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California Health Report

Neal Halfon, Patricia A. Ebener, Narayan Sastry, Phinney Ahn, Lauren Cherman, John Hernandez, Don Wong, Roberta Wyn

Prepared for the California Wellness Foundation
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EXECUTIVE SUMMARY
CALIFORNIA HEALTH REPORT

SUMMARY

The California Health Report measures the health of California’s population from a new perspective. In order to provide a comprehensive and more integrative measure of population health, we utilized a model of community health that specifies the unique role of different determinants on a range of health outcomes across the life course. The multi-determinant model of community health was used to inform an empirically based selection of health outcome indicators. The outcomes were selected as indicators of community health by a panel of health experts from throughout California involved in public health and social services practices as well as academia and public program administration. Determinants of the selected outcomes were identified by reviewing empirical studies of the relationship of outcomes to determinants in the available research literature. Once outcomes and determinants could be empirically linked, we constructed basic critical pathways to identify important relationships between relevant outcomes and their structural and process determinants. The life course approach that we used to select and organize outcomes also permitted us to develop some sense of how specific determinants influence outcomes in a particular life-period as well as across the life course. This approach facilitates a greater understanding of both differences and commonalities across age groups, and suggests ways of improving the long-term impact of current health interventions.

This report is designed to be useful to broad audiences. First, the results should be of general interest to California residents and the state’s policymakers and health planners. The report offers those interested in community health improvement a more integrated picture of how health is produced and what interventions are potentially available to address deficits or to enhance their capacity to respond effectively. It also identifies a number of gaps in how we monitor the health of our residents, and suggests resources that could be useful in filling those gaps.

INTRODUCTION

Communities throughout the United States are increasingly engaged in the process of measuring health in order to address pressing health care needs, develop better programs and policies, and to improve the quality of life of their residents. These growing measurement and reporting initiatives have resulted in the development of detailed health reports and shorter report cards at state and community levels. In many instances, state and local communities have used these reports to launch either widescale and/or targeted health improvement initiatives. In the spirit of further developing innovative means for measuring the health of communities, we created the California Health Report.

The purpose of this report is not only to report on the health of Californians but to advance the measurement of population health and to suggest new ways of presenting this information. This report presents a model for broadly characterizing the health of the public through a comprehensive set of indicators of health outcomes, health care and behavioral process determinants, and social structure. The indicators presented here differ from previously published lists in that we have attempted to specify relations among structure, process, and outcome indicators and present these indicators in such a way as to provide a more broad contextual view of health and to indicate how different factors interact to produce different health outcomes. Considering the relationship of structural and process determinants to the health outcomes of interest helps specify what factors underlie each outcome, and also help to specify the potential leverage points to exert change and realize improvement.
A CONCEPTUAL FRAMEWORK

Although there are many current and ongoing attempts to construct reports, indices, and report cards that measure population health and well-being, few appear to be guided by a conceptual model. An appropriate conceptual model can be helpful in constructing and in using a population health report. The Evans and Stoddart field model is appealing for several reasons. This model of health is a refinement upon the original health field concept proposed in 1974 that categorized the determinants of health status into the four fields of human biology, environment, lifestyles and health categorization. It also views health as having multiple dimensions including social problems, social functioning, and well-being in addition to disease and mortality. It identifies multiple domains, in addition to health care, that influence health. It is attentive, for example, to the potentially important contributions of such population characteristics as environmental and behavioral factors in determining health outcomes. However, while its focus is broad, its emphasis is on how these broad determinants affect the individual rather than population or community outcomes. We adapted the Evans and Stoddart model in three ways (see Figure S.1):

- We bring a population outcome orientation to the model, e.g., by expanding the health and function fields to encompass social functioning, by expanding the disease field to include social problems, and by including social services and broader community health initiatives with individual health care delivery.

- To simplify the complex set of dynamic relationships for classification and analytic purposes we draw a distinction, commonly used in both the health services and social science, among three sets of factors: outcomes, process indicators, and structural domains (see shading in Figure S.1).

![Figure S.1](image_url)

A Conceptual Model of the Determinants of Health and Well-Being
The conceptual framework in Figure S.1 is concerned with the determinants of health and well-being. The outcomes of interest are seen as falling into three domains: health and social functioning, disease and social problems, and well-being. Well-being is determined in the framework by health and social functioning and by prosperity. For our purposes, we are concerned almost exclusively with how the former set of factors affects well-being. Diseases and social problems are identified and treated directly by the health and social services systems. However, they can also be affected in a less-direct manner and at a different level, through community responses or service system policies that aim to alter individual behavior. The model also helps define the relationship between disease and social background and economic status. The conceptual framework reflects this knowledge by viewing disease and social problems as being determined by the social environment. However, these effects are partially mediated through influences on the behavioral choices people make regarding their lifestyle, which includes such factors as diet, exercise, smoking, alcohol and drug use, and disease prevention, as well as the direct impact of factors such as position in socially defined hierarchies on physiologic functioning. There are also behavior responses to the physical environment in which people live and the genetic characteristics of the population.

The other element included in our conceptual approach was the importance of a life course perspective. While life course or life cycle factors have informed health measurements throughout the century, recent empirical literature has highlighted the importance of life course factors and the prevalence and importance of many chronic health conditions. A life course health development framework acknowledges that different determinants have differential impacts during different stages of the life course, and reflects both cumulative effects of risk and protective factors across the life course as well as the magnified impact that can occur when specific determinants exert their influence during critical developmental periods. This life course health development perspective permits the linkage of determinants across different stages, and also suggests indicators that track across all stages of the life course. This perspective also necessarily places greater emphasis on those stages that occur earlier in life because of their determining effect on later outcomes. In this report, we have provided indicators for health outcomes for infants, children, adolescents, adults and the elderly. Therefore 60 percent of the indicators focus on the first quarter of the life course. Infancy was distinguished as a separate dimension due to the defining role that pregnancy and the birth process can have on early and long term health outcomes.

IDENTIFYING AND SELECTING INDICATORS FOR THIS REPORT

To identify a universe of potential health indicators, we began with an inventory of existing state and local community health reports (e.g., Healthy California 2000) and models and guides for developing such reports (e.g., Healthy Communities 2000, Model Standards) identified through a systematic, nationwide key informant survey. We next examined pertinent survey databases from which estimates for California can be obtained (e.g., the California sub sample of the National Health Interview Survey, and the Behavioral Risk Factor Surveillance Survey (BRFSS), Census, Current Population Survey (CPS). These sources provided a broader and more detailed array of potential indicators than were available from existing health status reports and also some sense of currently available data collection resources. Administrative databases were useful for identifying health care system and mortality and morbidity indicators. Lastly, we consulted the research literature for health indicators not mentioned in the other sources. We then mapped these potential indicators to our overall conceptual model, classifying various indicators into different fields, domains, and subdomains.

To choose a set of indicators, we focused first on health outcomes. Though we acknowledge the importance of context, health and well-being are outcomes, and we judged that the most important structural and process determinants to be included in any aggregate measure of community health would be those linked to the most important outcomes. Therefore, the outcomes had to be selected first. To select final outcome indicators for this report, we wanted to employ a structured, systematic decisionmaking process that would have credibility and be replicable at the local level. We wanted it to serve as a model for communities to use in developing their own local health reports. To fulfill these
multiple goals the process had to be transparent, expedient, and efficient, and, above all, selected on the basis of consensus. To that end, we obtained the judgments of over 100 individuals from health and related fields throughout California who rated the importance of some 120 candidate outcome indicators as contributors to overall community health. Those that were most highly rated on a 5 point scale were selected for each division of the life course. This resulted in about ten outcome indicators for each life course period. The final outcomes fell into the following categories: (The rating form is included as Appendix C.)

Outcome 1.0: Violence and Abuse  
Outcome 2.0: Accidents  
Outcome 3.0: Acute Conditions  
Outcome 4.0: Disabling Chronic Conditions  
Outcome 5.0: Mental Health and Developmental Conditions

Outcomes were selected for five stages of the life cycle in each of these categories. These stages included birth and infancy, childhood, adolescence, adulthood and elderly. The concentration on outcome indicators in the first quarter of life reflects the life course health development perspective that helped structure this process.

After using the most highly rated outcome indicators, we selected determinant indicators that the empirical research literature had associated with those outcomes. In doing so, we kept in mind the complex relations among processes and outcomes. Processes influence other processes, and we could identify interesting intermediate outcomes that also play a role between determinants and ultimate health outcomes. In Figure S.2, for example, utilization of prenatal care is a process affecting infant mortality and developmental delay. But it is itself determined by other processes such as substance abuse and access to prenatal care. And its effect on infant health outcomes is mediated by intermediate outcomes such as birth weight and drug exposure that are interesting in themselves. We refer to this interlinked chain of structures, processes, and outcomes as a **critical pathway**.

![Diagram of Critical Pathways](image)

**Figure S.2**  
**Critical Pathways**

The presentation of the outcomes for each part of the life course was constructed in a way to highlight the importance of the determinants of each specific outcome. The determinants, selected from the existing research literature, are not meant to be exhaustive but are illustrative of the major determinants associated with the outcome of interest. Critical pathways for each outcome can be constructed by arraying the determinants and potential interventions into an explanatory model according to how they typically manifest in a community setting. By understanding how determinants
impact on specific outcomes and assessing which determinants are important predictors of multiple outcomes, it is possible to generate a set of meta-determinants that have important explanatory value in highlighting recurrent themes and underlying causes of multiple outcomes.

THE HEALTH OF CALIFORNIANS

Compared to the rest of the United States, the health of Californians in general is about the same or better in most categories, and our results confirm findings from other reports. For example, the Reliastar State Health Status Index shows that, when compared to other states, California fares slightly better than the national average. This index, developed by Reliastar Financial Corporation and published each year since 1989, uses 17 health status measures to generate a single number score for comparison purposes. On many indicators that were selected as important outcomes, California meets or exceeds the Center for Disease Control's (CDC) year 2000 goals (e.g., for motor vehicle deaths, teen suicide, and others). Given the current understanding of determinants that appear to be producing many of these outcomes, we have also been able to demonstrate that the prevalence of substance abuse, the levels of family discord and violence, and the concentrations of poverty and overall levels of prosperity all contribute to some of California's standing with regard to several of these indicators. For example, seat belt usage in California is among the highest in the United States, contributing to the lower motor vehicle accident death rate.

The approach that we utilized for producing this report allowed us to identify a set of "meta-determinants" that seem to be key contributors to multiple specific health outcomes at different times during the life course. While we were able to identify these life-course specific meta-determinants, we were also able to suggest that across all ages, it is substance abuse, prosperity, family function and relationships and access to appropriate health services that play an important role in producing many of the health outcomes included in the report. Moreover, these population meta-determinants are clearly interrelated: for example, the prevalence of substance abuse is notably higher in poor communities and it is known that substance abuse and poverty play havoc with family function and contribute heavily to reports of family violence and violence toward children.

We also assessed the health status of specific vulnerable populations where disparities in health outcomes are known to exist. We defined these vulnerable populations on the basis of income and ethnicity, which are admittedly simple and coarse markers of risk. Nevertheless, we were able to demonstrate higher levels of adverse outcomes and greater exposures to risk in these populations. However, this analysis of vulnerable population was limited by the fact that very little state-level data is available to measure outcomes and assess the determinants for populations that might be considered highly vulnerable, such as the homeless, the severely emotionally disturbed, those with chronic disabling medical conditions, and individuals afflicted with HIV. Because existing monitoring systems are inadequate, we could only profile vulnerability in a very general way. This suggests that there is a great need to develop better monitoring efforts for highly vulnerable groups not only to develop more effective interventions and social policies that could potentially reduce needless suffering and improve quality of life, but because these vulnerable populations currently impose a great financial burden on the state and its taxpayers.

Critical Pathways for Health Improvement

The design of this report is also intended not only to increase the explanatory value of the information presented, but also to fulfill pragmatic policy purposes. Communities across the nation are increasingly engaged in a variety of health improvement activities that range from targeted attempts to provide a specific service (e.g., immunizations) or a range of services (e.g., prenatal care), to programs targeted at major problems (e.g., teenage pregnancy, drug abuse, or family violence). In their most elaborate form, comprehensive community initiatives (CCIs) have been mounted to promote overall positive change in individuals, families and community characteristics by improving physical, economic and social conditions as well as promoting expansion and improvement of health and social services. All of these community-focused efforts demand better ways of assessing health status, profiling patterns of
health in particular populations and groups, and evaluating the appropriateness and effectiveness of specific interventions and community-wide initiatives.

Many communities are attempting to tackle the toughest and most recalcitrant problems they face, such as family and neighborhood violence, drug abuse and mental illness. While the solutions they seek often involve new cross-sector strategies, they are confronted with categorically funded programs and isolated, "stove-pipe" funding streams that stymie attempts at integrating services. By highlighting the full range of potential contributions to a particular outcome in a well-defined community based critical pathway, policy makers can identify ways to design, develop and implement multi-sector solutions and more integrated policy responses. Linking structural and process determinants to outcomes allows us to move from the conceptually driven model of health production to a pragmatic model of indicator selection and presentation. Critical pathways represent a useful way of utilizing the best available empirical evidence to array community health outcomes, along with those factors that the research literature suggests are important in determining those health outcomes. By highlighting linkages between the structure and process determinants and outcomes, critical pathways potentially provide policy makers and community stakeholders with an operational model for how a particular outcome is produced in a community setting, and what the potential leverage points are for either targeted or more comprehensive interventions.

Meta-Determinants: Producing Multiple Outcomes

Utilizing the structure, process and outcome model that we used to develop critical pathways, it is possible to further array critical pathways in order to identify those determinants that appear in multiple pathways and thereby play a role as key determinants for multiple outcomes. The analysis of key "meta-determinants" is important for community- and population-based initiatives. For example, in examining outcomes the community identified as important for adolescents, it becomes clear that several determinants appear in multiple causal pathways, leading to various outcomes. Factors such as substance abuse, unprotected intercourse and multiple sexual partners, poverty, and access to contraception can be identified as key determinants in the adolescent life period that contribute to key outcomes in different pathways. Identifying these meta-determinants of multiple outcomes of interest allows the community to assess how it might target specific population groups and develop longer-term strategies aimed at changing the conditions that give rise to these meta-determinants of multiple health outcomes. The meta-determinants are presented for each life course period in Table S.1.
### TABLE S.1
META-DETERMINANTS ACROSS THE LIFECOURSE (OCCUR>3 TIMES)

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<thead>
<tr>
<th>All Ages</th>
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<tbody>
<tr>
<td>• substance abuse</td>
</tr>
<tr>
<td>• poverty/socioeconomic status</td>
</tr>
<tr>
<td>• family/environmental social supports</td>
</tr>
<tr>
<td>• access to health care</td>
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<th>Infants</th>
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<tbody>
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<td>• poor maternal education</td>
</tr>
<tr>
<td>• poverty</td>
</tr>
<tr>
<td>• substance abuse (maternal)</td>
</tr>
<tr>
<td>• family breakdown/unmarried status</td>
</tr>
<tr>
<td>• maternal depression</td>
</tr>
<tr>
<td>• maternal age</td>
</tr>
<tr>
<td>• lack of prenatal care</td>
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<td>• neglect</td>
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<td>• poverty/socioeconomic status</td>
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<td>• family environment</td>
</tr>
<tr>
<td>• substance abuse (maternal)</td>
</tr>
<tr>
<td>• lack of education</td>
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<tr>
<td>• access to medical care</td>
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<td>• access to handguns</td>
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<td>• poverty/socioeconomic status</td>
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<td>• sexual practices</td>
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<td>• cognitive/physical impairment</td>
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<tr>
<td>• substance abuse</td>
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<td>• poor nutrition/obesity/high-fat diet</td>
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<td>• hypertension</td>
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<tr>
<td>• socioeconomic status</td>
</tr>
<tr>
<td>• education</td>
</tr>
<tr>
<td>• access to medical care</td>
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<tr>
<td>• lack of exercise</td>
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Reliastar Financial Corporation index.
CHAPTER I

INTRODUCTION

Medical and public-health disciplines have traditionally viewed and defined health differently. The medical profession has commonly viewed health as the absence of disease or injury with health care provided to cure or care. While the public health community has embraced definitions like the 1946 World Health Organization (WHO) definition of health as a state of complete physical, social, and mental well-being, public health practitioners have always viewed health broadly. While the WHO definition has been criticized for being too broad, too difficult to measure and to achieve, a more contextual or ecological view of health is gaining favor among policymakers and the public. In 1984, the European region of the WHO reformulated the original WHO definition to "[Health] is the extent to which an individual or group is able on the one hand to realize aspirations and satisfy needs, and, on the other hand, to change and cope with the environment. Health is therefore seen as a resource for everyday life, not the objective of living; it is a positive concept emphasizing social and personal resources as well as physical capacities." This broad and positive view of health is supported by evidence regarding the complex and dynamic relations among biomedical function and environmental, familial, social, and psychological factors. That evidence has been extensively reviewed in numerous recent publications. Such positive definitions also help to orient health professionals and public health initiatives toward health promotion, and not just the treatment of disease.

Shifts in perspectives and definitions should be matched by shifts in measures. When health definitions are more narrowly configured as the absence of disease, measures of mortality and morbidity are more routinely used and considered sufficient to characterize the health of the public. Now, functional measures like developmental delay and integrative measures like health-related quality of life are increasingly regarded as important indicators of health. Moreover, it is harder to interpret the meaning of outcome measures like infant mortality and developmental delay without some reference to and understanding of processes that contribute to their existence, such as substance abuse and access to prenatal care. These in turn are a product of broader social influences such as economic prosperity and the availability and effectiveness of education. Thus, understanding the context of health means measuring and understanding the relationship of factors that are responsible for health outcomes of interest. Implicit in this understanding is that the determinants of good health not only include multiple factors, but are influenced by broad sectors of our society, implying not only broader responsibility but more options for possible intervention. It also suggests that pathways that convert and relate multiple outcomes can be specific for both health and disease outcomes.

The purpose of this report is to present a model for broadly characterizing the health of the public through a comprehensive set of indicators of health outcomes, health care and behavioral process determinants, and social structure. The indicators presented here differ from previously published lists in that we have attempted to specify relations among structure, process, and outcome indicators and to present these indicators in such a way as to provide a more contextual view of health. Specifically, we present these indicators in the form of a health report for the state of California.

This report is divided into five chapters. Chapter 2 describes the approach we took in defining and relating indicators of the health of the public and the conceptual framework that guided that approach. Chapter 3 displays the indicators and their values for California for five age groups based on the rationale provided in Chapter 2. Rates for California are compared with those for the U.S. as a whole and with applicable Healthy People 2000 goals. Chapter 4 attempts to provide a more detailed examination of several indicators, highlighting differences by race/ethnicity and socioeconomic status.
Chapter 5 describes how critical determinants of health can be linked with measures of health outcomes through the construction of critical pathways, and how these critical pathways can be used to inform community intervention strategies and the policymaking process. Moreover, we suggest in this chapter how "meta-determinants" can be empirically derived by accounting for those determinants that impact on multiple outcomes. Our conclusions are presented in Chapter 6.

This report has been prepared in conjunction with The California Wellness Foundation's Health Improvement Initiative, whose purpose is to integrate medical services provided to individuals with health-related services that enhance the well-being of communities. To that end, the initiative supports selected California communities in planning and implementing local health improvement projects. An important element of that planning will be the preparation of community health reports.

It is our intent that the state-level public-health report presented here serve as a model of such reports for smaller communities. We plan additional methodological work to refine our depiction of the relationships between the outcomes and the determinants of health and to develop additional indicators to be used by local communities.

CHAPTER 2

CONCEPTUAL MODEL AND APPROACH

In this chapter we present the rationale behind this report. We begin with our conceptual model of health production within the community. We then describe how we operationalized the model. Next, we explain how we went about identifying a functionally related set of structure, process, and outcome indicators for inclusion in the report. Finally we present how we constructed critical pathways for community health outcomes, how those critical pathways can be used for strategic planning in a community, and how critical pathways provide an empirical guide for deriving meta-determinants of health outcomes.

DEVELOPING A CONCEPTUAL FRAMEWORK

Although there are many current and ongoing attempts to construct indexes and report cards that measure population health and well-being, few appear to be guided by a conceptual model. An appropriate conceptual model can be helpful in constructing and in using a population health report. "Community" implies context. Historically, the definition of community (and thus, of context) has been interpreted three different ways: as a geographical place, as social and political responsibility, and as a social interaction.

In this report we define community to be the State of California. We began our development of the conceptual model of health production developed by Evans and Stoddart and their colleagues. The Evans and Stoddart model is appealing for two reasons. First, it views health as having multiple dimensions including social problems, social functioning, and well-being in addition to disease and mortality. Second, it identifies multiple domains, in addition to health care, that influence health. It is attentive, for example, to such population characteristics as environmental and behavioral factors as potentially important in determining health outcomes. However, while its focus is broad, its emphasis is on how these broad determinants affect the individual rather than on population or community outcomes.

