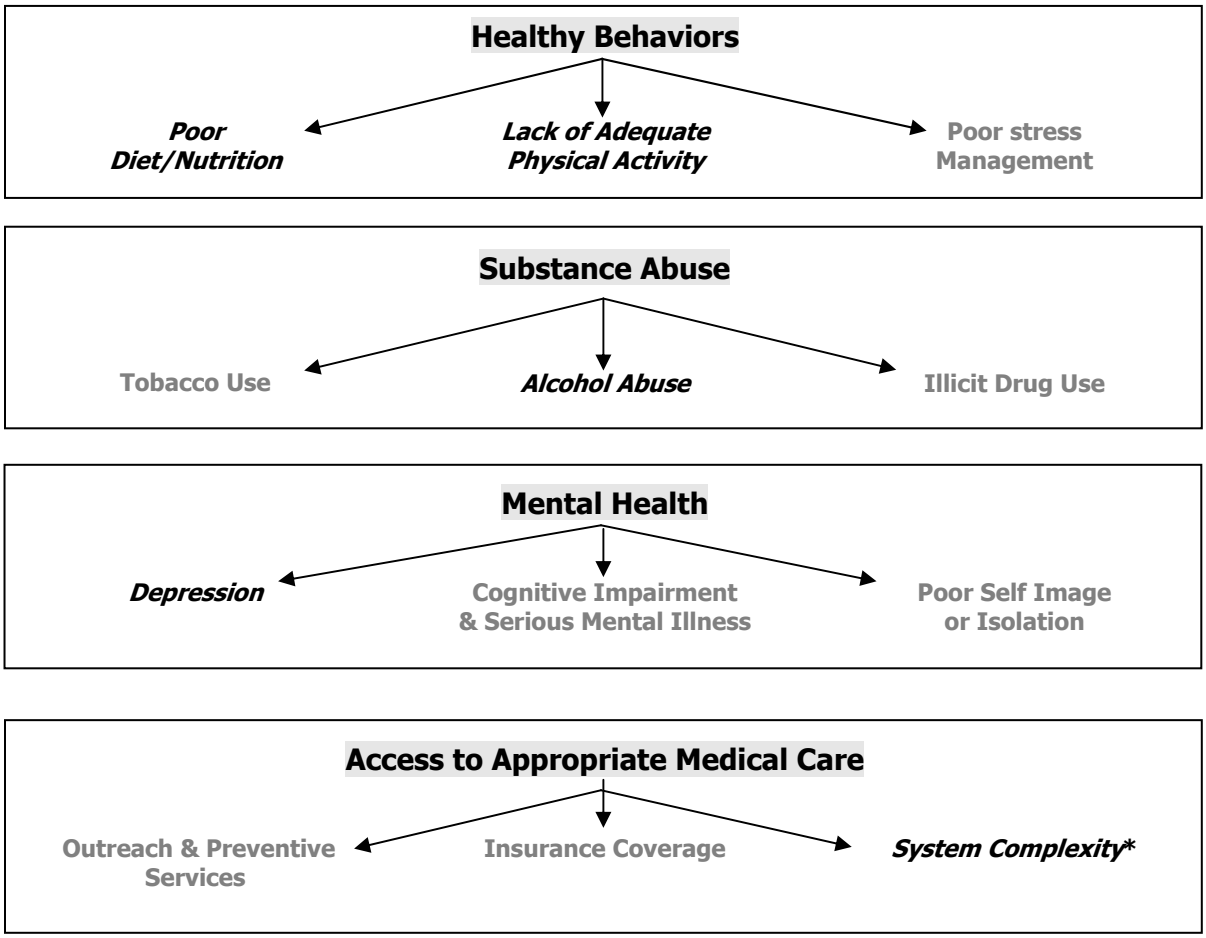
It is important to keep in mind that the identification of HLH issues flows directly from a particular selection of health issues and key indicators. The presentation of this process and the resulting model are not intended to be authoritative nor scientifically evaluated, but rather descriptive and informative.

Each HLH issue is too broad for a thorough discussion in this report. Consequently, the Committee identified sub-issues for each HLH issue for specific review and discussion. After first identifying common aspects for each HLH issue (e.g., common aspects of mental health might include mental illness, depression, and poor self-image), the Committee used the following criteria to select one aspect for in-depth discussion for each HLH issue:

1. The topic is well researched in the scientific literature.
2. The sub-issue has a major impact on multiple health outcomes.
3. Discussion of the sub-issue could highlight opportunities for improvements for the San Diego community.
4. There has not already been exhaustive discussion of or investment in the sub-issue.

Selected sub-issues are noted in bold ***italics*** in Figure 5.

Figure 5. **High-Leverage Health Issues and Selected Sub-issues**



* System complexity relates to the difficulty individuals often encounter when utilizing care or navigating various systems of care.

Step (5):
Conduct Research for Each Targeted HLH Sub-Issue

A summary investigation of each targeted HLH sub-issue is presented in Section II. Although arguable, there is much evidence to suggest that not only are alcohol abuse, depression, diet and physical activity, and system complexity important indicators to monitor in and of themselves, but they are deep-rooted as causative agents within the behavioral and social dimensions of our community and nation. These issues, both broadly (substance abuse, mental health, healthy behaviors, and access to care) and particularly (alcohol abuse, depression, diet & physical activity, system complexity), are among our community's most perplexing and persistent problems.

San Diego County is fortunate to have many local experts and organizations invested in these issues. Although much of this information is known, what may be less understood is the disproportionate burden these issues place on our community. This discussion is intended to advance the community dialogue about this impact toward more solutions.

[1] Young TK. *Population Health, Concepts and Methods*. New York: Oxford University Press, 1998.
[2] Halfon N, & Ebener P. *California Health Report.* Santa Monica, CA: RAND Corporation, 2000.