We adapted the Evans and Stoddart model in three ways (see Figure 2.1):

- We bring a population outcome orientation to the model, e.g., by expanding health outcomes to encompass social functioning and social problems and by including social services and community health services with individual health care delivery.
- To simplify the complex set of dynamic relationships for classification and analytic purposes we draw a distinction, commonly used in both the health services and community health fields, among three sets of factors: outcomes, process indicators, and structural domains (see shading in Figure 2.1).
- By drawing the distinctions among structure, process, and outcomes, we are able to introduce a temporal dimension to the framework (see Figure 2.2). Figure 2.2 reflects both the causal structure and the temporal ordering of effects by arraying the three components of the conceptual framework from Figure 2.1 along a time dimension.
OVERVIEW OF THE CONCEPTUAL FRAMEWORK

The conceptual framework in Figure 2.1 is concerned with the determinants of health and well-being. The outcomes of interest are seen as falling into three domains: health and social functioning, disease and social problems, and well-being. It is useful conceptually to distinguish among these three domains, but for the purposes of constructing a population-based measure of health it is unrealistic at this point to envision being able to measure or interpret anything but a single composite indicator of population health. In particular, although the concept of well-being—i.e., the sense of life satisfaction that people experience—is somewhat vague at the individual level, it is even more obscure at the population level. Since well-being cannot be measured directly at the population level (it is difficult enough simply conceptualizing population well-being), in order to operationalize such an indicator one would have to develop a reasonable measure at the individual level and then devise a means for aggregating measures of individual well-being, a task that was well beyond the scope of this project.

![Conceptual Model Diagram]

Figure 2.1
A Conceptual Model of the Determinants of Health and Well-Being
Well-being is determined in the framework by health and social functioning and by prosperity. For our purposes, we are concerned almost exclusively with how the first two factors affect well-being. We consider prosperity an important factor in determining the social and physical environment, the level of health and social services, and the scope of community responses to perceived disease and social problems. We are interested in using the measure to inform the strategies, policies and interventions that can alter service availability, change behaviors and modify environments to achieve greater health and well-being, rather than relying on policies that are concerned with increasing or redistributing income. As a consequence, using measures of health and social functioning as proxies for well-being seems to be most appropriate given the intent of the overall report.

The distinction in the framework between health and social functioning on one hand and disease and social problems on the other is an important one conceptually, but is difficult to operationalize in a community health measure. The concepts of disease and social problems reflect the prevalence of problems in a community in terms of clinical levels, while the concepts of poor health and impaired social functioning tend to capture the perceived impact of the symptoms and the distress associated with these problems. It is important to realize that diseases and social problems as diagnosed by the social and health services systems are important only insofar as they affect the health capacity of the population. However, while clinical disease levels are relatively straightforward to measure, it is very difficult to capture the extent to which two communities with the same disease levels may be experiencing quite different levels of distress. We will return to this issue in our discussion below. For now we simply note that while the level of health and social functioning is the measure we desire, we are likely to be constrained to working with indicators that reflect the prevalence of disease and social problems in a population.

Diseases and social problems are identified and treated directly by the health and social services systems. However, they can also be affected in a less direct manner and at a different level, through community responses or service system policies that aim to alter individual behavior. For example, communities can respond to a high prevalence of smoking in the population (and its associated health problems) not only through medical interventions that treat symptoms, and social and medical intervention services that help people to quit, but also by community responses, such as restrictions on the sale and use of tobacco. Similarly, levels of disease and social problems can be affected by prevention strategies so that they alter the factors that produce the outcome of interest. In the conceptual framework, the capacity and utilization of health and social services and the extent of
community responses are determined by community need and by the accessibility of the services. They are also determined by the level of prosperity in a community and the availability of resources to provide the necessary services for the population.

There has been much written in the social science literature about the relationship between disease and social background and economic status. The conceptual framework reflects this knowledge by viewing disease and social problems as being determined by the social environment. However, these effects are partially mediated through influences on the behavioral choices people make regarding their lifestyle, which includes such factors as diet, exercise, smoking, alcohol and drug use and disease prevention, as well as the direct impact of factors such as position in socially defined hierarchies on physiologic functioning. There are also behavior responses to the physical environment in which people live and the genetic characteristics of the population. The genetic environment, although potentially important, involves complicated measurement issues that put it largely beyond the scope of most indexes. Note, however, that while genetic factors may lead to well-defined diseases, they may also underlie predisposition or resistance to a wide variety of diseases, not themselves normally thought of as genetic. Whether predispositions actually lead to disease and illness depend, in part, on various behavioral factors.

Although the social, physical and genetic environments are seen as largely exogenous in this framework, particularly in the short term, behavioral responses to environmental effects may be modified by the health care and social services systems and by community responses. In the long term, however, behavior largely reflects the level of prosperity and the social, physical and genetic environment in which people live. This is because the availability of health and social services and community response to disease and social problems, the intermediate variables in this framework, are determined by these factors too. Nevertheless, there are economic cost trade-offs between investing in health and social services and investing in other social and physical environmental factors.

ELABORATING THE MODEL DOMAINS

The model in Figure 2.1 is obviously too general for classifying all potentially useful health indicators or for providing guidance in identifying them. To remedy this, we constructed a hierarchy in which broad categories, or domains, are divided into subcategories, or subdomains, each of which contains various indicators. Domains are equivalent to the boxes in Figure 2.1 or, in some cases, to major divisions of those boxes. They are as follows:

**Structural Determinants**
1. Social, cultural, and family environment
2. Education
3. Physical environment, natural and man-made
4. Prosperity, including government assistance and taxes
5. Community organizational functioning and capacity

**Process Determinants**
1. Behavioral risk and protective factors
2. Availability and use of regular preventive and promotional health care over the life course
3. Unmet need or supply of health care and social services
4. Appropriateness and quality of health care
5. Accessibility of health-related services
6. Organization of those services, including system integration and continuums of care

**Outcomes**
1. Global health and well-being
2. Life expectancy, mortality
3. Morbidity, disease, disability
4. Developmental delay, deviation from standard functional status
We took different approaches to dividing the domains. Some subdomains represent different aspects or measures of the domain, e.g., within education are the subdomains achievement, attainment, and assistance, among others. Other subdomains represent separable constituents of the domain, e.g., pollution, land use, and housing quality within physical environment. In still other cases, we used the subdomains to specify different ways to divide the domain into indicators. The morbidity domain, for example, includes age-group and cause-specific (injury vs. disease) subdomains. Finally, some subdomains have more than one dimension. For example, behavioral-risk subdomains such as smoking and drug abuse, as well as protective-factor subdomains such as exercise and safe sex, are intended to include two kinds of indicators: indicators of actual behavior and indicators of system and community efforts to promote good behaviors and discourage bad ones. The full list of subdomains is given in Appendix A.

IDENTIFYING AND SELECTING INDICATORS FOR THIS REPORT

To identify indicators, we began with an inventory of existing health reports (e.g., Healthy California 2000) and models and guides for developing such reports (e.g., Healthy Communities 2000, Model Standards) identified through a systematic, nationwide key informant survey. These reports included a broad set of indicators that other groups, communities, and monitoring projects had found important and feasible to measure. From this inventory of reports (see Appendix B) we selected an illustrative sample of national, state, and local reports including some that covered the general population, others that focused on special populations. We mapped the indicators from these sample reports onto our outline of domains and subdomains and recorded information about how the indicator was reported and the data source.

We next examined pertinent survey databases from which estimates for California can be obtained (e.g., the California subsample of the National Health Interview Survey, and the Behavioral Risk Factor Surveillance Survey (BRFSS), Census, Current Population Survey (CPS). These sources provided a broader and more detailed array of potential indicators than were available from health status reports. Administrative databases were useful for identifying health care system and mortality and morbidity indicators. Lastly, we consulted the research literature for indicators not mentioned in the other sources. We again mapped the measures and indicators to our overall outline, providing a description of the measure and documenting the source.

While our approach was not exhaustive, it was productive. It yielded thousands of potential indicators that had been used in different health reports. We then had to cut this universe of potential indicators by an order of magnitude to a workable number. The three main criteria used in this process were relevance, validity, and feasibility. Each one of these criteria was specified and used to prune the list of potential determinants into those which were relevant, valid and most feasible to collect.

To choose a set of indicators, we focused first on outcomes. Though we acknowledge the importance of context, health and well-being are outcomes, and we judged that the most important structural and process determinants to be included in any aggregate measure of community health would be those linked to the most important outcomes. Therefore, the outcomes had to be selected first. The next step in this final selection process of outcome indicators was to prune the universe of all possible outcomes to a set that could then be "voted on" by our expert panel.

To select final outcome indicators for this report, we wanted to employ a structured, systematic decision-making process that would have credibility and be replicable at the local level. We wanted it to serve as a model for communities to use in developing their own local health reports. To fulfill these multiple goals the process had to be transparent, expedient, and efficient, and, above all, selected on the basis of consensus. To that end, we obtained the judgments of over 100 individuals from health and related fields throughout California who rated the importance of some 120-candidate outcome indicators as contributors to overall community health. Those that were most highly rated on a 5-point scale were selected for each division of the life course. This resulted in about ten outcome indicators for each life course period. (The rating form is included as Appendix C.)
After using the most highly rated outcome indicators, we selected determinant indicators that the research literature had associated with those outcomes. In doing so, we kept in mind the complex relations among processes and outcomes. Processes influence other processes, and we could identify interesting intermediate outcomes intervening between determinants and ultimate health outcomes. In Figure 2.3, for example, utilization of prenatal care is a process affecting infant mortality and developmental delay. But it is itself determined by other processes such as substance abuse and access to prenatal care. And its effect on infant health outcomes is mediated by intermediate outcomes such as birth weight and drug exposure that are interesting in themselves. We refer to this interlinked chain of structures, processes, and outcomes as a critical pathway. Of course, any one outcome may be influenced through different pathways, as shown in the figure. And the path by which some structural determinants influence outcomes is not well understood.

Using the rationale presented in this chapter, the various structural, process, and outcome indicators selected are presented in the next chapter. Several outcome indicators are then profiled in more detail in Chapter 4. In Chapter 5, we further discuss the utility of critical pathways to health outcomes and the role of key determinants, described in Chapter 3.

**Figure 2.3**
Critical Pathways

---

1 By "community," we mean any assemblage of people united by geography and political or social ties, whether a neighborhood, a city, or a whole state.

2 For example, the 1992 report *The Quality of Life in Pasadena: An Index for the 1990s and Beyond*, the 1994 Fordham University *Index of Social Health*, and the 1994 Northwestern *National Life State Health Rankings*.


4 While we focus on the State of California for this report, the conceptual framework, dimensions of measurement and approach for constructing a report are directly applicable at the community level.


6 See, for instance, the recent studies and reviews by Preston and Taubman (1994), Rogot et al. (1992), House, Landis and Umberson (1988), and the classic studies by Kitagawa and Hauser (1973), Marmot, Shipley and Rose (1984), and Townsend and Davidson (1982).
CHAPTER 3

OUTCOMES

INTRODUCTION

In this chapter we present information on the health of the Californians. Information is presented for each stage of the life course—infancy, childhood, adolescence, adulthood and the elderly. At each stage we present outcomes selected by California health and social welfare experts as the most important component of the health of the population at that point in the life cycle.

Each section begins with several summary health indicators calculated from the National Health Interview Survey, California sample. These are followed by specific outcomes for the categories of violence, accidents, acute/infectious conditions, disabling chronic conditions and mental health. Each outcome is first described in terms of its general characteristics, its significance, and its short- and long-term impacts and implications. Indicators of that outcome are then presented, as well as comparison and trend data, to provide information about the dynamics of its presentation and the population group. We then present those factors that the research literature has suggested are important determinants of each outcome, along with programs and interventions that serve as potential bridges or solutions designed to address and prevent such outcomes in the community.

The presentation of the determinants, selected from the existing research literature, is not meant to be exhaustive, but is illustrative of the major determinants associated with the outcome of interest. Critical pathways for each outcome can be constructed by arraying the determinants and potential interventions into an explanatory model according to how they manifest in a community. By understanding how determinants impact on specific outcomes, and assessing which determinants are important predictors of multiple outcomes, it is possible to generate a set of meta-determinants that are important in explanatory value. As discussed in Chapter 2, these meta-determinants emerge as the recurrent themes and underlying causes of several different types of outcomes affecting either a stage of the life course or the entire community.

METHODOLOGY

The most recent data available were utilized for each health outcome. Ideally, data from 1994 and later were the targeted range. In order to collect comparable rates between California and the rest of the nation, data from the same year and the same age group were retrieved when possible. However, since most state and national agencies do not work together in compiling rates, some statistical differences exist between the years and age groups compared. In these cases, the closest comparable years and age groups were used and specified after each outcome.
INTRODUCTION: INFANT OUTCOMES

Infancy is the gateway of the life course and establishes physiological, behavioral, and emotional patterns of response that play out over a lifetime. New and emerging evidence highlights how problems that arise early in life influence school performance, adolescent risk-taking behaviors, and adult diseases. Infants' health is largely dependent on their perinatal environment and the events surrounding their entry into the world (birth), and their parents' capacity to feed, shelter, and nurture them.

A growing number of research articles also suggest that the type and quality of relationships that young children experience have a profound impact on their life course trajectory.

Specific infant health outcomes in the domains of violence, accidents, acute and chronic conditions and mental health are described in the following pages. Summary health outcomes for California infants are shown below:

| Perceived health status                           | 98,000 per 100,000 |
| All-cause mortality rate (1994)                  | 645 per 100,000    |
| Life expectancy                                  | 77 years           |
| Healthy life remaining                           | 64.9 years         |
OUTCOME: 1.0
VIOLENCE AND ABUSE

SUMMARY
The abuse and neglect of infants and children is a growing problem in California and throughout the nation. This can be estimated by the number of infants who are reported to the child welfare system, but there are probably many other children whose plight goes unnoticed. While reported physical abuse in infancy is relatively rare, the number of infants who are placed in foster care due to neglect and parental incapacity is large and growing. Infants who are abused and neglected can suffer from long-term developmental, emotional, and behavioral problems.

The overall declining trend in child mortality over the past four decades has been dampened by increasing rates of infant homicide. Infant homicide has been increasingly recognized as a problem, spurred on by increasing scrutiny of SIDS cases. Several California counties have initiated child death review teams which examine suspicious infant deaths, examining trends such as Shaken Baby Syndrome, in which a caretaker shakes an infant, resulting in head trauma that leads to brain damage and often to death. When infants are murdered the perpetrator is usually the infant's parent. In many instances, murdered infants have, on autopsy, demonstrated evidence of past abuse, indicating that improved surveillance may help identify those at risk. While an extreme and disturbing indicator, the number of infant homicides reflects a range of complex factors affecting the lives of families, which are a product of stress resulting from isolation, family dysfunction, economic stress, as well as other factors.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Infants substantiated as abused and neglected (1995)</td>
<td>1,679; 3 per 1,000 infants&lt;sup&gt;2&lt;/sup&gt;</td>
<td>56,183; 14.7 per 1,000 infants&lt;sup&gt;4&lt;/sup&gt;</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.2 Children in substitute care (1994)</td>
<td>87,387; 10.1 per 1,000 children&lt;sup&gt;5&lt;/sup&gt;</td>
<td>462,000; 6.8 per 1,000 children&lt;sup&gt;6&lt;/sup&gt;</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.3 Homicides (1994)</td>
<td>52; 9.15 per 100K&lt;sup&gt;7&lt;/sup&gt;</td>
<td>7.91 per 100K&lt;sup&gt;8&lt;/sup&gt;</td>
<td>3.9 per 100K (ages 0-3)&lt;sup&gt;9&lt;/sup&gt;</td>
</tr>
<tr>
<td>1.4 Placement into Foster Care</td>
<td>3,251; 595 per 100K (1997)&lt;sup&gt;11&lt;/sup&gt;</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
California's rate of infant homicide is higher than that of the United States as a whole. Between 1989 and 1994, the California infant homicide rate increased by 4 percent. Reports of child maltreatment increased in California by 256 percent between 1988 and 1994. Placements into substitute care increased by 53 percent for California children.<sup>14</sup>

DETERMINANTS & RISK FACTORS
- Drug or alcohol abuse is associated with the vast majority of infants placed into foster care. According to the GAO, in the United States 78 percent of young children in foster care had at least one parent who was abusing drugs or alcohol in 1991.<sup>15</sup>
- Low maternal education, late initiation of prenatal care, and previous births are associated with higher rates of abuse.<sup>16, 17</sup>
- Low birth weight, low gestational age, male sex and low Apgar scores are risk factors for infant homicide.<sup>18</sup>
- Age of parents at childbirth and social support of the family is a factor in abuse rates.<sup>19</sup>
INFANTS
(ages under 1 year)

OUTCOME: 1.0
VIOLENCE AND ABUSE

- Stressful life events and maternal depression may increase the risk of child maltreatment, as does the presence of multiple dependents in the home.20

- The most likely perpetrator of infant homicide is the child’s parent.21 Homicides during the first week of life are usually perpetrated by the mother; however, after the first week, the perpetrator is most likely male and often the father of the victim.22 Upon autopsy, murdered infants are likely to exhibit signs of previous abuse.23 "Shaken Baby Syndrome," where an infant is shaken to death, is the most common means of infant homicide.24

PREVENTION/POPULATION HEALTH PROMOTION

- Intensive home visitation and parenting programs have proven to reduce reports of child abuse.25 This is invaluable when the infant’s parents (especially mothers) are suffering marital problems or when the infant’s mother is uneducated and does not possess adequate child-rearing skills.

- Mental health services treatment for parents may be necessary to identify treatable mental health problems such as depression and to foster appropriate parenting behaviors in the parent.

- Decreasing isolation of families and improving the support systems available to young children can also help to prevent abuse.

- Substance abuse treatment is an essential service, enabling the parents to have a chance of raising their child without the influence of drugs.

- Children born to mothers who used drugs during pregnancy are subsequently at a higher risk of abuse or neglect than are children from the general population.26

MONITORING

- Improved surveillance and better risk assessment in child welfare agencies would permit better tracking of infants and children being abused in order to aid program planning and service development.

- Increase use of child death review teams to track the fatal cases of child abuse.

- Seek a better understanding of the relationship between family breakdown, poverty, and drug use in the infant’s family.

- Better monitoring of the movement of infants in and out of protective custody would help to address the problem of multiple placements in out-of-home care.

- Better monitoring of availability and utilization of support and intervention programs relative to need will aid in program planning and service development.
OUTCOME: 2.0
ACCIDENTS

SUMMARY
Accidental injuries pose one of the most significant contributions to poor child health outcomes. Infants are particularly susceptible to injuries that result from their immature motor and cognitive capabilities. The leading cause of injuries for infants is motor vehicle accidents followed by falls, fires and drowning. The lifelong impact of an injury in infancy can be devastating. Because of their unique vulnerability, infants are more inclined to suffer head injuries that can result in neurological, cognitive, behavioral and emotional deficits. Injuries can be measured by recording injury, specific deaths or hospitalization rates, on and through the use of injury surveillance systems.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Motor Vehicle injuries (1994)</td>
<td>17 per 100K27</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.2 Nonfatal injuries due to Fires (1994)</td>
<td>30.4 per 100K28</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.3 Injuries due to Falls (1994)</td>
<td>91.5 per 100K29</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.4 Deaths due to Drowning (1996)</td>
<td>1.8 per 100K30</td>
<td>1.64 deaths per 100K infants31</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.5 Deaths due to Unintentional Injuries</td>
<td>72; 13.3 per 100K (1996)22</td>
<td>22.46 per 100K (1994)33</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.6 Deaths due to Motor Vehicle Accidents</td>
<td>19.35 per 100K (1996)24</td>
<td>4.73 per 100K (1994)35</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.7 Deaths from Suffocation</td>
<td>44; 7.2 per 100K (1994)36</td>
<td>6.6 per 100K37 (1995)</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
The number of infant deaths due to accidental injuries dropped dramatically between 1989 and 1992, began to rise again between 1992 and 1994, but resumed the declining trend through 1996. Motor vehicle deaths decreased over 1 per 100K between 1989 and 1994 and continued to slowly decrease, but suffocation deaths rose 1.43 per 100K in the same period. Although the overall rate of deaths due to unintentional injury is smaller in California than in the United States as a whole, California has higher rates of drowning than does the rest of the nation. Suffocation accounts for 40 percent of all unintentional injury deaths among infants and is the second leading cause of death for California infants (following homicide).38

DETERMINANTS & RISK FACTORS
- Motor vehicle accidents39 are one of the most common causes of injury in infants, especially if the child is not properly strapped into a car seat. When the infant is being driven by a person under the influence of alcohol or drugs, the risk of an accident, and thus of injury, is greatly heightened.40
- As infants have limited mobility, they are especially vulnerable to injury in a house fire.41 Such fires are frequently started by an adult smoking in the house. One of the most common causes of house fires is smoking in bed. Functioning smoke detectors can prevent up to 85 percent of house fire deaths.42 Poverty is also a risk factor for fire and burn injuries.43
- Also due to their limited mobility, infants are prone to falling and being injured in a fall. Stairs are especially difficult to navigate, and increase the risk of a fall-caused injury.44
Infants who sleep in a prone position are at heightened risk for suffocation while they sleep. Unintentional hanging, such as by curtain loops, is the leading method of fatal suffocation among California infants.4

PREVENTION/POPULATION HEALTH PROMOTION

- Improved education and awareness of safety on the road and at home can decrease the risk of motor vehicle accidents.
- Mandatory car restraint laws (child safety seats for children under 4 and seat belts for children over 4) in California reduce motor vehicle fatalities by 39 percent for infants.46
- To avoid being killed or injured by a deploying passenger-side airbag, infants should ride in the back seat.47
- Safety measures, such as educating the public on the dangers of plastic bags and placing warning labels on them, could reduce occurrence of suffocation.48
- Household fire detection systems can alert parents to a house fire in time to evacuate infants and children.
- Strict enforcement of swimming pool fencing regulations is an important community tool to prevent children from drowning.
- Prevention education will enable parents to properly use car seats, stair guard rails, swimming pool fences, and to improve their supervision skills to help decrease almost any kind of unintentional injury.
- Distribution of Syrup of Ipecac and creating easy access to a poison control center will decrease the number of injuries associated with poisoning.
- Access to poison control numbers enables families to get help fast and to treat the poisoned infant, preventing or mitigating the seriousness of injury.

MONITORING

- Analysis of hospital discharge data for injuries and accidents occurring in children less than 1 year of age.
- Analysis of effectiveness of different prevention strategies.
- Analysis of long-term effects of early injury.
OUTCOME: 3.0
ACUTE CONDITIONS

SUMMARY
The sudden and unexpected death of a healthy baby is a tragedy for parents, grandparents and siblings. Arriving at a correct diagnosis at the time of death is a challenge, and approximately 85 percent of sudden deaths in infants remain unexplained even after adequate autopsy. The National Institute of Child Health and Human Development redefined Sudden Infant Death Syndrome (SIDS) in 1991 as "a sudden death of an infant under one year of age that remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history." While one year is used as the upper age limit for official definitions, 95 percent of SIDS deaths occur under six months of age. One of the ongoing diagnostic difficulties is distinguishing SIDS from infant deaths that are the result of child abuse. With the recognition that SIDS is associated with a prone sleeping position, the NIH's "Back to Sleep" Campaign in 1994 has had a drastic impact on SIDS prevention.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Sudden Infant Death Syndrome (SIDS) (1996)</td>
<td>332.61.54 per 100k</td>
<td>78.37 per 100k</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
With increased knowledge regarding its etiology, SIDS is on the decline. California experienced a nearly 50 percent drop in the SIDS rate between 1989 and 1994. Between 1994 and 1996, the California rate for SIDS decreased from 85.6 to 61.5 per 100,000. This trend is likely to continue with the further persistence of the "Back to Sleep" campaign.

DETERMINANTS & RISK FACTORS
A number of risk factors have been associated with SIDS including:
- Neonatal respiratory abnormalities which increase the susceptibility of an infant to breathing difficulties.
- Upon autopsy, infants who have died of SIDS are found to have a high tissue iron concentration. It is unclear what role this plays in death, but should be regarded as a potential risk factor.
- A family history of SIDS (i.e., a previous infant sibling that has died without explanation) is a risk factor for the children who follow.
- Maternal smoking increases the likelihood that an infant will die of SIDS. A 1993 study of 485 SIDS cases found a 4.09 times higher risk of SIDS for infants whose mothers had smoked during pregnancy. In 1993, 15.8 percent of California women smoked while pregnant.
- Maternal alcohol and drug abuse also increase the risk that an infant will succumb to SIDS.
- SIDS occurs more often in children born to young mothers, especially those under age 20.
- Prone sleeping position has been identified as a risk factor for SIDS in New Zealand, the UK and the United States. Eleven of 14 case control studies demonstrated an increased relative risk for SIDS between 1.4 and 12.5 times when infants slept in a prone position.
- Small infants who are born prematurely (less than 37 weeks and less than 2,500 grams) are more likely to die of SIDS than are infants who are carried to term.
- Poverty also increases the risk of SIDS. In 1991, rates of SIDS for a low-income population were 4.6 per 100,000 whereas rates of SIDS for a high-income population were only 1.2 per 100,000.
INFANTS
(ages under 1 year)

OUTCOME: 3.0
ACUTE/INFECTIOUS CONDITIONS

- African American infants are 2.4 times more likely to die from SIDS than Caucasian infants are, while Native American infants are 2.8 times more susceptible.\(^6\)
- Historically, SIDS has had a higher incidence during winter months. This may be due to the "overbundling" and "overheating" of infants or the greater risk of infection during the colder weather.\(^7\)

PREVENTION/POPULATION HEALTH PROMOTION

- A case-control study performed in New Zealand identified three potential determinants of SIDS that could be targeted for intervention: prone sleeping position, maternal smoking, and lack of breastfeeding.\(^8\) Intensive campaigns to place children in the supine sleeping position has resulted in a 50 percent decrease in the rate of SIDS with this change in behavior.\(^9\)
- Educational programs regarding sleeping position, soft bedding and material, and smoking can greatly reduce the newborns risk for SIDS.
- The National Institute of Health launched a national "Back to Sleep" Campaign in 1994 to encourage parents and caregivers to place their healthy infants on their backs for sleep. This recommendation is based on reports that state infants who sleep on their stomachs are at higher risk of SIDS.\(^10\) SIDS has since dropped from the second to third leading cause of infant mortality since this campaign was launched, and rates are still on the decline.

MONITORING

- Expansion of infant death review teams to investigate suspicions/confusing cases of SIDS.
OUTCOME: 4.0
RISK FACTORS FOR CHRONIC CONDITIONS

SUMMARY
Perinatal Alcohol and Drug Exposure
In utero drug and alcohol exposure at the time of delivery has been increasingly recognized as a threat to infant health outcomes and long-term development. In 1992, in California, it was estimated that 69,000 of 607,000 infants (11.35 percent) were born exposed to drugs or alcohol.24 Prenatally substance-exposed children are at risk for premature birth, low birth weight, fetal growth retardation, medical complications and mortality.25 In its most extreme case, alcohol exposure can lead to fetal alcohol syndrome with full-blown manifestations including physical malformations and mental impairment.26 Those who do not manifest the full-blown syndrome are often classified as having fetal alcohol effects due to the occurrence of more subtle impacts on physical and or mental functioning. Because of the range of possible effects of alcohol exposure in utero, Fetal Alcohol Syndrome is difficult to accurately diagnose, making consistent counts between various surveillance systems nearly impossible. Exposure in utero to cocaine, heroin, and marijuana increases the likelihood of congenital malformations, fetal and infant death, and a range of neurologically based mental and emotional disorders. While the rates of drug-exposed infants have decreased somewhat from the peaks during the height of the crack cocaine epidemic in the mid to late 1980s, a large number of children are still exposed to drugs in utero.77 In addition to the physical and mental impacts of drug exposure, many of these children are at risk of being placed in foster care due to charges of parental abuse and neglect.78

Low Birth Weight
Low-weight births because of prematurity result in significant neonatal complications including breathing difficulties, hemorrhages in the brain and the gastrointestinal system, and other problems that can result in significant long-term morbidity and fatalities. Depending on the degree of prematurity, low birth weight babies are likely to experience life-long consequences of their early birth—including higher rates of cerebral palsy and mental retardation. Low birth weights are more common for African American infants and account for the significant disparities in infant mortality between African American and white populations. In 1997, the U.S. low birth weight (<2,500 gm) rate was 13.6 percent among African-American infants and 5.8 percent for white infants.79 In 1988, the United States expended $4 billion in medical costs for low birth weight infants in the first year of life.80 This amounted to nearly $15,000 in additional costs for each of the 271,000 infants born weighing less than 2,500 gm. The consequences of low birth weight are also measurable throughout the life course as school-age children sometimes require special education or other rehabilitation services.81

Congenital Anomalies and Birth Defects
Each year, in California, 22.8 per 1,000 live births are children with a birth defect82—the leading cause of infant death and childhood disability.83,84 Congenital anomalies range from complex genetic and multiple malformation syndromes due to chromosomal abnormalities, such as Down's Syndrome, to simple relatively frequent congenital heart lesions. Approximately one-third of children who die before their first birthdays have birth defects. Over the past two decades with the advent of better genetic mapping, prenatal diagnostic techniques, and epidemiologic registries such as California's Birth Defect Monitoring Program, there is a great deal known about the causes of many congenital anomalies as well as new ways of detecting and preventing them. Depending on the type and severity of the congenital anomaly, the impact on the child can vary. At present, birth defects account for the third leading cause of death in children less than one year of age. Many birth defects such as cleft lips (1.6 per 1000 live births) and heart defects (4.2 per 1000 live births) can be treated through surgery to produce near-normal functioning.

Congenital Infections
Congenital syphilis is one of several congenital infections that can have a profound impact on the developing infant. Syphilis is transmitted to the infant in utero depending on the timing and severity of the maternal infection. Congenital syphilis is largely preventable if pregnant women are tested for syphilis, and if found to be
infected, treated early in pregnancy. A general infection with syphilis can result in malformations as well as the sequelae of the infection itself. If unrecognized and untreated it can lead to other complications. An estimated 40 percent of pregnancies in which women have untreated syphilis will result in perinatal death. When women receive prenatal care and appropriate screening, cases can be detected and treated. The rates of congenital syphilis not only reflect the rates of exposure, but also the effectiveness of the prenatal and perinatal care available to women in California.

Congenital rubella syndrome can cause a variety of deleterious effects for the developing fetus and infant, including progressive autoimmune complications, ocular abnormalities, long-term neurologic morbidities, and bone lesions. Fortunately congenital rubella syndrome has become an infrequent occurrence. With the near universal vaccination of children, the number of cases of congenital rubella syndrome has dramatically decreased. At present, occurrences of congenital rubella syndrome arise among those women who did not have adequate immune protection from rubella during their pregnancy. This is why there has been a campaign by the Centers for Disease Control (CDC) to revaccinate all teenage girls to ensure life-long immunity. The overwhelming long-term decline in congenital rubella syndrome can be viewed as a public health triumph.

STATISTICAL PROFILE

<table>
<thead>
<tr>
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<th>California</th>
<th>U.S. Comparison</th>
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</tr>
</thead>
<tbody>
<tr>
<td>4.1 Fetal Alcohol Syndrome</td>
<td>10 per 100K live births (1995)</td>
<td>2-10 per 100K live births (1997)</td>
<td>12 per 100K</td>
</tr>
<tr>
<td>4.2 Drug-Exposed Babies (1992)</td>
<td>6,720 per 100K live births prenatally exposed to alcohol (1992)</td>
<td>200,000 women used illegal drugs while pregnant (1992)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>4.3 Low Birth Weight (1996)</td>
<td>11,350 per 100K live births</td>
<td>7,400 per 100K low birth weight per 100K live births</td>
<td>1,000 per 100K very low birth weight per 100K live births</td>
</tr>
<tr>
<td>4.4 Congenital Anomalies/Birth Defects</td>
<td>6,060 per 100K live births</td>
<td>1,400 per 100K very low birth weight per 100K live births</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>Heart Defects</td>
<td>1,079 per 100K very low birth weight per 100K live births</td>
<td>1,145 per 100K live births (1997)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>Chromosomal Anomalies</td>
<td>1,680 per 100K live births (1995)</td>
<td>116.6 heart defects per 100K live births</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>Down's Syndrome</td>
<td>420 heart defects per 100K live births</td>
<td>38.4 chromosomal abnormalities per 100K live births</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>Oral Clefts</td>
<td>210 chromosomal abnormalities per 100K live births</td>
<td>43.8 cases of Down's Syndrome per 100K live births</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>Neural Tube Defects</td>
<td>130 cases of Down's Syndrome per 100K live births</td>
<td>83.4 oral clefts per 100K live births</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>4.5 Congenital Syphilis</td>
<td>160 oral clefts per 100K live births</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>4.6 Congenital Rubella Syndrome</td>
<td>40 neural tube defects per 100K live births</td>
<td>40 neural tube defects per 100K live births</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>92.5 per 100K live births (1995)</td>
<td>26.9 per 100K live births (1997)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>5 cases: 13 per 100K (1998)</td>
<td>0 cases</td>
</tr>
</tbody>
</table>
TRENDS

California experienced a small (0.1 percent) decline in the number of low birth weight babies born over the five year period between 1988 and 1993; however, the trend has been steady since then.\(^{118}\) The percentage of low-weight births in the United States as a whole climbed in 1994, rising from 7.2 percent in 1993 to 7.4 percent by the end of 1994.\(^{119}\) This rate has also remained fairly steady through 1996.

Between 1980 and 1995, infant mortality attributed to birth defects declined by 34.2 percent. This is partially attributed to better treatment available for cardiovascular defects and more effective prevention (folic acid) for neural tube defects.\(^{120}\)

As a result of the increase of primary and secondary syphilis cases in the early 1990s, the number of cases of congenital syphilis has correspondingly increased.\(^{121}\) In 1991, more cases of congenital syphilis were reported (over 100 per 100K live births) than at any other time since surveillance began in 1951.\(^{122}\)

However, by 1995, California had experienced a long-term decline in the number of reported congenital syphilis cases.\(^{123}\) Part of the reason for the high number of reports in 1991 was a new case definition of syphilis that was employed by the CDC. The new definition is presumptive rather than relying on clinical data.\(^{124}\)

Following a resurgence of rubella and congenital rubella syndrome (CRS) in the United States during 1989-1991, the reported number of rubella cases during 1992 and 1993 was the lowest ever recorded.\(^{125}\) The prevalence of CRS has decreased 99 percent since the vaccine was recommended for universal use among children in 1990. However, California did experience another outbreak of rubella in 1993,\(^{126}\) indicating a larger pool of susceptible individuals. The number of reported of CRS cases in the United States has continued to decrease since 1994.

DETERMINANTS & RISK FACTORS

Prenatal Alcohol/Drug Exposure
- Depression and/or mental health problems during pregnancy may lead to drug use, causing fetal exposure.\(^{127}\)
- In 1994, 20 percent of pregnant women in the United States did not initiate prenatal care during their first trimester of pregnancy.\(^{128}\) Thus, if they were using drugs during this critical period of fetal development, it was unlikely that a doctor could detect it. Therefore these women did not receive appropriate counseling to quit using drugs and alcohol and to address any damage to the fetus that had already occurred.
- Poor educational attainment increases the likelihood of unplanned pregnancy and also increases the likelihood of maternal drug use. Women may use drugs while they are pregnant either because they do not know the dangers for their child (or are too addicted to care) or because they do not know that they are pregnant.
- Low socioeconomic status (SES) increases the likelihood of drug use during pregnancy.
- In terms of racial variations, whites and Mexican-Americans less than 18 years of age are more likely to report drug use during pregnancy than are older women in these ethnic groups. Blacks older than 21 years of age report greater rates of substance use than any other age or ethnic group.\(^{29}\)
- Minority status increases the likelihood that drug use during pregnancy will be detected, although researchers propose that pregnant women of all ethnic backgrounds actually use substances at the same rate.\(^{30}\)
- Partner's use of alcohol and/or drugs increases the likelihood that a woman will use drugs and/or alcohol while pregnant.\(^{121}\)
- Prior physical assault places women at increased risk of using alcohol and/or drugs during pregnancy and through their life course.\(^{122}\)
INFANTS
(ages under 1 year)

OUTCOME: 4.0
RISK FACTORS FOR CHRONIC CONDITIONS

- Pregnant adolescents with older (more than five years) partners are more likely to report marijuana use than are other pregnant teens.  

Low Birth Weight
- Poverty increases the risk that a child will be born small and/or premature.  
- Low maternal educational attainment also increases risk for a low birth weight baby.  
- Unmarried mothers are much more likely to bear children who are low birth weight. In 1995, 44.9 births per 1,000 were to unmarried women.  
- In the United States, Asian populations experience the lowest rates of preterm deliveries, while Hispanic and Native American populations experience slightly higher rates of preterm delivery than the white population. African Americans, however, have much higher rates of preterm delivery than do the other ethnic populations.  
- Numerous maternal medical complications may cause complications with the fetus.  
- Maternal cigarette smoking may stunts fetal growth and cause prematurity, as can any substance use.  
- Maternal age also plays a role in fetal development. Very young mothers (teenagers) and older mothers (over age 35) are at increased risk for fetal complications.

Risk factors for birth anomalies include:
- Exposure to toxic chemicals and drugs in utero greatly increases the chance of a birth defect.  
- Birth defects by mothers’ age and race. For example, older mothers have higher rates of Down’s Syndrome births, and Mexican-born mothers have twice the risk of bearing babies with neural tube defects.  
- Maternal smoking is one way that a developing fetus may be exposed to a potentially toxic chemical; maternal alcohol and drug use during pregnancy is another. In California, in 1992, 3.5 percent of infants were exposed to drugs in utero, and 6.7 percent were exposed to alcohol in utero.  
- Many women do not receive adequate vitamins when they are pregnant, increasing the risk for several types of congenital defects. For example, lack of adequate amounts of folic acid in the diet of pregnant women can lead to neural tube defects.  
- Maternal obesity increases the likelihood of neural tube defects nearly twofold.  

Characteristics and behaviors of young women of childbearing age produce risk factors for congenital syphilis:
- Risky sexual behavior leads both to sexually transmitted diseases and to unplanned pregnancies. Together these can translate into congenital syphilis.  
- Maternal drug use (especially crack cocaine) also places an unborn child at risk for contracting syphilis.  
- Maternal HIV status, resulting in a compromised immune system, increases the mother’s vulnerability to disease and infection.  
- Young maternal age also heightens the risk of congenital syphilis.

Characteristics of young women of childbearing age may create a risk for congenital rubella:
- Rubella immune status of women of childbearing age and possible reinfection rate are risk factors for congenital rubella.

PREVENTION/POPULATION HEALTH PROMOTION

Prenatal Drug/Alcohol Exposure
- Drug and alcohol treatment services to pregnant and postpartum women can prevent/stop fetal exposure to alcohol and drugs by stopping drug/alcohol use in the mother.
Education and social marketing campaigns increase community awareness that drugs and alcohol are dangerous to unborn children.

Low Birth Weight
- Access to prenatal care enables a physician to monitor the development of the fetus. Thus, problems may be detected and dealt with early in the pregnancy. In 1994, 80 percent of pregnant women in the United States initiated care in the first trimester, but only 76 percent of pregnant women in California initiated prenatal care.
- Education and modification of prepartum behavior can prevent the mother from engaging in risky behaviors that could cause her infant to be born with a low birth weight.
- Improving life course opportunities for the mother can ameliorate the effects of her child’s low birth weight.
- Home visitation programs, designed to provide maternal support, have proven to decrease adverse birth outcomes.
- WIC and Medicaid benefits have been determined to provide substantial cost savings to providers to eligible women because of their role in preventing low birth weight.

Congenital Anomalies
- Recent studies by the California Birth Defect Monitoring Program have highlighted the role of multivitamin use in the prevention of heart and limb defects as well as cleft lips and palates. Folic acid supplements taken before and after conception reduce the risk of neural tube defects by 50-70 percent and may also reduce the risk of oral/facial clefts by 25 to 50 percent. Preliminary research indicates that other drugs (i.e. magnesium sulfate), given to very low birth weight infants shortly before birth, may prevent cerebral palsy in this high-risk group.
- Prenatal care and access to special diagnosis procedures.
- Educational campaigns to improve the diet and vitamin intake of pregnant women and women of childbearing age.
- Risk reduction education strategies to decrease the exposure to alcohol, drugs, and tobacco.
- Newborn screening to detect congenital anomalies early in order to maximize the efficacy of treatment.
- Case management of all services needed by the infant to improve service delivery.

Congenital Syphilis
- Adequate screening (including rescreening mothers at the time of delivery in high-risk areas).
- Education about the complications of syphilis for the infant.
- Drug treatment: Penicillin during early pregnancy will prevent the infant from developing the syndrome.

Congenital Rubella
- Vaccination of all children and teenage girls will prevent women of childbearing age from contracting rubella and passing it on to their child in utero.
- Screening as part of routine prenatal care will identify mothers who are at risk for such transmission.

MONITORING
- Better monitoring and detection of drug and alcohol exposure, including random, anonymous testing for epidemiological purposes.
OUTCOME: 4.0
RISK FACTORS FOR CHRONIC CONDITIONS

- Better monitoring of access to drug and alcohol treatment so that sufficient programs are made available to pregnant women.
- Better monitoring of access to prenatal care to improve the ratio of women who initiate prenatal care early in their pregnancy.
- Better monitoring of quality of prenatal care to ensure that adequate screening and counseling are performed.
- Analysis of hospital discharge data for injuries and accidents occurring in children less than 1 year of age.
- Analysis of effectiveness of different prevention strategies.
- Better monitoring of the availability and quality of developmental services to assess and identify infants with developmental problems or risks.
INTRODUCTION: CHILD OUTCOMES

Earlier in this century, descriptions of children’s health focused on those infections, pneumonias, and diarrheal illnesses that caused significant mortality. Over the century, medical advances, public health interventions, and changes in the social conditions surrounding childhood have resulted in dramatic reductions in child mortality due to many causes. By the 1960s, childhood was touted as the “wonder years,” years of carefree, happy growth and development. Irrespective of the accuracy of these perceptions, children are exposed to a variety of risks that lead to significant morbidity, mortality, and disability. Injuries are the leading cause of death and disability in children, far outnumbering historical threats such as infectious disease and diarrhea.

In place of traditional biologically based threats to children, a recognition of the importance of socially mediated conditions gave rise to the term “new morbidities” to describe conditions such as abuse, neglect, drug exposure, and mental health and developmental problems that have achieved new relevance in the lives of children.

In California, the number of children placed into protective custody due to suspected abuse or neglect has increased drastically over the past ten years, which signifies both the inability of a growing number of families to support and nurture children and potentially better recognition and reporting of abuse. The ominous statistic regarding the vulnerability of children suggests that this is just the tip of the iceberg and that many more children are at risk, due primarily to adverse socioeconomic conditions and related drug use by their parents.

The following pages describe specific health outcomes for children in the domains of violence, accidents, infectious illnesses, chronic conditions and mental health. Summary health outcomes for California children are shown below:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived health status</td>
<td>97,000 per 100,000</td>
</tr>
<tr>
<td>good - excellent (1993)</td>
<td></td>
</tr>
<tr>
<td>All-cause mortality rate (1994)</td>
<td>26 per 100,000</td>
</tr>
<tr>
<td>Life expectancy at age 5</td>
<td>72.7 years</td>
</tr>
<tr>
<td>Healthy life remaining</td>
<td>60.8 years</td>
</tr>
</tbody>
</table>
OUTCOME: 1.0
VIOLENCE AND ABUSE

SUMMARY

The number of children reported to child welfare authorities due to child abuse and neglect has increased dramatically over the past two decades. Some of the increased number of reports may be due to improved awareness and better reporting. In 1995, California experienced 690,005 emergency response dispositions for child abuse and neglect for children under 18 years of age. This represented a 4 percent increase over the previous year, and a continuous upward trend over the past decade. California's rate of reported child abuse and neglect is approximately 2.5 times that of the nation as a whole. Cases of neglect resulting in placement in foster care are much more frequent than child physical or sexual abuse. Neglect is usually a consequence of poverty and dire living circumstances for the family. The consequences of child abuse and neglect have been documented in increased rates of other medical conditions and mental health, cognitive and developmental problems. At present, 95,117 children less than 18 years of age in California are residing in foster care secondary to abuse and neglect, representing more than 1 percent of the population in this age group. Even though the average stay in foster care is currently about 26.3 months, many children are subject to recurrent abuse or neglect, and they reenter the system.

Child homicides are all too frequent. In a review of 780 patients who presented to USC/LA County Medical Center with a diagnosis of gunshot wound to the brain, 105 were children ranging from 6 months to 17 years of age. In the United States a child dies of gunshot wounds every 1.5 hours, and every 2 days, 30 children -- equivalent to an entire classroom -- are killed by guns.

Most child homicides appear to come about through two distinct scenarios. Either they are perpetrated by a caretaker as a culmination of repeated, severe abuse, or they are the result of gang-related drive-by shootings or stray bullets. The former is more common in the youngest children while the latter scenario is more common for older children. Those committing homicides are often children themselves, and increasingly children are subject in many parts of California to random acts of violence because they are caught in the cross fire of violent conflicts between gangs. There are a number of precautions that could be undertaken to decrease these rates.

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</tr>
</thead>
<tbody>
<tr>
<td>1.1 Children reported for maltreatment (1995)</td>
<td>458,262; 49.9 per 1,000 children under 18</td>
<td>2,946,856; 43.6 per 1,000 children under 18</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.2 Children in substitute care (1995)</td>
<td>74,364; 8.1 per 1,000 children under 18</td>
<td>483,629; 6.3 per 1,000 children under 18</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.3 Child Abuse and Neglect Substantiated Reports (1994)</td>
<td>166,418; 18.1 per 100K (ages 1-9)</td>
<td>994,586; 12.6 per 100K (ages 1-9)</td>
<td>2,520 per 100K (ages 0-18)</td>
</tr>
<tr>
<td>1.4 Homicide (1996)</td>
<td>121; 2.3 per 100K (ages 0-9)</td>
<td>2.4 per 100K (ages 0-9)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.5 Foster Care Population (not including kinship care)</td>
<td>60,244; 980.5 per 100K (ages 1-12)</td>
<td>732.7 per 100K (1998, ages 1-10)</td>
<td></td>
</tr>
</tbody>
</table>

TRENDS

Child Abuse and Neglect

- Reported cases of child abuse and neglect investigated by the emergency response system have increased 4 percent between 1994 and 1995.
OUTCOME: 1.0

VIOLENCE AND ABUSE

- Foster care: Increase (in all age groups) from 88,080 cases to 92,227 cases between October 1994 and October 1996,186 and a 37.9 percent increase between 1991 and 1995.187
- Recidivism: Between 1985 and 1993, the number of cases (for children less than age 18) in the emergency response care of the child protective services that had a prior case opening increased by 55 percent.188
- Homicide rates are higher for children between the ages of 1 and 4 than for the 5-12 age group (2.6 compared to 0.8 per 100,000).189
- Child homicides in California decreased 13 percent between 1989 and 1994,190 despite overall increases among the population as a whole.

DETERMINANTS & RISK FACTORS

- Poverty increases the chance that a child will be abused by a caretaker.191
- Substance abuse impairs the judgment of parents, leading to abuse and even more frequently to neglect.192 Overall parental substance abuse has been estimated to be responsible for the large caseload increase of the mid-1980s, when the peak of the crack cocaine epidemic took place.
- Poor maternal education translates into decreased maternal knowledge and coping skills, which greatly increases the chances for child abuse and neglect.193
- Age of parents at childbirth and whether or not both parents are involved in childrearing is a factor in abuse rates. Many high-risk parents were never married and are very young.194
- Maternal depression195 is also associated with child abuse and neglect.
- A child who has been abused once is likely to be abused again. Using administrative data from California Social Services, prior reports to the Department of Children and Family Services were found in 50 percent of current emergency response cases in 1993.196
- Maltreatment in childhood increases the likelihood of arrest as a juvenile by 53 percent, as an adult by 38 percent and for a violent crime by 38 percent. For females, being abused or neglected during childhood increases the likelihood of arrest by 77 percent.197

PREVENTION/Population Health Promotion

Child Abuse and Neglect

- Home Visiting Early Intervention Programs198 have been shown to be a cost-effective strategy for preventing child maltreatment.
- Family Preservation Services199 can work to preserve family functioning and assist families to navigate through rough times. They encompass an intensive array of services often including (but not limited to) home visiting, parental education, substance abuse treatment, emergency childcare, etc. This battery of services is being evaluated as an alternative to out-of-home placements for children, with mixed results.
- Parental Support Groups can provide parents with a therapeutic environment in which to discuss childrearing problems and obtain advice. They can decrease the feeling of isolation that parents may feel, a feeling that is correlated with increased levels of violence against children.
Emergency Child Care allows the child to be in a safe place when parents are having emotional problems. This gives the parents a chance to calm down and sort rationally through their problems, rather than directing their frustration at the child. Emergency child care also prevents the child from being neglected if the parents are too occupied or too distracted to care for the child.

Parental Education, such as parenting classes, can teach parents coping skills and how to meet their child’s physical and emotional needs without giving way to anger and frustration.

Foster/Kinship Care can provide a safe place for the child while the parent gains skills, receives substance abuse treatment, and learns how to parent effectively.

Homicide

Better child abuse identification, review and monitoring systems enable child abuse to be detected early, and families treated, before the abuse proceeds as far as homicide.

Legal removal of handguns from private homes increases child safety. Decreased access to hand guns make it less easy to pick up a weapon in anger, both for family members and for gang members.

Gang interventions help decrease the overall level of violence in society, and decrease the likelihood that children will be caught in gang cross fire.

Monitoring

Child Death Review Teams track the causes of fatal child abuse and prepare an epidemiological profile to aid program planning and prevention.

Child injury and treatment monitoring.

The recurrence of child abuse and re-entry of children into protective custody in order to determine how effective the child protective system is at breaking the cycle of abuse.

Long-term consequences of injuries to determine their long-term impact.

Access to and quality of injury prevention programs.

Better information needed on availability and utilization of programs to reduce child abuse/neglect to gauge how well the demand in communities is being met, especially in high-risk groups.
OUTCOME: 2.0
ACCIDENTS

SUMMARY
Accidental injuries represent the leading cause of morbidity and mortality in children ages one to ten. The impact of childhood accidental injuries can be measured not only in the deaths that occur but also in the long-term outcomes including brain damage, which can result in developmental delays, as well as a host of physiologic, physical and mental consequences. Leading causes of injuries in childhood include motor vehicle accidents, pedestrian injuries, poisonings, fires, and drowning.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Deaths due to Accidental Injury (1996)</td>
<td>8.75 per 100K (ages 0-9)</td>
<td>11.7 per 100K (ages 0-9)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.2 Pedestrian Injuries (1994)</td>
<td>1637, 24.4 per 100K (ages 0-12)</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.3a Motor Vehicle Injuries (1994)</td>
<td>940; 19.6 per 100K</td>
<td>5.64 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.3b Motor Vehicle Deaths (1996)</td>
<td>200; 3.76 per 100K</td>
<td>5.31 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.4 Poisoning Deaths (1996)</td>
<td>8; 0.15 per 100K (ages 0-9)</td>
<td>4.95 per 100K (ages 0-9)</td>
<td>5.5 per 100K (ages 0-14)</td>
</tr>
<tr>
<td>2.5 Fire-Related Deaths (1996)</td>
<td>23; 0.43 per 100K (ages 0-9)</td>
<td>0.19 per 100K (ages 0-9)</td>
<td>520 ER treatments per 100K (ages 0-4)</td>
</tr>
<tr>
<td>2.6 Drownings (1996)</td>
<td>756; 1.95 per 100K (ages 0-9)</td>
<td>1.71 per 100K deaths (ages 0-9)</td>
<td>3.3 deaths per 100K (due to residential fire) (ages 0-4)</td>
</tr>
<tr>
<td>2.7 Bicycle-Related Injuries</td>
<td>0.4 per 100K (fatal) (1994)</td>
<td>2.35 per 100K (ages 0-9)</td>
<td>2.3 per 100K (ages 0-4)</td>
</tr>
<tr>
<td></td>
<td>(nonfatal) (1994)</td>
<td>0.5 per 100K (ages 5-9; fatal; (1995)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

TRENDS
Child deaths due to unintentional injury decreased significantly (about 30 percent) between 1989 and 1996, from 13.25 per 100K to 8.75 per 100K. California rates of child injury death closely approximate those of the United States as a whole, except in the case of deaths due to fire; California children were killed in fires at less than half the rate of the nation in 1996. Declines have occurred in numbers injured and death rates over the past 20 years. Main causes in the overall drop are the declines in deaths from unintentional accidents and cancer. Safety devices and improved safety practices are also responsible for the long-term decrease from 1976 through 1991. Motor vehicles remain the leading cause of injury death among 1-4 year olds and 5-14 year olds. Drowning is second among 1-4 year olds while firearms are second among 5-14 year olds.

DETERMINANTS & RISK FACTORS
Several studies have demonstrated that poor children are at disproportionate risk for injury. Poverty is often associated with more dangerous home environments due to an inability to adequately childproof and less direct child supervision.
CHILDREN
(ages 1-9)

OUTCOME: 2.0
ACCIDENTS

Motor Vehicle Accidents:
- Almost one in two hundred (0.385 percent) of children in California aged 5-14 was injured in a motor vehicle accident in 1994. 220
- Alcohol use by drivers greatly increases the likelihood of being in an automobile accident. A probability sample of 1,494 adult motor vehicle casualty patients in four California hospitals revealed that 9 percent were positive on a Breathalyzer test and 15 percent reported drinking within six hours prior to the accident. 221
- Properly used car seats decrease the risks of severe injury or death in an automobile accident by up to 70 percent. 222 Children who are too big for car seats (about 50 pounds) are safest in the rear seats of an automobile using a three-point lap-belt. 223
- Although there are several studies that demonstrate that reduced speed limits save lives, they have not been targeted specifically toward children.

Pedestrian Injuries
- Pedestrian injuries are the leading cause of death for children ages 4-8. Young children are capable of understanding traffic risks and modifying their behavior related to these risks. Some studies have shown that anywhere between 50 and 75 percent of pedestrian injuries are due in some part to lack of appropriate supervision. 224 Thus, it is suggested that when young children will be near traffic they be kept in strollers or in restraints limiting their ability to run into traffic. 225

Alcohol and Food Poisoning
- The introduction of safety caps on bottles was estimated to decrease poisonings from medicines and toxic substances by 80 percent. 226 Children are typically poisoned in their own home when there is a lack of parental supervision. Low socioeconomic status is correlated with higher rates of child poisoning injuries, due to residential crowding, lack of safe play areas, and inability to childproof.

Drowning
- California's long warm season, a long coastline and many swimming pools, rivers and lakes make drowning a serious and relevant health risk. 227 Drowning risks vary by region and by age. Younger children tend to drown in swimming pools and bathtubs while older children tend to drown in natural bodies of water while swimming or boating. 228

House Fires
- House fires account for 90 percent of childhood burn deaths. 229, 230 Scald burns, due to excessive water temperatures, are also very common among children. 231

Bicycle Related Injuries
- Bicycle riding is an extremely popular form of recreation and transportation among American youth. However, children ages 6-12 are at the greatest risk for bicycle accidents. 242 Bicycles are responsible for more childhood injuries than any other consumer product outside of motor vehicles. 243 Head injuries are the most common cause of disability from bicycle accidents. 244 Approximately 96 percent of bicyclists killed in 1996 were not wearing helmets. 245 The use of bicycle helmets can provide protection from head injury; however, helmet use is low among adolescents. The stigma associated with wearing helmets is due to ridicule by peers, lack of understanding regarding effectiveness, and comfort while wearing.

PREVENTION/POPULATION HEALTH PROMOTION
- Bicycle helmets 246 prevent 88 percent of brain injuries in bicycle crashes. 247
- Reduced traffic flow and reduced vehicle speed both have the potential to decrease rates of childhood pedestrian injury. 248
CHILDREN
(ages 1-9)

OUTCOME: 2.0
ACCIDENTS

- Properly used car seats reduce the risk of severe injury or death by as much as 70 percent\(^{249}\) and use of seatbelts for older children can reduce the risk by almost 50 percent.\(^{250}\)
- Smoke detectors\(^{251}\) that alert families to the presence of a fire reduce burn injuries to children.
- Flame retardant sleepwear for children\(^{252}\) decreases the likelihood that a child will be burned in his or her sleep.
- Availability and appropriate use of Syrup of Ipecac, as well as knowledge of poison emergency treatment procedures, may prevent a poisoning event from seriously injuring a child.
- Childhood poisonings have decreased dramatically since the 1970s due to the Poison Packaging Control Act, which mandated child-resistant packaging of medicines, the funding of poison control centers, better emergency care and the reformulation of some poisonous substances such as lead paint.\(^{253}\), 254\)
- Since California is the home of the backyard swimming pool, pool-fencing legislation can drastically reduce the number of pool drownings.
- Irrigation ditches and rivers are major causes of childhood drownings in rural areas. Many drownings can be prevented through the appropriate use of life vests and through parental supervision.\(^{255}\)

MONITORING

- California should consider instituting a comprehensive injury monitoring system for children and youth that would draw on emergency rooms and other urgent care facilities for reports of accidents and injuries sustained.
- Expand the Fatal Accident Reporting System in California Emergency Preparedness and Injury Control (EPIC) programs.
OUTCOME: 3.0
ACUTE/INFECTIOUS CONDITIONS

SUMMARY
Immunization
The prevention of infectious diseases due to appropriate immunization has been one of the great public health achievements of the last century. Overall rates of diseases such as polio, pertussis, and measles have dropped by 97% or more during the twentieth century. With this decrease, there has also been a decrease in the consequences of these infectious diseases, including neurologic, respiratory and other physical and developmental problems. As an indication of measurement for immunization rates, vaccine-preventable diseases provide a marker for how well public health and personal medical care services are able to provide this basic prevention service. The measles epidemic of 1989-1991, concentrated among unvaccinated, minority preschool children, was a wake-up call to Californians, indicating that a significant "toddler gap" existed. In many parts of California, less than 50% of two-year-olds were up to date with their immunizations. Even after extensive education and service improvement efforts, some inner cities are barely able to post immunization rates that are 60 percent up to date at 12 months of age.

In 1993, in the United States, 67.1% of two-year-olds had received the entire recommended series of vaccinations, consisting of four doses of DTP, three doses of polio vaccine, and one dose of MMR. In contrast, only 48.4% of two-year-olds in California were appropriately immunized in that same year.

HIV
As of December 19, 1996, there are 533 children under the age of 13 in California who are living with AIDS. Between 30 and 50% of children born to seropositive mothers will contract HIV. Nationwide, 7,296 children have the syndrome. Children may acquire the HIV virus in their mother’s womb (transplacental transmission), during the birth process, or after birth (through breast milk). The proportion of transmission due to each of these pathways is unknown. Due to perinatal transmission, the increase of maternal drug use and prostitution, the rates of HIV infections in children are much more common in black and Hispanic children. Because of the great strides in pharmacological treatment for the disease, children are living for much longer periods of time if they survive the first year of life. In a striking breakthrough, based on analysis of data for 364 births through December 1993, Zidovine therapy was associated with a 67.5% percent reduction in the risk for HIV transmission between mother and child during the birth process. This has led to renewed examination of the role of prenatal testing of women to maximize the use of Zidovine for preventing HIV transmission during childbirth.

STATISTICAL PROFILE

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</thead>
<tbody>
<tr>
<td>3.1 Vaccine-Preventable Diseases</td>
<td>14; 0.2 cases of hepatitis B per 100K (1998)</td>
<td>0.51 cases of hepatitis B per 100K (ages 5-14) (1997)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>0; 0 cases of rubella per 100K (1997)</td>
<td>0.02 cases of rubella per 100K (ages 5-14) (1997)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2; 0.04 cases of measles per 100K (1997)</td>
<td>0.05 cases of measles per 100K (ages 5-14) (1997)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>237; 4.6 cases of pertussis per 100K (1997)</td>
<td>4.64 cases of pertussis per 100K (ages 5-14) (1997)</td>
<td></td>
</tr>
<tr>
<td>3.2 AIDS Cases (1998)</td>
<td>572; 8.02 per 100K (ages 1-12) (cumulative cases)</td>
<td>15.58 per 100K (ages 0-1) (cumulative cases)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>3.3 AIDS Deaths (1996)</td>
<td>11; 0.23 per 100K (ages 1-12)</td>
<td>0.65 per 100K (ages 1-9)</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>
TRENDS

The past decade has been marked by a number of epidemics of vaccine-preventable diseases, and vaccination rates are far from optimum. In 1989-91, a significant measles epidemic resulted in 130 deaths. The primary problem is in the toddler group. An estimated 28 percent of California toddlers aged 19-35 months were not fully immunized in 1995. The primary goal of the Childhood Health Immunization Initiative is to increase, by this year, immunization of all two-year-olds to 90 percent. By 1994, reported rates of congenital rubella syndrome, diphtheria, poliomyelitis, measles, and tetanus were at their lowest levels ever. Infectious disease experts recognize that there are still a large number of young children susceptible to those diseases due to low immunization rates. Rates of hepatitis B, rubella, and measles have been decreasing among children in California and the United States since 1995; however, the number of pertussis cases is still substantial.


DETERMINANTS & RISK FACTORS

Vaccine-Preventable Diseases

- Missed opportunities to vaccinate result in vaccine-preventable diseases. Examples are the unwillingness of providers to give more than two vaccinations during the course of one office visit. A study of 24,000 children in a northern California HMO found that if a provider did not administer all the vaccines for which a child was eligible during an office visit, the child had a 9 percent chance of never receiving the remaining vaccinations.

-Poverty contributes to lack of access to care and may mean that a child does not visit a physician often enough to be immunized.

- In 1994, 19 percent of California's children (aged 1-4) were not insured. Thus, they did not have access to one continuous primary care provider that would insure that their immunization history was up to date.

Pediatric AIDS

- Injection drug use increases the likelihood that a woman of childbearing age will contract HIV.

- Prostitution also increases the risk that a woman will contract HIV and pass it on to her fetus.

- Low SES increases the risk for a woman of contracting HIV. Once she has contracted the virus, a woman with low socioeconomic status has impaired access to care. Thus, she may not receive the drugs (i.e., Zidovine) that would decrease her risk for transmitting the virus to her child.

PREVENTION/POPULATION HEALTH PROMOTION

Vaccine-Preventable Diseases

- Provider education is necessary regarding minimal standards for immunization and valid contraindications to immunization.

- Immunization registries and case management programs can help track the proportion of children who have been immunized and boost immunization levels.

- Incentives to health plans and public health agencies will boost attainment of appropriate rates.

- Use of WIC and other public programs as sites for immunization.
Pediatric AIDS

- Prenatal care and screening: In 1994, 80 percent of pregnant women initiated care in the first trimester. If receiving appropriate care, a woman can decrease her chances of passing on AIDS to her child by taking measures to boost her child’s immunity, e.g., receiving medications (Zidovudine), eating properly.

- Availability and access to appropriate treatment (AZT) may increase the quality of life, extend the length of life, and decrease the rates of perinatal transmission.

MONITORING

- Development of immunization registries and systems would accurately monitor receipt of immunization by all children.
OUTCOME: 4.0
DISABLING CHRONIC CONDITIONS

SUMMARY

Chronic Conditions and Asthma
Chronic medical conditions and physical impairments leading to disability affect approximately 5 percent of all children and can have a profound impact on their ability to attend school and lead a normal life. While the number and type of chronic conditions affecting children are numerous, asthma is the one condition that is the most prevalent in children—affecting 4.3 percent of all children under 17 years of age. While most cases of asthma are mild to moderate in severity, because of its wide prevalence, asthma has a great impact on the number of disabled children.

Since there are no readily available measures of the prevalence of asthma in children in California, an indicator that becomes a proxy for asthma prevalence and severity is the number of hospitalizations for children with asthma. While an imperfect indicator (because it picks up those children who have multiple rehospitalizations), it still represents a way of tracking the impact of this important chronic condition on children.

Over the past two decades, several studies have documented the impact that comprehensive asthma treatments can have on improving function, minimizing health care costs, and decreasing untoward effects such as hospitalization. Unfortunately, the care available to children with asthma is often less than optimal. Untreated or undertreated asthma can have significant familial, social, and economic results. The lessons learned from caring for children with asthma are also applicable to children with other chronic conditions.

Lead Poisoning
One common source of poison is lead. Children are typically poisoned by exposure to lead-based paint, ingested as it chips off the walls of homes built between 1920 and 1959. One survey estimated that 3 million homes in California (27 percent) may have exterior paint levels greater than or equal to 5,000 ppm, and that 1.3 million homes (12 percent) may have interior levels greater than or equal to 5,000 ppm.

In children, exposure to lead may affect the central nervous system, resulting in lower IQ levels. It also affects other physiological targets, and may impair hearing, blood pressure and physical growth. Lead toxicity is also associated with anemia.

Low level lead exposure has been documented to decrease the cognitive functioning of children. Recent studies suggest that exposure in the postnatal period between ages 1-3 is a strong predictor of school age intellectual function. Lead poisoning has received special attention since 1991 when the CDC lowered levels considered hazardous to infants and young children and recommended that all children under six years of age, beginning as early as six months, be screened. Blood lead levels declined by 70 percent in children ages 1-5 with the banning of leaded gasoline and soldered cans in the United States in 1980. However, lead continues to be available to children who play outdoors and indoors through soil or dust that contains lead, which they transfer from hand to mouth. Lead in water, canned foods and emitted from the smokestacks of manufacturers has also been reduced dramatically by EPA-mandated policy changes. Federal oversight by the EPA has also allowed home renters and homebuyers greater disclosure regarding the potential lead hazards in the housing that they occupy, although funds to aid homeowners with lead abatement procedures and legislative enforcement procedures are not yet in place.

While the risks to children are clear, the availability of techniques to remove lead from the environment pose real problems both in terms of cost and logistic feasibility.

Dental Caries
Dental caries that occurs in childhood can have a long-lasting, negative impact on children's health, growth and development. It can also be the precursor to dental disease later in life. Oral diseases such as tooth decay are entirely preventable. However, preventive services and not fully being utilized. The pain and infection associated with caries cause speech impairment and changes in eating and sleeping patterns, which can retard growth. Almost one-third of preschoolers and more than two-thirds of elementary and high school students have experienced tooth decay. California falls behind the national rate of children who experience tooth
OUTCOME: 4.0

DISABLING CHRONIC CONDITIONS

decay (73 compared to 55 per 100 children ages 6-8 have had some dental decay). California also ranks 47th in the nation in preventing tooth decay by fluoridating drinking water supplies.319

STATISTICAL PROFILE

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<tbody>
<tr>
<td>4.0 Disabling Chronic Conditions</td>
<td>5,000 per 100K120 are unable to perform or are limited in school attendance/activity</td>
<td>6,000 per 100K221</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>4.1 Asthma Hospitalizations (1995)</td>
<td>249.4 discharges from short-stay hospital per 100K children (ages &lt; 15)322</td>
<td>280 discharges from short-stay hospital per 100K (age &lt; 15)223</td>
<td>225 per 100K hospitalizations (ages&lt;15)324</td>
</tr>
<tr>
<td>4.2 Lead Poisoning Cases (1991-1994)</td>
<td>Officials in California office of lead state that there is no official estimate of the number of lead-poisoned children in California. The reason for this is that only high-risk children are tested. Previous estimates given out by the office were extrapolated from data from the U.S. as a whole, but the office no longer feels that this estimate is accurate enough for dissemination.</td>
<td>4,400 per 100K children (ages 1-5) have blood lead level (BLL) ≥ 10mg/dl225</td>
<td>0 children with severe lead poisoning (ages 6 mo-5yr)328</td>
</tr>
<tr>
<td></td>
<td>400 per 100K (ages 1-5) have BLL ≥ 20mg/dl129</td>
<td>400 per 100K (ages 1-5) have BLL ≥ 20mg/dl129</td>
<td>500,000 children129 with lead poisoning (ages 6 mo-5yr)</td>
</tr>
<tr>
<td>4.3 Dental Caries/Tooth Decay</td>
<td>73 per 100 children (ages 6-8, 1993-4) experienced some dental decay130</td>
<td>55 per 100 children (age 8, 1988-94) have experienced some dental decay131</td>
<td>35 per 100 children (ages 6-8)131</td>
</tr>
</tbody>
</table>

TRENDS

- Chronic and disabling conditions are increasingly reaching childhood. National data indicators show that between 1979 and 1994 the prevalence of disability due to chronic conditions increased from 3.8132 to 6.5134 percent.

- The prevalence of asthma is also on the rise. Between 1981 and 1988 the prevalence increased 33 percent.335 In California, asthma is the leading cause of hospitalization admissions for children.336 Several studies in the United States and other countries have documented that the prevalence of asthma, as well as the morbidity and mortality from asthma in childhood, has increased. The reason for this worldwide phenomenon is not clear.

- From 1991 to 1994, the rate of asthma among White children (ages 0-14) was 185 per 100K while the rate among Black children (ages 0-14) was 704 per 100K.337

- The prevalence of children ages 1-5 with elevated blood lead levels dropped from 88 percent to 4.4 percent between the late 1970s and early 1990s.338

DETERMINANTS & RISK FACTORS

Chronic Conditions

- Activity limitation from chronic conditions is often not diagnosed in children less than 3 because developmental and learning disabilities are not recognized until the child enters school.339

- Poverty: Children, ages 5-17, living below the poverty line, have a higher prevalence of activity limitation due to chronic conditions than children living at or above the poverty line.340
Asthma
- Poverty: Poor children (under age 17) have a slightly greater prevalence of asthma — 4.8 percent vs. 4.2 percent. This difference is more pronounced among younger children — 4.2 percent vs. 3.1 percent.
- Environmental exposure: e.g., to cigarette smoke, increases the risk of contracting asthma and increases the severity of the problem once contracted; exposure to allergens including house dust mite.
- Access to appropriate care: Diminished accessibility to care affects morbidity as measured by hospitalization days, school loss, and bed days. This is the main reason that poor children have poorer asthma outcomes than do their non-poor counterparts.
- Ethnic minorities have higher rates of asthma.
- Maternal smoking increases the risk for and severity of asthma.
- Younger maternal age is also related to levels of asthma in children. Mothers who are 20 years of age or younger may be as much as 3.48 times as likely to bear children who develop asthma as are mothers 30 years of age or older.
- Low birth weight increases the risk for newborn respiratory problems. Risk for asthma is correspondingly increased.

Lead Poisoning
- Lead poisoning is considered the most serious environmental health threat to children in the United States.
- 1-2 year olds are at greater risk because of increased hand-to-mouth activity.
- Children living in older housing are at higher risk due to traces of lead in paint.
- Poverty: Poor children are 3.5 times more likely to have elevated blood lead levels than children living above the poverty line.

Dental Caries
- Childhood tooth decay can be caused by prolonged use of nursing bottles, which contain liquids with sugars. This provides a perfect medium for bacteria to grow in the child’s mouth.
- Parental lack of knowledge regarding proper oral hygiene may cause unnecessary, preventable tooth decay.
- Fewer than one out of five vulnerable children who are eligible for dental services under the Medicaid EPSDT program actually received preventive dental services. This rate has been declining since 1994.
- Children from socioeconomically disadvantaged families have some type of disabling chronic condition, or encounter some obstacle in obtaining preventive services, are more likely to experience oral diseases.

PREVENTION/POPULATION HEALTH PROMOTION

Asthma
- Access to comprehensive health care moderates the severity of asthmatic episodes and decreases hospitalization, emergency room visits and disability due to asthma.
- Parent/family education programs can train children and their families how to effectively deal with asthma.
- School-based programs enable children to manage their asthma within the school environment.
- Higher levels of education are correlated with improved asthma outcomes.
**Lead Poisoning**

- Education and inspection of paint for lead content detects the presence of lead and allows use of prevention, avoidance and abatement strategies where potentially toxic lead particles, paint, and dust chips are available to children.
- Community-wide environmental interventions to abate lead decreases the possibility that a child will encounter sufficient amounts of lead to be considered poisoned.
- Screening and protection laws legally protect children who have been exposed to dangerous levels of lead. These laws ensure that poisoned children will be noticed, treated, and that the physical environment that contained lead will be cleaned up.
- Even though lead-based paint was banned from use in homes in 1977, three million tons of lead remain in or on 75 percent of all private homes in the United States that were built before 1980.\(^{557}\)
- Lead dust and contaminated soil in play areas formerly inhabited by industrial manufacturing companies\(^{558}\) are other common ways that children can become lead poisoned.

**Dental Caries**

- Fluoridated community drinking water is a cost-effective way to prevent tooth decay. For every $1 spent on water fluoridation, as much as $80 can be saved in treatment costs of dental caries.\(^{559}\)
- The use of fluoride toothpastes, regular flossing, and dental sealants, and a higher rate of dental visits can improve dental health.
- Promote education programs that teach the importance of healthy eating practices and proper dental care early in school.

**MONITORING**

- A children's asthma monitoring program to improve monitoring of incidence, prevalence, hospitalizations, drug use, and availability of comprehensive service programs would increase the ability to more effectively prevent and treat asthma in children.
- A chronic disease registry should be utilized to better determine prevalence, access to appropriate services, and impact of different treatments.
- A registry of lead exposure cases would promote better epidemiologic targeting of interventions.
OUTCOME: 5.0
MENTAL HEALTH AND DEVELOPMENT

SUMMARY
Mental health conditions in childhood are increasingly recognized as a source of short- and long-term disability. National estimates from epidemiological catchment areas studies suggest that between 12 and 20 percent of children and youth have a diagnosable mental health condition. Moreover, as the overall prevalence of disability and chronic conditions in childhood has increased, a large proportion of health insurance payments are attributable to mental health conditions.

Since the passage of Public Law 94-142, the Education for All Handicapped Children Act, in 1975 (later retitled the Individuals with Disabilities Education Act), U.S. public schools have been mandated to provide free and appropriate education to all students with disabilities. Enrollment statistics for "special education" are a measure of the number of children requiring special programs in school, i.e., a measure of disability among school-aged children. As an indicator, it is a broad measure of a variety of mental and physical conditions that can impair a child's ability to learn and participate in a normal school environment. Major reasons for being placed in special education include mental retardation, learning disability, emotional disturbances, and attention deficit hyperactivity disorder. Thus, as a measure, it tells us something quite broadly about those children who have documented special needs in the school system. It also suggests that the 4 percent of California students enrolled in these programs are at risk for less-than-optimal life course trajectories.

Attention Deficit Hyperactivity Disorder (ADHD), manifested by inattention and hyperactive-impulsive behavior, has been conservatively estimated to occur within the range of 4 percent to 6.3 percent of all children and adolescents, with boys demonstrating between two and six times the prevalence rate of girls. While debate continues about the nature and etiology of core deficits in ADHD, increasing thought is given to the central problem of behavior inhibition. Research has also demonstrated that early development can influence the manifestation of ADHD, as can other situational and contextual factors. Research has also documented that children with ADHD often also suffer cognitive deficits and coexisting social problems that can have lifelong consequences. Several studies have documented that children with ADHD have higher rates of accidents and poisonings, including pedestrian and bicycle accidents, and motor vehicle accidents when they become adults.

STATISTICAL PROFILE

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<tbody>
<tr>
<td>5.0 Mental Well-Being (1992)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1 Special Education Enrollment</td>
<td>300 per 100 K (ages 5-11) mentally disabled</td>
<td>No comparable U.S. data for this age group</td>
<td>10,000 cases of mental disorder per 100K (ages 0-19)</td>
</tr>
<tr>
<td>5.2 Attention Deficit and Hyperactivity Disorder (ADHD)</td>
<td>4,800 per 100 K children (1998)</td>
<td>7,700 per 100K children (1995) Estimated 3,000-5,000 per 100K children (1994)</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
Over 4 percent of children in California are enrolled in special education programs. This is a smaller percentage than that of the United States as a whole, yet it is on the rise.

The number of diagnoses of ADHD is on the rise, but there is some controversy over whether this is a true indicator of increasing amounts of ADHD in the population or whether it is an artifact of a labeling phenomenon.
A 30 percent increase in the number of children served by California mental health programs occurred between 1987-1996; however, this may be correlated with the 22 percent increase in population of children ages 0-17 in the state.

DETERMINANTS & RISK FACTORS

- Learning disorders, speech and language disorders, and mental retardation\textsuperscript{72} are the most common reasons children are enrolled in special education programs.
- Numerous other medical, emotional, and developmental conditions can also result in enrollment in special education.
- Lack of prenatal care is associated with higher rates of child placement in special education.
- Low maternal education is associated with higher rates of placement in special education.
- Low SES\textsuperscript{73} is associated with iron deficiency anemia, which has been shown to cause poor performance on mental and motor tests in children.\textsuperscript{74}
- Frequent family relocation/mobility makes it difficult for children to perform consistently and well in school. Thus, this can increase the likelihood that a child will need special education support and services.\textsuperscript{75}
- Preterm birth increases the risk for a lower developmental trajectory, and thus for eventual enrollment in special education.
- ADHD has been shown to be familial and heritable.\textsuperscript{76}
- Prenatal substance exposure to alcohol, cigarettes or drugs, which distorts developing nerve cells and brain receptors,\textsuperscript{77} may cause mental difficulties later in life.
- ADHD may have a social as well as a biological basis and may be affected by attachment and/or development.
- Family environment may contribute to the development of attention span problems and to hyperactivity.

PREVENTION/POPULATION HEALTH PROMOTION

- Early intervention programs provide special, targeted services, and teach children learning skills at a young age.\textsuperscript{78}
- Head Start programs that target over 13 million children from poor families nationwide are one form of early intervention.\textsuperscript{79}
- Comprehensive individualized education plans\textsuperscript{80} are developed in the special education system to ensure that the education plan is tailored to the needs of the student and to ensure that the student's learning potential is maximized.
- Early intervention programs can teach children special skills for monitoring and controlling their attention and behavior.\textsuperscript{81} that aid them in focusing and learning.
- Drug therapy: Children with ADHD tend to respond well to medications that inhibit the dopamine pathway.\textsuperscript{82} Ritalin is in wide use – an estimated 3-4 percent of all children in the U.S. aged 5 to 14 were receiving Ritalin treatment in mid-1995.\textsuperscript{83} Although stimulants are effective in treating ADHD, they may be misused to control children whose behavioral problems have other biological or emotional sources.\textsuperscript{84}
- Psychotherapy, cognitive-behavioral therapy, social skills training, support groups, and parenting skills training boost the skills and confidence of both the disabled child and of the family of the child.\textsuperscript{85}
MONITORING

- Improve the monitoring efforts to more accurately diagnose and monitor children with mental disabilities.
- Educational monitoring to determine the progress of the child with ADHD.
- Children’s access to appropriate mental health screens through schools and other sources.
- Availability, access and quality of developmental services provided by pediatric providers.
- Availability, access and quality of Early Head Start, Head Start and other early childhood developmental promotion programs.
INTRODUCTION: ADOLESCENT OUTCOMES

Adolescence has been identified as a time of enhanced vulnerability due to the profound biological, emotional and cognitive changes that take place and related changing relationships with parents and peers. The Carnegie Commission on Adolescents has highlighted the impact of increased parental employment requirements as well as other family, social and economic trends on adolescents.386 Many adolescents spend less time with their parents and more time unsupervised, and are more likely to be involved in risk-taking behaviors.

In addition to increased levels of risk exposure and risk-taking behaviors, one in seven adolescents lacks health insurance coverage. The lack of health insurance and other related barriers to care make even the most conventional health services unavailable to them. Many experts believe that adolescents need a set of specialized services carefully crafted to meet their particular needs, services provided in schools and community setting that are accessible and user friendly.

Specific adolescent health outcomes in the domains of violence, accidents, infectious illnesses, chronic conditions and mental health are described in the following pages. Summary health outcomes for adolescents are described below:

<table>
<thead>
<tr>
<th>Perceived health status</th>
<th>96,000 per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>good - excellent (1993)</td>
<td></td>
</tr>
<tr>
<td>All-cause mortality rate (1994)</td>
<td>52.6 per 100,000</td>
</tr>
<tr>
<td>Life expectancy at age 15</td>
<td>62.8 years</td>
</tr>
<tr>
<td>Healthy life remaining</td>
<td>51.7 years</td>
</tr>
</tbody>
</table>
OUTCOME: 1.0
VIOLENCE AND ABUSE

SUMMARY

Violence is a major cause of mortality during adolescence and has differential effects on groups of adolescents, whether it is self-inflicted, unintentional or intentional. Unintentional injuries are the leading cause of mortality for adolescents 15-19 years of age, but the teenage homicide rate increased dramatically over the past decade. A CDC study from 1985 to 1991 showed that the annual rate of homicides for 15-19 year olds jumped 154 percent with 97 percent of those cases being attributable to the use of handguns. These high rates of lethal victimization from violence are most concentrated in extremely poor, overcrowded, urban communities. Despite their generally lower rates of violent crime as compared with older adolescents and young adults, there has also been a dramatic increase of violent deaths among youths 10 to 14 years of age.

Nonlethal assaults have also dramatically increased nationally and in California. Data from the National Crime Victimization Survey show dramatic increases in the numbers of violent crime, aggravated assault, robbery, and rape committed against adolescents. Rates for most of these crimes were the highest for ages 16-19, but again the disturbing trend of demonstrable increases occurs for the 10-14 year olds. Data from the National Uniform Crime Reporting Program also demonstrate that weapons were involved in many of the aggravated assaults, with increasing involvement of firearms. For both homicides and aggravated assaults, African Americans are at much greater risk when compared to whites or Latinos.

Suicide is another important cause of death for adolescents and one that has been increasing over the past decade for white males and black males alike. A variety of biological, psychological, and ecological models have been used to understand adolescent suicide behavior. The notion that the rates of suicide are based upon the degree of integration into the social institutions and regulations within this society still holds sway in our understanding of the phenomenon. It appears that a feeling of disconnectedness can lead to suicide. For every suicide that is completed, it is estimated that 8-25 suicides are attempted. Suicide is the third leading cause of death for adolescents and young adults.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Homicide (1996)</td>
<td>563; 12.78 per 100K</td>
<td>8.59 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.2 Assaults (1994)</td>
<td>57.9 per 100K (ages 13-15)</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.3 Suicide (1996)</td>
<td>175.8 per 100K (ages 16-20)</td>
<td>5.61 per 100K (ages 10-19)</td>
<td>8.2 per 100K (ages 15-19)</td>
</tr>
<tr>
<td></td>
<td>4.69 per 100K (ages 10-19)</td>
<td>10.8 per 100K (ages 15-19)</td>
<td></td>
</tr>
</tbody>
</table>

TRENDS

The rate of homicide in California is greater than that of the United States. However, after a 53 percent increase between 1989 and 1994, it has finally began to decline.

The assault rate (for all ages) in California is somewhat more stable, hovering near 597.8 per 100,000 people.

Sixty percent of all teenage suicides involve guns. Suicide among young people tripled in the last 30 years; this rise was due entirely to increases in the use of firearms. However, California experienced a 23 percent decline in the teen suicide rate between 1989 and 1994.
DETERMINANTS & RISK FACTORS

Homicide/Assault
- Race/ethnicity: African American, Hispanic populations are at higher risk of homicide and assault.
- Residence: Large urban areas: 92.6 percent of California's population, as opposed to 75.2 percent of the nation's population, lives in urban areas. 404
- People who live in poverty are at higher risk of experiencing homicide or assault.
- Neighborhoods with high unemployment are more likely to be violent environments. 7.8 percent of California's population is unemployed. 405 In the areas where the unemployed are unusually concentrated, there is a higher risk of violence. 406
- School failure: failure to graduate high school is correlated with perpetration of violence and homicide. 24.8 percent of the population over 25 years of age has not completed high school. 407 Fortunately, in California, the dropout rate is decreasing. Between the 1994-1995 and the 1995-1996 school year, the high school dropout rate decreased from 4.4 percent to 3.9 percent. This is much lower than the national rate of 5.3 percent in 1994-1995. 408
- According to the Department of Justice (DOJ), the nationwide growth in violent crime over the past decade can be closely tied to the development of gangs. The DOJ 1995 report emphasized that violent gang members threaten the safety and stability of neighborhoods and inflict fear and bodily harm on others. 409
- Victims of physical child abuse are 1.9 times as likely as their non-abused counterparts to be arrested for violent crime. One study found that by age 32, almost half of abuse victims had been arrested for a non-traffic offense. 410
- Neglected children are 1.6 times as likely to be arrested for a violent crime than are their non-neglected peers. 411
- Studies of homicidal youth indicate that mental illness may play a role in their violent tendencies. One study found that 96 percent of homicidal youths surveyed had a psychopathology as measured on the DSM-III-R scale.

Suicide
- Adolescents who commit suicide are typically depressed and 50 percent have made previous suicide attempts or threats. 412
- At the time of death, many suicides are under the influence of alcohol and other drugs. 413
- Adolescents who exhibit both antisocial behavior and depression have a particularly high-risk profile. 414
- Social isolation, parental absence, problems in school, and a history of parental abuse are all risk factors for teen suicide. 415

PREVENTION/POPULATION HEALTH PROMOTION
- Parent training interventions may decrease offense rates and time spent in institutional settings for chronic juvenile offenders, but are time-intensive and emotionally draining for the staff. 416
- Community-wide violence prevention projects engage the entire community in the fight against violence.
- Conflict resolution skills training allows teens to cope with their feelings without resorting to violence.
- Eliminating the availability of handguns makes homicide, suicide, and assault all more difficult to perpetrate.
MONITORING

- Better monitoring of the circumstances and characteristics of victims of homicide deaths, assaults, and suicides to provide information for prevention program planning.
- Availability and effectiveness of community programs to decrease violence should be monitored to measure their impact.
OUTCOME: 2.0
ACCIDENTS

SUMMARY
Motor vehicles and firearms are the leading causes of injury mortality among 15-19 year olds in the United States. Nationally, each category counts for approximately 40 percent of all injury-related deaths among teenagers. A careful analysis of motor vehicle fatalities indicates that 90 percent of the deaths are associated with the vehicle occupants (either passengers or drivers), while deaths of pedestrians, motorcyclists and bicyclists account for a much smaller proportion. While most firearm fatalities fall in the category of homicides or suicides, approximately 7 percent are considered unintentional.

For every motor vehicle fatality there are many more adolescents who are injured, some quite seriously. Adolescent injuries can result in long-term disability and dysfunction. The determinants of adolescent injuries are part of a larger set of behavioral issues that have been described as adolescent risk-taking behaviors. Numerous studies have documented the developmental trajectory of increasingly risky behaviors during adolescence. Such risk taking often results in the accidents and injuries noted here.

STATISTICAL PROFILE

<table>
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<tr>
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<th>California</th>
<th>U.S. Comparison</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>16.5 per 100K</td>
<td>22.8 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.2a</td>
<td>86.576, 1,803 per 100K (ages 15-24)</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.2b</td>
<td>515; 11.7 per 100K (ages 10-19)</td>
<td>17.1 per 100K (ages 10-19)</td>
<td>33 per 100K (ages 15-24)</td>
</tr>
<tr>
<td>2.3</td>
<td>521; 15.3 per 100K (ages 13-20)</td>
<td>15.34 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.4</td>
<td>656; 14.88 per 100K</td>
<td>11.86 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
National data indicate that motor vehicle mortality among teenagers has declined 15 percent over the past decade, and mortality from firearms for teenagers has more than doubled over the same period. The firearm-homicide rate tripled between 1980 to 1993 among 15-19 year olds (5 to 18 per 100,000). The leading cause of death among adolescents between 1980 and 1995 has been motor vehicle accidents, but the death rate has declined by one-third during this period.

DETERMINANTS & RISK FACTORS

Motor Vehicle Accidents
- Alcohol and drug use while driving greatly increases the odds for a motor vehicle accident. In California in 1995, 18 percent of 15-20 year olds involved in fatal collisions were intoxicated.
- Failure to wear protective gear such as seatbelts in a car and helmets while riding a bicycle or motorcycle, increases the likelihood and severity of injury from accidents.
- High speeds are correlated with increased numbers of accidents. Studies have shown that a 10-mile-per-hour increase in the speed limit increases the number and severity of automobile injuries and fatalities.
Pedestrian Injuries

- Poor traffic control and road safety increase the likelihood of traffic accidents.
- Low SES in urban environments translates into crowded living environments and busy streets. Adolescents in these neighborhoods are at increased risk for a pedestrian injury.

Firearm Injuries

- Alcohol and other drug use increase the likelihood that an individual will become violent with a weapon.
- Poverty is correlated with violence. Much of this violence is perpetrated with handguns.
- Access to handguns increases the likelihood of a firearm-related accident.

PREVENTION/POPULATION HEALTH PROMOTION

- Educational campaigns regarding risks of certain behaviors.
- Safer automobile design will inherently protect passengers from harm.
- Curricula on conflict resolution decrease the temptation to use firearms.
- Crisis intervention teaches coping and communication skills as alternatives to violence.

MONITORING

- Expand the CDC Youth Risk Behavior Surveillance System (YRBSS) and other tools for increasing knowledge and understanding of adolescent risk-taking behaviors.
- Access, availability and quality of risk-reducing programs in schools and communities.
OUTCOME: 3.0
TEEN PREGNANCY

SUMMARY
Each year, almost one million teenage girls—11 percent of all women aged 15 to 19 and 20 percent of those who have had sexual intercourse—become pregnant.\textsuperscript{455} Although 85 percent of these pregnancies are unintended,\textsuperscript{456} about 60 percent of these teen pregnancies end in childbirth.\textsuperscript{457} Thirteen percent of all U.S. births are to teens.\textsuperscript{458} In 1993, 72 percent of births to women under age 20 were nonmarital. Fifty-seven percent of births to Caucasian teens and 92 percent of births to African American teens were to unmarried parents.\textsuperscript{459} Although rates of teen pregnancy in California have declined in recent years, California teens continue to give birth at a much higher rate than the national average, ranking 43rd out of 50 evaluated states.\textsuperscript{460}

Teen childbearing was not considered a social problem until recently. Historically, people married at earlier ages, and adolescent pregnancy and childbirth occurred within the socially sanctioned confines of marriage. In past decades, however, the average age of marriage has increased,\textsuperscript{466} and the number of teens becoming pregnant and giving birth outside of marriage has also increased. Between 1960 and 1964, 59 percent of first births to adolescents between the ages of 15 and 17 were conceived normaritally, but 26 percent of these adolescents married during their pregnancy. Thus, in the early 1960s approximately one-third of births to adolescents occurred outside of marriage.\textsuperscript{462}

In recent years, the proportion of children conceived and born outside of marriage has dramatically increased. Between 1985 and 1989, 92 percent of first births to adolescents were conceived outside of marriage, and 81 percent of these teen mothers remained single at the time they gave birth.\textsuperscript{463} The rate of unmarried teens giving birth has more than doubled since the early 1960s, as approximately 7 in 10 childbearing adolescents are unmarried at the time that they give birth. Many of the children born to teens are fathered by an adult male. In 1988, 27 percent of adolescent mothers aged 15 to 17 had a partner who was at least five years older than they were.\textsuperscript{464}

While teenage childbearing is not itself a health outcome, it is a social outcome that is associated with poor health outcomes for both mother and child. Adolescent mothers are more likely to be unmarried, poor,\textsuperscript{465} and to be high school drop-outs\textsuperscript{466} than their older counterparts. In 1993, 3.8 million mothers aged 15-44 received Aid to Families with Dependent Children (AFDC); 55 percent of these women became mothers when they were teenagers.\textsuperscript{467} Twenty-eight percent of teen mothers live below the poverty level into their 20s and early 30s, compared to only 7 percent of women who first give birth after adolescence.\textsuperscript{468} One-third of pregnant teens receive inadequate prenatal care, and babies born to young mothers are more likely to be low birth weight, to have childhood health problems, and to be hospitalized than are those born to older mothers.\textsuperscript{469, 470, 471}

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6.1 Live Births (1996)</strong></td>
<td>63 per 1,000 (ages 15-19)\textsuperscript{472}</td>
<td>54 per 1,000 (ages 15-19)\textsuperscript{474}</td>
<td>50 per 1,000 (ages 15-17)\textsuperscript{476}</td>
</tr>
<tr>
<td></td>
<td>30 per 1000 females (ages less than 15)\textsuperscript{473}</td>
<td>475</td>
<td></td>
</tr>
<tr>
<td></td>
<td>125 per 1,000 females (ages 15-19)\textsuperscript{474}</td>
<td>97 per 1,000 females (ages 15-19)\textsuperscript{477}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>45 per 1,000 females (ages 15-19)\textsuperscript{479}</td>
<td>478</td>
<td></td>
</tr>
<tr>
<td><strong>6.2 Teen Pregnancy (1996)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.3 Teen Abortion (1996)</strong></td>
<td></td>
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</tbody>
</table>
TRENDS
Over the past five years, the rates of teenage pregnancy in the United States have remained relatively stable.461 While rates for very young teens (ages 10-14) have not changed, the rates among the oldest teens increased from 79.9 per 1,000 to 92.1 per 1,000 between 1988 and 1993.462 In California, the birth rate among older teens (ages 15-19) has declined from 69.9 to 64.4 per 1,000 between 1993 and 1995.463 California ranks first in the nation in teen pregnancy rates. Of these pregnancies, approximately 47 percent result in live births and 40 percent result in abortion.464

DETERMINANTS & RISK FACTORS
• Pubertal development and older age (within the range of adolescence) is associated with initiation of sexual activity.465
• Many other factors that include low intellectual ability, certain behavior patterns (e.g., lack of educational goals, low academic achievement, early sexual experience),466 and race467,468 are also associated with earlier sexual initiation.
• Factors that push toward independence and adulthood (e.g., smoking, drinking, and drug use) are also correlated with sexual activity at a young age.469
• Early sexual activity among adolescents creates the risk of pregnancy. Females who have first intercourse at age 15 or below have been found to be nearly twice as likely to get pregnant within the first one to six months of sexual intercourse as adolescents who wait to have sexual intercourse until they are 18 or 19.470 Older adolescents are more likely to use and are more competent in the usage of contraceptives.471
• Improper use of contraception during sexual intercourse greatly elevates the chance that a pregnancy will occur. One early study found that 25 percent of 15 to 19 year olds conceived within six months of initiating sexual activity if they had never used a contraceptive method, whereas only five percent of 15 to 19 year olds conceived within six months if they had always used some form of contraception.472
• Previous teen pregnancy increases the risk for another teen pregnancy. Data from the National Longitudinal Survey of Youth reveal that approximately one-quarter of teenage mothers have a second child within 24 months of their first birth. The prevalence of closely spaced second births is greatest (31 percent) among young women whose first birth occurred prior to age 17.473
• Sexual activity between adult men and adolescent women is associated with teen pregnancy.474

PREVENTION/POPULATION HEALTH PROMOTION
• Planned Parenthood and other free or low-cost family planning organizations provide a source of education, as well as anonymous and affordable counseling and contraception, to sexually active adolescents. Many adolescent females rely on these family planning clinics for their contraception needs.475
• Sex education in the schools does not appear to have an effect on teen initiation of sexual activity,476,477 but appears to increase use of birth control at first intercourse and to decrease self-reported pregnancy rates.478
• Condom distribution in the schools increases the access that adolescents have to contraception. Data from a telephone survey of key individuals at school condom programs across the United States suggest that as of January 1995, at least 431 public schools in 50 U.S. school district made condoms available (2.2 percent of all public high schools and 0.3 percent of high school districts).479
• Successful adolescent pregnancy prevention programs have been shown to increase contraceptive use by as much as 22 percentage points.500 Programs are more effective when they provide access to
contraceptive services and target adolescents who are younger and/or not yet sexually experienced. Programs that provide access to contraceptive services have been shown to decrease the proportion of adolescents who become pregnant.

- Every dollar spent on contraceptive services saves $3 in public funds that could have been used in prenatal and newborn medical supplies. 1.5 million pregnancies, including unwanted births, abortions and miscarriages, are averted in the United States every year by publicly supported contraceptive services.

**MONITORING**

- Better monitoring of teen pregnancy rates and of rates of resolutions to teen pregnancy (i.e., miscarriage, abortion, childbirth, adoption).
- Better monitoring to determine the impact of teenage childbearing on the future health outcomes and social opportunities (e.g., education, employment, and future childbearing) for teenage mothers, fathers, and their offspring.
- Monitoring of the effects of welfare reform and TANF (Temporary Assistance to Needy Families) on outcomes of teen pregnancy.
OUTCOME: 4.0
ACUTE/INFECTIOUS CONDITIONS

SUMMARY
Sexually transmitted diseases in adolescents are a marker not only of higher levels of sexual activity but also of the level of unprotected and unsafe sex. In the era of AIDS and teenage childbearing, measuring other sexually transmitted diseases provides an important indicator of the overall risks posed to this population. The two most frequently monitored sexually transmitted diseases are gonorrhea and syphilis. Gonorrhea is found at nearly a hundredfold greater prevalence rate than syphilis.

In 1995 nationally, there were 405 newly reported cases of AIDS in 13-19 year olds. In California, 5 out of every 100,000 adolescents have AIDS. While in California, only 21.3 percent of adolescent AIDS cases are found among black, non-Hispanic youths, nationally, 44 percent of adolescent AIDS cases were among black non-Hispanic youth. The majority of adolescent AIDS cases in California are split nearly evenly among the white and Hispanic population. Of infected females, 54 percent acquired the HIV infection through heterosexual contact, and 24 percent had sex partners who were injecting drug users, while 16 percent were injecting drugs themselves.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
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</thead>
<tbody>
<tr>
<td>3.0 Acute Conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 STDs (1995)</td>
<td>Chlamydia: 23,914; 1113.7 per 100K&lt;sup&gt;510&lt;/sup&gt;</td>
<td>Chlamydia: 1133 per 100K&lt;sup&gt;513&lt;/sup&gt;</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>Gonorrhea: 4,459; 208 per 100K&lt;sup&gt;511&lt;/sup&gt;</td>
<td>Gonorrhea: 57 per 100K&lt;sup&gt;513&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Syphilis: 26; 1.2 per 100K&lt;sup&gt;512&lt;/sup&gt; (ages 15-19) 1997</td>
<td>Syphilis: 6.4 per 100K&lt;sup&gt;514&lt;/sup&gt; (ages 15-19) 1996</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12: 0.27 per 100K (ages 10-19)&lt;sup&gt;515&lt;/sup&gt;</td>
<td>0.30 per 100K (ages 10-19)&lt;sup&gt;516&lt;/sup&gt;</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>3.2 AIDS deaths (1996)</td>
<td></td>
<td></td>
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</tbody>
</table>

TRENDS
The most common STD among adolescents in California changed greatly between 1990 and 1995. Rates of chlamydia (which disproportionately affects females) increased 25 percent, but rates of both gonorrhea and syphilis decreased dramatically. Between 1990 and 1995, gonorrhea declined 42 percent among adolescents and syphilis declined 93 percent.

While adolescents represent a small percentage of the overall number of individuals affected by the HIV virus, the number of adolescents contracting this disease has increased greatly over the past decade.

DETERMINANTS & RISK FACTORS

- Adolescents are at high risk for acquiring STDs for a number of reasons: they may be more likely to have multiple sexual partners rather than a single, long-term relationship, they may be more likely to engage in unprotected intercourse, and they may be more likely to select partners who are at higher risk. In addition, for some STDs (e.g., Chlamydia trachomatis), adolescent women may have a physiologically enhanced susceptibility to infection due to increased cervical ectopy and lack of immunity.
- Having multiple sexual partners increases the likelihood that an adolescent will contract an STD or AIDS.
- Drug and alcohol use: 11.5 percent of adolescents in California used an illicit substance in 1990, and 31.4 percent used alcohol in 1990.
ADOLESCENTS
(ages 10-19)

OUTCOME: 4.0
ACUTE/INFECTIOUS CONDITIONS

- Use and access to condoms: 54.4 percent of high school students used a condom during their last sexual encounter, leaving 45.6 percent who did not and were especially vulnerable to contracting an STD or AIDS.524
- Injection drug use525 increases the likelihood that an adolescent will be exposed to AIDS.

PREVENTION/POPULATION HEALTH PROMOTION
- Sex education/school-based health services increase adolescents' level of knowledge regarding STDs and AIDS.
- Distribution and access to condoms increase the ability to easily practice safe sex.
- Access to family planning services as well as sex education and school-based health services increases both teen knowledge level and access to protection.
- Access to a screening test permits adolescents to know whether they carry a disease and can prevent them from passing it along.
- Counseling and substance abuse treatment help adolescents break injection drug use habits, thus decreasing the odds that they will be exposed to AIDS by a dirty needle.

MONITORING
- Better monitoring of access and quality of prevention and treatment services available to adolescents.
OUTCOME: 5.0
DISABLING CHRONIC CONDITIONS

SUMMARY

Analysis of the National Health Interview Survey reveals that approximately 31.5 percent of adolescents in the United States have one or more chronic conditions. Respiratory allergies, asthma, and frequent or severe headaches were the most commonly reported conditions. On average, these conditions resulted in 3.4 bed days and 4.4 school absence days in a one-year period. Additionally, adolescents with chronic conditions experienced 35 percent more behavioral problems than did their healthier counterparts. A consistently larger percentage of male children than female children experience limitations in daily activity due to a chronic condition. Children living in impoverished families are also at increased risk.

Among those with any type of chronic conditions, a smaller proportion (7 percent) are afflicted with a chronic condition that causes some degree of limitation in their ability to conduct their normal activities. These disabling chronic conditions range from medical to mental health conditions.

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<tbody>
<tr>
<td>4.0 Disabling Chronic Conditions</td>
<td>7,000 per 100K[^31] are unable to perform or are limited in major activity</td>
<td>8,000 per 100K[^32, 53]</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS

Between 1990 and 1993, the percentage of children nationwide under age 18 who experience activity limitations from chronic conditions rose from 4.9[^34] percent to 6.6[^35] percent.

DETERMINANTS & RISK FACTORS

- New technologies allow most children with severe chronic illness to survive to young adulthood, albeit frequently with severe disability.
- Traumatic brain damage[^36] can cause serious developmental and physical delays in childhood, which carry into adolescence and throughout the life span.
- Adolescents with a low SES[^37, 58] have decreased access to medical care, and thus may suffer more severe consequences when they have a chronic disabling condition.

PREVENTION/POPULATION HEALTH PROMOTION

- Access to medical care improves the outcome for a child with a chronic condition and may help to prevent the child from being hospitalized for that condition.[^39]
- School health programs can help adolescents attain their full health potential by providing them with the skills, social support, and environmental reinforcement they need to adopt long-term healthy eating behaviors. Such healthy eating patterns promote optimal growth, prevent immediate health problems (e.g., anemia, obesity, eating disorders and dental caries) and may prevent long-term problems (e.g., heart disease, cancer and stroke).[^40]
- Special education programs in the school system[^41] allow disabled children to receive a quality education, increasing their prospects for an independent, productive life.
MONITORING

- Better monitoring through a chronic illness registry would enable certain types of chronic illnesses and their risk factors to be tracked.
OUTCOME: 6.0
MENTAL HEALTH

SUMMARY

Over 31,000 adolescents in California are receiving mental health services through their county mental health department.542 The vast majority (49.1 percent) of these patients are white.543 And yet, due to differential service utilization, this does not necessarily indicate that the prevalence of mental disorder is higher among whites, but merely indicates that whites are most able to access mental health care services through the state. The prevalence rate of mental disorders among children and youth is much higher than the service utilization rate.544 Significant lags in service are especially noticeable among youth 12-17 years of age, for those living in rural or semirural neighborhoods, and for those in middle-income families.545 Access to treatment may be difficult to obtain, and in addition, stigma against mental illness may keep families from seeking help for their troubled adolescents.546

Almost 8 percent of adolescents in California are currently attending special education programs in public school systems. As is true for younger children, the leading reasons for special education in the adolescent population include mild mental retardation, learning disabilities, ADHD, and other medical conditions. The number of adolescents with a need for special education services also provides an indicator for those youths who will potentially have some difficulty making the transition into the adult work force and independent living situations.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 Mental Well-Being (1992)</td>
<td>400 per 100K (ages 12-17) are mentally disabled</td>
<td>12,000 cases of mental disorder per 100K (ages 0-18)</td>
<td>10,000 cases of mental disorder per 100K (ages 0-18)</td>
</tr>
<tr>
<td>5.1 Special Education Enrollment (1998)</td>
<td>8,191 per 100K adolescents</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS

- Slight decrease over a two-year period in the number of adolescents receiving county mental health services.552 This may be due to less capacity and diminished need.
- Over 7 percent of adolescents in California are enrolled in special education programs, and the number is rising.553

DETERMINANTS & RISK FACTORS

- Child abuse/neglect increase the likelihood that a child will carry mental dysfunction into adolescence.
- Foster care placement554 not only is an indicator of abuse or neglect (traumatic in its own right), but also represents an uprooting and is doubly traumatizing for the child. Adolescents who have been in foster care may have a difficult time coping with both removal from their families and placement in a foreign environment, and they may rebel against "the system" in the belief that it is persecuting them.555
- Traumatic brain damage556 may damage the physical and or emotional development of the child, causing mental difficulties.
- Lack of prenatal care557 is associated with higher rates of child placement in special education.
PREVENTION/POPULATION HEALTH PROMOTION

- Group foster care homes generally serve children with greater emotional or behavioral needs who require a more restrictive environment. They vary from small, family-like homes to larger institutional facilities. Between 1982 and 1995, the proportion of foster care children placed into group care increased from 12 to 14 percent.\textsuperscript{558}
- School services (counseling, special education) can identify and treat mental illness in the adolescent before it becomes dangerous or disabling.
- Pharmacological treatment can address chemically based mental disorders.
- Counseling/therapy can address psychologically based mental disorders.
- Individualized education plans may be appropriate for mentally disabled adolescents.

MONITORING

- Trend in prevalence of mental disorder and levels of disability.
- Access, availability and quality of mental health prevention and treatment services for adolescents.
OUTCOME: 7.0
SUBSTANCE ABUSE

SUMMARY
Alcohol, tobacco, and illegal drug use in adolescence are health behaviors with significant detrimental outcomes, and are important risk factors for the adult consequences of these behaviors. While one might consider tobacco, alcohol, and drug use in adolescence as risk factors, we classify them as important health outcomes of adolescent development.

Tobacco
The long-term health and social consequences of tobacco use have been associated with lung cancer, coronary heart disease, chronic obstructive pulmonary disease, increased health care costs, and the risk of premature death.558 Most addictions to tobacco occur at an early age. Very few people start smoking as adults.562 Most adults currently addicted to nicotine first used it during adolescence. The earlier young adults begin using tobacco, the greater their chances are of being adult users.563 Early addiction can lead to retardation of lung growth and limit maximum lung function.562 It is estimated that approximately 5 million of today's underage smokers will die of smoking-related diseases. This means that of every three teenagers who begin smoking, one will die.563

Alcohol
As opposed to cigarettes, where the impact may not be felt for years, alcohol consumption has immediate, detrimental effects. The negative consequences of heavy alcohol consumption at a young age include motor vehicle accidents, adult substance abuse, and problems with fighting, school and crime.564,565 Alcohol is the most commonly abused psychoactive substance despite its illegal status for adolescents.566 The steady decline in the average age of first alcoholic drinking implies that the age adolescents are first reporting drinking problems is getting younger.567 A considerable public health risk is the combination of drinking and driving. Over 40 percent of all 16-20 year olds who died in 1994 were killed in car crashes. Approximately half of those were alcohol-related.566 Parental alcoholism has been directly linked to offspring alcohol abuse ("it runs in the family").568,570

Illicit Drugs
Adolescence is a time when greater pressure to experiment with illicit drugs is felt by peers. Illicit drug use among 12th graders has risen 26 percent between 1992 and 1997, following a steady decline that began in 1980.561 Common drugs used by adolescents include marijuana, cocaine, heroin, steroids and various inhalants and hallucinogens.571 More than half of the adolescents surveyed in the Substance Abuse and Mental Health Administration's 1997 National Household Survey on drug abuse stated that marijuana was easy to obtain, while one-fifth stated that heroin was easy to obtain.572 Approximately 15 percent of students questioned in this study reported being approached by drug dealers in the month prior to the survey. The National Longitudinal Alcohol Epidemiological Survey (NLAES) has reported that 20 percent of all persons who have tried drugs will develop a drug abuse problem and 19 percent will develop drug dependence.574 The earlier drug use begins, the greater the risk of future drug abuse.575

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0 Substance Abuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1 Regular Cigarette Smoking</td>
<td>8.4 per 100 9th graders smoked daily (1995-96)574</td>
<td>9 per 100 8th graders smoked daily (1997)577</td>
<td>6 per 100 adolescents (ages 12-17)578</td>
</tr>
<tr>
<td>7.2 Alcohol Use</td>
<td>47.7 per 100 11th graders consumed alcohol in the previous 30 days (1995-96)579</td>
<td>52.7 per 100 12th graders consumed alcohol in the previous 30 days (1997)580</td>
<td>12.6 per 100 adolescents (ages 12-17)581</td>
</tr>
<tr>
<td>7.3 Illicit Drug Use</td>
<td>30.8 per 100 11th graders used illicit drugs in the previous 30 days (1995-96)582</td>
<td>26.2 per 100 12th graders used illicit drugs in the previous 30 days (1997)583</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>
TRENDS
- The percentages of 8th, 10th and 12th graders who reported smoking regularly have increased between 1992 and 1997 among all sociodemographic groups (gender, college bound and those not, race, socioeconomic status). In 1991, 12.6 percent of 10th graders reported smoking cigarettes daily compared to 18 percent in 1997. Heavy drinking among high school students peaked in 1981 and experienced a steady decline until 1993. It has risen 31 percent since then.
- Increasing trends in illicit drug use can be attributed to an increase in the use of marijuana. Marijuana use increased from 7.1 percent in 1996 to 9.4 percent in 1997 among adolescents. More than half of the adolescents surveyed in the 1997 National Household Survey on drug abuse reported that marijuana was relatively easy to obtain.
- Rates of drinking and driving have declined since the 1980s to the early 1990s; however, these declines have slowed down since then.

DETERMINANTS AND RISK FACTORS
- Boys are more likely to be heavy drinkers or use illicit drugs than girls are, while girls are just as likely to be regular smokers as boys are.
- Adolescents who have low levels of school achievement, are more easily persuaded by peer pressure, have more friends who use tobacco, and have lower self-images of themselves are more likely to use tobacco than their peers.
- Glamorous cigarette advertisements distort young people’s perceptions of smoking by making it seem more widespread than it actually is and socially acceptable.
- Lower socioeconomic status, single-parent homes, and peer influence encourage the onset of smoking.
- Risk factors related to drug use include parental rejection, family dysfunction, divorce, and under/over-controlling parents.
- SADD, MADD and other school- and community-based initiatives have reduced rates of driving under the influence. However, 32.8 percent of California high school students in 1995-1996 admitted to riding in a vehicle with someone who had been drinking.

PREVENTION/POPULATION HEALTH PROMOTION
- Age-appropriate, school-based intervention programs and mass media campaigns targeting youth may educate adolescents of the potential dangers and effects of substance abuse and may reduce first-time usage. Skills to resist peer pressure and social influences should be taught to children in school drug/alcohol prevention programs and also by parents.
- Enforce laws and policies that prohibit sales and access of illegal substances to minors.
- Increases in taxes on tobacco and alcohol will make them less available to adolescents, who are as sensitive as adults to price changes.
- Recruiting and retaining adolescent addicted smokers, drug addicts and alcoholics in cessation programs.
- Project ALERT is a substance abuse prevention curriculum developed by RAND and endorsed by the National Middle School Association (NMSA). Its primary goal focuses on preventing nonusing teenagers from ever starting or experimenting with tobacco, drugs and alcohol.
MONITORING

- Improve monitoring of substance abuse initiation and duration.
- Improve monitoring of availability, exposure and impact of school-based intervention programs.
- Monitor enforcement of laws prohibiting sales.
ADULTS
(ages 20-64)

INTRODUCTION: ADULT OUTCOMES

With passage into the adult years, responsibility for health status shifts from parents and caregivers to individuals. It is at this point that they begin to independently evaluate the impact of social influences and personal choices in their life. Both risky and protective behaviors contribute significantly to health outcomes. Norms and values acquired during childhood and adolescence play an important role in guiding these behaviors, as does the change in daily environment from schoolhouse to workplace. Moreover, as many adults become parents, their adult health status, health behaviors and parenting influence the health of their offspring.

Adult health outcomes can be very different depending on age. During the young adult years, rates of trauma and mortality due to accidents and violence are higher than they are in later years, while chronic conditions among young adults (20-25) are much less prevalent than in the age group between 50 and 65. These differences are important to note in considering all adult health status and interventions at the community level intended to improve health outcomes among adults.

Specific adult health outcomes in the domains of violence, accidents, infectious illnesses, chronic conditions and mental health are described in the following pages. Summary health outcomes for adults are shown below:

<table>
<thead>
<tr>
<th>Perceived health status</th>
<th>90,000 per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>good - excellent (1993)</td>
<td></td>
</tr>
<tr>
<td>All-cause mortality rate (1994)</td>
<td>309.4 per 100,000</td>
</tr>
<tr>
<td>Life expectancy at age 45</td>
<td>35 years</td>
</tr>
<tr>
<td>Healthy life remaining</td>
<td>26.8 years</td>
</tr>
<tr>
<td>Difference between years of life remaining and years of healthy life remaining</td>
<td>8.2 years</td>
</tr>
</tbody>
</table>

59
OUTCOME: 1.0
VIOLENCE AND ABUSE

SUMMARY
Violence in our society and the intense publicizing of particularly horrifying and random murders have had enormous impacts on every type of community in California. Fear of crime, costs of law enforcement and incarceration, and a myriad of other economic, social and human-capital costs affect individuals and communities throughout the state. In 1996, the violent crime rate in California was 852.7 crimes per 100,000 persons, seventh highest among the 50 states.597 Violent crimes include murder, robbery, aggravated assault and forcible rape. Detailed data on crime rates by age group are not available for California, but deaths due to violence and abuse can be examined by age using mortality data. In 1994, 2,826 Californians, aged 20-64, died in homicides, a 28 percent increase since 1984. However, 1994 did mark a decline in this death rate compared with 1993. The rate of homicide among adults was 1.2 per 100,000, higher than that of the United States as a whole and almost twice the Healthy People 2000 national goal for the population as a whole. Sixty-one percent of homicide victims are killed with a firearm, mostly handguns.598 Over half are killed by a family member or acquaintance of the victim. In the majority of family member cases, the victim was a spouse or ex-spouse.599 Domestic violence incidents are an important indicator of violence patterns as well as an antecedent to homicide perpetrated by family members. Much domestic violence goes unreported, but recent mandates for police to record calls for assistance in domestic violence incidents shed some light on the level of this problem in California. In 1994, police reported over 240,000 calls for domestic violence assistance.600

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Injuries and Deaths from Violence and Abuse</td>
<td>2.09% 11.2 per 100K601</td>
<td>9.95 per 100K602</td>
<td>7.2 per 100K all ages603</td>
</tr>
<tr>
<td>1.1 Homicides and Deaths from Violence and Abuse (1996)</td>
<td>862.7 per 100K504</td>
<td>634.1 per 100K605</td>
<td></td>
</tr>
</tbody>
</table>

TRENDS
Nationwide, overall rates of violent crimes as reported by the FBI Uniform Crime Reports have shown recent declines. However, California is still ranked seventh. The rate of violent offending overall declined 3 percent between 1993 and 1994. This decline comes after a period of staggering increases in violent crime (117 percent between 1983 and 1991) and occurs in the face of continuing increases in violence among youth. In California the 1994 homicide rate among adults declined from the peak reached in 1993.606 In California from 1985-1994, white homicide victims decreased 27.9 percent, Hispanic victims increased 17.5 percent and African American victims increased 22.6 percent.607 The California Crime Index rate (which includes offenses of homicide, forcible rape, burglary, aggravated assault, robbery, and motor vehicle theft) decreased 13 percent between 1997 and 1998. It has decreased 42 percent since 1980.608

DETERMINANTS & RISK FACTORS

Substance Abuse
Repeated studies have found that homicide offenders report the use of alcohol and other drugs prior to and at the time of their offenses. Alcohol is the drug most frequently implicated. Over 30 percent of offenders report the homicide they committed was related to their drug use.609

Other studies have found high rates of drug use among homicide victims at the time of death and among assault victims who were hospitalized from their injuries.610
OUTCOME: 1.0
VIOLENCE AND ABUSE

Gangs
Gang violence has increased as a cause of homicides in California cities. In 1994, 43 percent of homicides in Los Angeles were gang-related.611

Age
Homicides occur disproportionately among young adults.612

Race/Ethnicity
Homicide is the third leading cause of death among young (under age 35) white males and the fourth leading cause of death among white females; among young African-American males and females, homicide is the leading cause of death.613,614

Socioeconomic status
Differences in rates of homicide for African Americans and whites can be accounted for by differences in socioeconomic status between the populations.615,616,617,618

Firearms
Nationwide, over 60 percent of homicides are committed with a firearm.619 Domestic assault incidents involving guns are 12 times more likely to result in deaths than non-gun-related incidents.620

Community
Population density, location, economic viability, residential mobility, sense of security and social disorganization have all been associated with differences in levels of violence.621

PREVENTION/POPULATION HEALTH PROMOTION
Research findings indicate that early interventions through school health programs, community support systems and parental supervision and interaction can reduce the incidence of violence among high-risk populations before they reach adulthood.622,623

Reduced access to firearms and modified lethality of firearms through design changes can also prevent homicides and other violent crime.624,625

Programs for primary prevention of violence among intimates have been shown to reduce violence.626

Referrals to substance abuse treatment by emergency room personnel and law enforcement can encourage entry to treatment among substance abusers.627

MONITORING
Routine statistical data collections, e.g., death records, arrest records, hospital records and victimization surveys, identify the incidence of homicide and other violence-related injuries.

Recently, reporting on domestic violence has begun to improve, with mandated reporting of calls to police for domestic violence.

Typically, the association of violent crime with substance abuse and spousal abuse is not recorded in law enforcement or medical records. If police and emergency departments systematically screened victims and arrestees, much better information would be available for estimating the costs associated with these problems, developing protocols to refer victims and perpetrators to treatment programs, and for planning appropriate community level interventions to prevent violence and abuse incidents and injuries.628,629
OUTCOME: 2.0
ACCIDENTS

SUMMARY
Deaths and injuries due to accidents are an especially important component of community health because of the large economic consequences in medical costs and lost productivity, and the extent to which injuries can be prevented by communitywide programs aimed at education, policy and environmental change, and access to medical care. Deaths due to unintentional injury are the leading cause of years of preventable life lost in the U.S. population under age 65. Injury prevention has been made a high priority of the Centers for Disease Control and Prevention and state and local health agencies. According to the California Department of Health Services, 5,895 Californians between the ages of 21 and 60 died from accidental injuries in 1991, a rate of 30.5 per 100,000. Injuries cause one in four Californians to require some type of medical care. Motor vehicle accidents, poisonings, drownings and falls account for most adult injury deaths. Young adults are less at risk of death from unintentional injuries (33.5 per 100,000), while for older adults (35+) the rate is 39.9 per 100,000. Another 110,619 Californians between ages 21 and 60, a rate of 650 per 100,000, sustained non-fatal accidental injuries in the same year. California’s size, climate, geography, workplace and life-styles, in addition to individual level behaviors, all contribute to its high rate of deaths from accidents. Yet Californians are slightly less likely to die from unintentional injuries than are other Americans. For its adult population, California is still slightly above the national objective of 29.3 per 100,000 total population set by Healthy People 2000.

STATISTICAL PROFILE

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>2.1 Deaths due to Unintentional Injuries (1996)</td>
<td>6,066; 32.5 per 100K adults</td>
<td>32.8 per 100K total population</td>
<td>29.3 per 100K total population</td>
</tr>
<tr>
<td>2.2 Deaths due to Motor Vehicle Traffic Accidents (1996)</td>
<td>2,759; 14.8 per 100K; 2.0 per 100,000 miles driven</td>
<td>17.72 per 100K</td>
<td>14.2 per 100K total population</td>
</tr>
<tr>
<td>2.3 Deaths due to Workplace Injuries</td>
<td>614 deaths; 4.9 per 100K employed (1995)</td>
<td>2.1 per 100K employed (1996)</td>
<td>4 per 100K workers</td>
</tr>
<tr>
<td>2.4 Accidental Injuries (1991)</td>
<td>110,619 injuries; 649.9 per 100K (ages 21-60)</td>
<td>No comparable U.S. data for this age group</td>
<td>754 hospitalizations per 100K total population</td>
</tr>
<tr>
<td>2.5 Workplace Injuries (1996)</td>
<td>7.4 injuries per 100 full-time private industry workers</td>
<td>7.1 per 100 full-time private industry workers</td>
<td></td>
</tr>
</tbody>
</table>

TRENDS
Overall, unintentional injuries and deaths due to unintentional injuries have been declining. For example, the rate of death from motor vehicle accidents has declined by 23 percent in California during the past five years among both young and older adults. Nonfatal workplace injuries have been increasing in recent years, which may be partly a function of improved reporting and partly due to increased job specialization resulting in higher numbers of repetitive stress injuries. Approximately half of workplace injuries and illnesses involve lost work days.

DETERMINANTS & RISK FACTORS

Substance abuse
The public health hazard of drunken and drugged driving is well known. Alcohol is a major contributor to motor vehicle and other accidents. Intoxication rates in fatal crashes were highest for persons aged 21-24 years. Californians report higher rates of excessive drinking, 17.3 percent, than residents of most states.
ADULTS
(ages 20-64)

OUTCOME: 2.0
ACCIDENTS

The prevalence of use of marijuana and other illicit drugs is also higher in California than in the nation as a whole. Safety devices
California has one of the best records in use of some safety devices. For example, 87 percent of Californians use seat belts, according to the findings of the 1990 Behavioral Risk Factor Surveillance Survey. This rate exceeds the HP 2000 goal of 85 percent.

Age
Young adults are more likely to be killed in motor vehicle accidents than older adults. Intoxication rates in fatal crashes are highest for young adults. Occupational injuries to young adults, especially those related to violence, are increasing.

Access to medical care
Twenty-five percent of California’s adult population does not have health insurance. Time from accident to emergency medical care affects severity of injury and mortality due to injury.

PREVENTION/POPULATION HEALTH PROMOTION

Substance abuse
National campaigns, such as National Drunk and Drugged Driving Prevention Month, have contributed to reducing impaired driving behaviors. Such communitywide education campaigns, in combination with law enforcement and the referral to treatment of chronic offenders, can be part of comprehensive community-based interventions to prevent accidental injuries. Strict enforcement of DUI laws also keeps intoxication while driving levels below those of other states.

Safety Devices
Introduction of seat belts contributed dramatically to declines in deaths and injuries from automobile accidents. After the mandatory helmet law was introduced in California, use of motorcycle helmets increased from one third to 85 percent of riders involved in injury accidents with corresponding reductions in rates of head injuries. Similar mandates could be issued for use of helmets by bicycle riders, whose accidents are also likely to result in head injuries.

Prevention Programs
Public education and awareness campaigns to demonstrate the hazards of certain activities have been successful in reducing rates over time. These campaigns must be sustained to maintain rates at the present level, given anticipated population gains.

Workplace Programs
Safety and health programs are among the state-level tools that can be used to promote employee safety. Increasing such plans at the small-employer level would extend the reach of these programs.

MONITORING
A number of surveillance systems are in place to track injuries in a variety of circumstances (motor vehicle accident injuries, occupational injuries, consumer product injuries). With the exception of motor vehicle accident reporting, little information is gathered about the key risk factors of environment, substance abuse or safety device utilization and their relationship with injuries and fatalities.
OUTCOME: 3.0
ACUTE/INFECTIOUS CONDITIONS

SUMMARY
AIDS and sexually transmitted diseases (STDs) were selected by the study's consensus process, described in Chapter 2, as important components of adult health in California. As infectious diseases, they have tremendous impacts on the health of communities, through both transmission rates and the disabling and chronic health problems associated with untreated STDs and HIV disease. In addition, the high mortality rate from AIDS (62 percent of cumulative reported cases in California) resulted in AIDS being the leading cause of death in 1992 among white, African American, and Latino men aged 25 to 44. Among women in the same age group, AIDS was the third, fifth and eighth leading cause of death among African Americans, Latinos and whites, respectively. In June 1993, the 50,000th case of AIDS in California was reported. This was 12 years after the first case of AIDS had been recognized in the state. Four years later, the 100,000th case of AIDS was reported.

Controlling and preventing the transmission of STDs and HIV in the population is of intense concern to public health practitioners and community health advocates. Modifying risk behaviors and environments that foster these behaviors is key to prevention, according to the Centers for Disease Control and Prevention. The AIDS Community Demonstration Projects (ACDPS) under way in five U.S. cities are examples of community-level HIV prevention programs based on behavioral change models. These and other prevention programs for HIV and STDs target high-risk groups.

The California Office of AIDS surveillance program reported that between 130,000 and 175,000 Californians (one in every 180 to 250 persons) are HIV-infected. Cases of AIDS diagnosed among Californians ages 13 and older numbered 93,240 through June 1996. Cumulative deaths from AIDS among Californians numbered 49,846 through December 1996.

Incidence rates of AIDS and STDs range considerably throughout the state. For example, the Department of Health Services reported rates of AIDS ranging from 7.0 in Ventura County to 227.4 per 100,000 population in San Francisco in 1993. Incidence of syphilis ranged from 2.8 in Santa Clara to 34.7 per 100,000 in San Francisco in 1993. This variation among counties is also reflected in conformance within the state to Healthy People 2000 national objectives. For syphilis, 22 counties among California’s 58 met the national objective of 10 cases per 100,000 population.

STATISTICAL PROFILE

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<th>California</th>
<th>U.S. Comparison</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3.1 HIV annual incidence estimate (1996)</td>
<td>8000 new infections/year statewide</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>males: 5,001 (ages 13+); 38.8 per 100K</td>
<td>males: 34.1 per 100K</td>
<td>43 per 100K total population</td>
</tr>
<tr>
<td></td>
<td>females: 633 (ages 13+); 4.9 per 100K</td>
<td>females: 9.6 per 100K</td>
<td>400 per 100K total population</td>
</tr>
<tr>
<td>3.2 AIDS cases reported (1998)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Cumulative AIDS cases reported (1998)</td>
<td>109,548 (ages 13+)</td>
<td>656,861 (ages 13+)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>3.4 Deaths from AIDS, 1996</td>
<td>4,078 persons ages 13+; 21.9 per 100K</td>
<td>16.5 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>3.5 Cumulative deaths from AIDS from 1979-1996</td>
<td>49,846 total deaths (all ages)</td>
<td>283,556 total deaths (all ages)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>syphilis: 386; 1.2 per 100K (all ages)</td>
<td>syphilis: 46,537 per 100K (all ages)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>chlamydia: 68,647; 215 per 100K (all ages)</td>
<td>chlamydia: 526,653; 207 per 100K (all ages)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td></td>
<td>gonorrhea: 17,941; 56.3 per 100K (all ages)</td>
<td>gonorrhea: 324,901; 123 per 100K (all ages)</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>3.6 STD cases reported, 1997</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TRENDS

The number of new AIDS cases increased faster among women than men (225 versus 66 percent) between 1989 and 1993. Larger increases were also evident for African Americans and Latinos compared with whites.

Among all race/ethnicity groups, new AIDS cases increased fastest among heterosexuals and injection drug users. Heterosexual transmission, largely through injecting drug use and sex with an injecting drug user, has become a growing risk factor for AIDS. Twenty percent of new AIDS cases reported in California in 1994 were attributed to injection drug use, compared to 15 percent in 1990.

Of great concern, especially because of ill health consequences for children, is the increase in the rates of HIV infection among women of childbearing age. This increase is also attributed to injection drug use by women or their sex partners.

Incidence of STDs increased between 1984 and 1987 but had fallen again by 1992. Its temporary increase has also been attributed to drug use, especially to crack cocaine use, which swept California and the nation during the mid-1980s.

DETERMINANTS & RISK FACTORS

Exposure
Men having sex with men has long been the primary mode of HIV exposure among reported AIDS cases (75 percent of adult AIDS cases reported through 1993). 682

Substance Abuse
Injecting drug users are at high risk for contracting HIV through needle sharing and the exchange of sex for drugs, but also for transmitting HIV to their sex partners and unborn children.

Drug and alcohol use have also been linked with STDs.

Race/Ethnicity
HIV incidence rates in 1993 were higher among African Americans (116 per 100,000) compared with whites (43 per 100,000), Latinos (31 per 100,000) and other race/ethnic groups.

Income and Access to Care
Lack of access to medical care will play an increasing role in the spread of AIDS as improved treatments, which are extremely expensive, become available. In California, according to 1994 National Health Interview Survey data, 27 percent of adults have no health insurance and 47 percent of adults with incomes below poverty level are uninsured.

PREVENTION/POPULATION HEALTH PROMOTION

Multiple studies have found reduced risk behaviors for AIDS and STDs among HIV positive drug users attending substance abuse treatment. Increasing incentives can increase the numbers in treatment. Yet, beginning in January 1997, a large incentive to obtain treatment has been removed. With the elimination of eligibility for drug addicts to receive federal SSI benefits, a considerable number of addicts, a population at high risk for HIV infection, not only no longer have SSI for income support, but an incentive for them to attend treatment, a requirement for receiving SSI in the past, no longer exists.
MONITORING

STDs and AIDS monitoring is accomplished through mandatory infectious disease reporting by health providers. For AIDS but not STDs, exposure source is included in the reporting system.

HIV infection incidence is critical to track for prevention purposes but is not part of a statewide reporting system in California as it is in some other states. However, the Office of AIDS has conducted systematic studies in high-risk populations, e.g., persons attending substance abuse treatment centers, to gauge the range of HIV seroprevalence among certain populations.

Confidentiality concerns have been a part of controversies over reporting of HIV and AIDS cases.

Monitoring of risk factors such as risky sexual behaviors and drug and alcohol abuse have been less systematic due to the costs and controversies associated with collecting sensitive behavior information.
OUTCOME: 4.0
DISABLING CHRONIC CONDITIONS

SUMMARY
Disabling chronic conditions, in addition to causing premature mortality among adults,\(^\text{66}\) have an enormous effect on the productivity and social functioning of the adult population. In the adult population, behaviors, life styles and workplace and social environments can function as both risk and protective factors against the incidence of these conditions. In California, 14 percent of the population of 20-64 year olds report that they have a disability due to chronic condition. Most common in this population, especially those over 40, are highly fatal coronary heart disease and cancer. Less common, in part because of incomplete reporting, is alcohol- and drug-related mortality. Though not measured, nonlethal long term disability due to substance abuse is much more widespread. Until 1997 alcohol and drug addiction were a category of disability for SSI income support.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
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</thead>
<tbody>
<tr>
<td>4.0 Disabling Chronic Conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Chronic Liver Disease &amp; Cirrhosis Deaths (1996) ICD 571</td>
<td>14,000 per 100K(^\text{65})</td>
<td>15,000 per 100K(^\text{66})</td>
<td>N.A.</td>
</tr>
<tr>
<td></td>
<td>1,106; 5.9 per 100K(^\text{67})</td>
<td>3.8 per 100K(^\text{68})</td>
<td></td>
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<tr>
<td></td>
<td>10,622; 57.3 per 100K(^\text{69})</td>
<td>77.1 per 100K(^\text{70})</td>
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<tr>
<td></td>
<td>175.5 per 100K</td>
<td>95.18 per 100K</td>
<td></td>
</tr>
<tr>
<td>4.2 Heart Disease Deaths (1996) &amp; Heart Disease Deaths (1994) (ages 55-64) ICD 390-398, 402, 404-429</td>
<td>87.9 per 100K adults (1993)(^\text{71})</td>
<td>114.0 per 100K adults (1995)(^\text{72})</td>
<td>N.A.</td>
</tr>
<tr>
<td></td>
<td>15,036; 80.9 per 100K(^\text{63})</td>
<td>99.5 per 100K(^\text{73})</td>
<td></td>
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<tr>
<td>4.3 Prevalence of High Blood Pressure</td>
<td></td>
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<tr>
<td>4.4 Cancer Deaths (1996) ICD 140-208</td>
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</table>

TRENDS
While heart attack remains the largest killer of American males and females, rates of death from heart disease have been rapidly declining over the past three decades. Heart attack deaths declined by 29 percent nationwide between 1983 and 1993.\(^\text{69}\) In California, similar declines have occurred.\(^\text{69}\) Moreover, the death rate has declined for males and females and across race and ethnic groups. Much of this decline has been attributed to the identification of risk factors and changes in behaviors related to smoking, exercise, and diet.

Declines have also occurred for cancer. For alcohol- and drug-related mortality the trends are less downward pronounced. While several studies have found declining rates of chronic liver disease nationwide, the rate of decline has been less for those conditions specifically linked to alcohol (13.9 percent decrease between 1979 and 1989 compared to 21.7 percent decline for total chronic liver disease).\(^\text{67}\)

DETERMINANTS & RISK FACTORS

Smoking
Smoking is a major risk factor for heart disease and cancer. Eighteen percent of adult Californians are current smokers compared with 22 percent nationwide, according to the 1994 Behavioral Risk Factor Surveillance Survey (BRFSS). Lung cancer is the most prevalent cancer in the U.S.

Weight
Twenty-five percent of adults in California are overweight, as calculated by the Body Mass Index approach. Obesity and poor diet contribute to high blood pressure and high cholesterol, major causes of heart disease.
RACE/ETHNICITY

African Americans have disproportionately higher rates of death and disability from the above conditions. For example, overall the death rate from hypertension was 4.6 per 100K California adults in 1994. For African Americans the rate was 18.80 per 100K.\textsuperscript{698}

Lack of Exercise

Sedentary life styles contribute to risks for heart disease. In 1994, 22 percent of California's adults reported in the BRFSS that they do not participate in physical activity in their leisure time (United States, 29 percent). Fifty-four percent indicated that they have a sedentary lifestyle (less than 20 minutes of exercise, three times a week during past month).

Substance Abuse

Substance abuse contributes not only to conditions like liver cirrhosis, but also to rates of cancer and heart disease, though this relationship is seldom captured in mortality and morbidity statistics.\textsuperscript{699, 700}

PREVENTION/POPULATION HEALTH PROMOTION

Physical Activity.

According to the BRFSS only 22 percent of Californians engage in regular and sustained physical activity (30+ minutes per session, five or more times/week). The median among the states was 20 percent.

One study of the relationship between physical fitness and mortality noted the important role that workplace and medical care providers can play in encouraging physical activity programs among workers and patients.\textsuperscript{701}

Diet

Diet and weight control (also related to physical activity) are also important in the prevention of heart disease. In California in 1994, the BRFSS found that 29 percent of adults consume five or more fruits and vegetables per day, the consumption level recommended by Dietary Guidelines for Americans.\textsuperscript{702}

Many community interventions such as labeling of food and changes in restaurant menus can increase the public's level of education about nutrition and choices among foods.

Assisting the Disabled

Assistance with meeting daily living needs can play a large role in supporting those with disabilities. The rate of unmet needs of this population in California are not well known, though domains of need include help with housekeeping, meals preparation, transportation and financial assistance. A recent study of daily living needs of outpatient cancer patients showed that 90 percent need some type of assistance and 26 percent indicated that their needs were unmet.\textsuperscript{703}

MONITORING

- Better behavioral risk factor identification for other chronic diseases could produce risk education strategies like those that have been very effective in reducing the incidence of heart disease.
OUTCOME: 5.0
MENTAL HEALTH

SUMMARY
The mental health of California’s adult population was selected as an important component of community health. This is a particularly important domain because of the relationship of mental health problems to work loss and reduced income; the high costs associated with mental health treatment; higher medical care costs among those with untreated mental illness; and the impact on parenting capacity. Rates of mental illness and emotional disorders in the population are difficult to determine. While the 1989 National Health Interview Survey and the recently completed National Co-Morbidity Survey determined rates of specific mental disorders in the United States population, rates for California cannot be estimated from these data bases. A 1992 telephone survey of 9,000 Californians provides rates of mental illness for Californians. Because of differences in definitions across epidemiological databases on mental health, comparisons between California and the United States are inexact.

Deaths from suicide is one indicator of mental and emotional distress and illness in the population that is consistently monitored. Though the true rate of death from this cause is likely underreported in mortality statistics, data are available for comparison over time and between California and the U.S. and other states. In 1994, 2,750 adult Californians died in suicides. Countless others were involved in attempts to take their own lives. The California rate of approximately 15 suicide deaths per 100,000 adults is fairly consistent throughout the adult years, while nationwide the rate in 1994 was higher at 16.4 among 20-24 year olds and lower through the 55-64 year old age group, for whom the rate was 13.4.

STATISTICAL PROFILE

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<th>California</th>
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<tbody>
<tr>
<td>5.0 Mental Health</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 5.1 Mental Disorder | 11,400 per 100K prevalence of mental disorder (1992)
2,500; 13.5 per 100K adults | 12,600 per 100K prevalence of mental disorders (1994)
14.8 per 100K adults
No comparable U.S. data for this age group | Less than 10,700 per 100K prevalence of mental disorder
10.5 per 100K total population
No goal specified for this age group |
| 5.2 Suicides (1996) | 1,600 per 100K
1200 per 100K (ages 25-44) are mentally disabled | | No goal specified for this age group |
| 5.3 Depression | | | |
| 5.4 Serious Mental Illness (SMI) | | | |

TRENDS
In California the death rate from suicide has decreased slightly since 1984 from 18.20 to 13.5 in 1996 per 100,000 adults. The possible exception is for young adults ages 20-24, for whom the rate fell 25 percent between 1984 and 1991 but increased between 1991 and 1994 from 12.37 to 15.38. Nationally, adult deaths from suicide have not shown declines, and for young adults the rate has increased slightly between 1984 and 1994.

DETERMINANTS & RISK FACTORS

Race/Ethnicity
Suicide is higher among whites than among African Americans and other race/ethnicity groups in California. However, higher rates of depression and other mental disorders are found among minority populations.
Poverty

Significant mental health risks are associated with poverty.\textsuperscript{715, 716} Nationwide, rates among those below poverty level are more than twice those at or above poverty.\textsuperscript{717}

Gender

Major depression rates are approximately twice as high for women compared with men.\textsuperscript{718} But rates for men and women vary by marital status,\textsuperscript{719} household composition and other factors.\textsuperscript{720}

Access to Care

Only one in six adults with serious mental illness obtains needed care.\textsuperscript{721} Perceived barriers to care are highest among the poor, for whom need for treatment is greatest.\textsuperscript{722}

PREVENTION/POPULATION HEALTH PROMOTION

Income Support

Mental disability qualifies from federal income support benefits. Yet, only about 10 percent of Californians with mental disabilities are receiving disability payments.\textsuperscript{723} Programs designed to assist applicants to qualify could increase income support. Recent federal reforms of SSI have eliminated legal aliens, a large population subgroup in California, from eligibility for SSI benefits.

Education and Awareness

Programs such as the NIH Depression Awareness, Recognition and Treatment are designed to increase assessment and diagnosis of untreated depression. Programs that target high-risk groups are especially warranted.

Reducing Cost of Care

Subsidized treatment and inclusion of mental health care in insurance benefits would help to reduce the cost of care, the largest perceived barrier to obtaining care reported by Californians.\textsuperscript{724} Twenty-five percent of California's 20-64 year old's are uninsured.\textsuperscript{725}

MONITORING

- More accurate reporting of mental health problems including onset, duration and functional impact.
- Availability, access and quality of mental health services.
INTRODUCTION: ELDERLY OUTCOMES

The growth of the older population, particularly those over age 85, has had and will continue to have an impact on the development of community health promotion programs. The health outcomes of the elderly are, like those for other age groups, a function of earlier health behaviors and health status and those of family members and work and social environments. The elderly have much at stake from accidents and illnesses that have much less impact on the functioning of adolescents and younger adults. Prevention therefore takes on especial significance for this age group. More programs will be tailored specifically to the elderly and important subgroups (young-old, oldest-old) who are part of this heterogeneous age group. Traditional models of health education and services can be supplemented with programming based on models from gerontology research.74

Though many questions about the relationship between socioeconomic status and health status in old age remain to be answered, economic and demographic forces may be key correlates of health status among the elderly. The National Longitudinal Survey on Aging provides important information on trends in health status, functional limitations and mortality for an elderly population cohort. Improved information is needed at the state level, as California lacks comparable data on its elderly population. The health outcomes of this group and risk and protective factors particular to it deserve attention so that health status improvement of seniors, an increasing proportion of the population in California, can be achieved.

Specific elderly health outcomes in the domains of violence, accidents, infectious illnesses, chronic conditions and mental health are described in the following pages. Summary health outcomes for the elderly are shown below:

- Perceived health status
  - good - excellent (1993) 74,000 per 100,000

- All-cause mortality rate (1994) 4,504 per 100,000

- Life expectancy at age 65 18.5 years

- Healthy life remaining 13.2 years

- Difference between years of life remaining and years of healthy life remaining 5.3 years

- Life expectancy at age 85 7.1 years

- Healthy life remaining 4.2 years

- Difference between years of life remaining and years of healthy life remaining 2.9 years
OUTCOME: 1.0
VIOLENCE AND ABUSE

SUMMARY
Among the elderly, nonlethal abuse is far more prevalent than homicides. According to national estimates, approximately 5 percent of the elderly population are victims of abuse, which translates to approximately 165,000 elderly persons in California. The California Department of Social Services monitors reported abuse and produces an annual report, which in 1995 showed 15,318 confirmed abuse reports in the elderly population. Fifty-six percent of these reports involved violence or other abuse perpetrated by others and 44 percent involved self-inflicted abuse. About half of confirmed cases involve physical abuse and another 15 percent involve neglect. Other forms of abuse include abandonment, mental suffering, and fiduciary abuse. If national estimates are closer to real levels of this problem, greater surveillance and monitoring of these problems is required to detect true levels in California. Many of these events go unreported because the victim is too frail to report and because the caregiver is the perpetrator. Reporting could lead to elders losing their source of care.

STATISTICAL PROFILE

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</tr>
</thead>
<tbody>
<tr>
<td>1.1 Victims of Abuse in Domestic Settings</td>
<td>165,000; 5000 per 100K</td>
<td>5,000 per 100K</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>1.2 Confirmed Reports of Elder Abuse</td>
<td>18,050; 526 per 100K (1997)</td>
<td>446 per 100K (1996)</td>
<td>7.2 per 100K all ages</td>
</tr>
<tr>
<td>1.3 Homicides (1996)</td>
<td>110; 3.13 per 100K</td>
<td>2.9 per 100K</td>
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</tbody>
</table>

TRENDS
Confirmed abuse reports have been increasing in California in recent years, a 13 percent increase between 1991 and 1995. Abuse inflicted by others has also increased while self-inflicted abuse has remained unchanged.

DETERMINANTS & RISK FACTORS
Functional disability has been identified in research studies as a risk factor for mistreatment of the elderly. Minority elderly and older persons are at higher risk. For example, the 1994 California homicide rate among older African Americans was 18.3 per 100,000 compared with 3.0 among whites.

A significant risk factor for elder abuse is the lack of robust social networks among victims, which results in isolation and lack of sources to turn to for help. Dementia is a risk factor in fiduciary abuse.

PREVENTION/POPULATION HEALTH PROMOTION
Because identification of abuse often occurs in an emergency medical setting, some authors have suggested that successful interventions should begin with medical personnel in the health care setting.

In California, Adult Protective Services plays a key role in intervening with confirmed reports of elder abuse. These services are carried out by county social work staff throughout the state. The services are available to seniors without regard to income.

Legislation that mandates reporting of suspected physical abuse of elders and permits reporting of other types of abuse can have an effect in producing interventions to eliminate such abuse.

The California Department of Aging supports a Long-Term Care Ombudsman program that is available to identify abuse of elders in long-term care facilities.
MONITORING

Legislation like that passed in California, which mandates the reporting of elder abuse, can have some impact in producing statistics about this important social problem. However, ombudsman programs can play an important role in outreach to the elderly victim whose self- or other-inflicted abuse often goes unreported. Better reporting mechanisms are necessary to identify the magnitude of the problem characteristics of persons at risk, and to introduce effective prevention strategies.
OUTCOME: 2.0
ACCIDENTS

SUMMARY
As the active lifespan increases, people are driving much later in life. Motor vehicle related injuries among the elderly are a growing concern. Burns, especially scald burns, are also a serious threat because as skin ages the resistance to heat decreases. Among the most common and serious health problems of the elderly are falls and fall-related injuries. These were selected as an important component of health of California's elderly, possibly because falls are a preventable cause of functional decline among the elderly. Falls are the second leading cause of accidental death among the elderly. Other consequences of falls on the health of the elderly include hospitalization, medical care costs, and nursing home admissions. Fear of falling has other negative consequences such as reduced activity levels and social isolation. Falls are a leading cause of loss of independence among the elderly. Injuries to the elderly have more severe consequences because recuperative ability is diminished.

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<tbody>
<tr>
<td>2.0 Accidental Injuries and Deaths</td>
<td>1,751 per 100K (ages 61+)</td>
<td>No comparable U.S. data for this age group</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>2.1 Deaths due to Accidental Falls (1996)</td>
<td>683; 19.4 per 100K</td>
<td>25 per 100K</td>
<td>14.4 per 100K (ages 65-84)</td>
</tr>
<tr>
<td>2.2 Fall-Related Injuries</td>
<td>1,298.3 per 100K, fall-related injuries (ages 61+)</td>
<td>No comparable U.S. data for this age group</td>
<td>205.0 per 100K (ages 85+)</td>
</tr>
</tbody>
</table>

TRENDS
Long-term trends in fall-related deaths among the elderly have been down in California since 1984. However, this has been largely unchanged since 1990. Among those 85 and older, rates have continued to decline, by seven percent between 1990 and 1994.

DETERMINANTS & RISK FACTORS
Epidemiological studies have identified key risk factors for falls and injurious falls. These include cognitive impairment, visual deficits, inappropriate psychotropic medication use, lack of safety devices in the home and other environments and nonsupportive footwear.

Risk for injurious falls increases with age.

Stairs are a risk factor for falls, and in California, unlike much of the U.S., fewer buildings have multiple stories and stairways.

Approximately 60 percent of all falls among the elderly occur at home, 30 percent occur in public places and 10 percent occur in health care institutions.

PREVENTION/POPULATION HEALTH PROMOTION
Fall-prevention programs have been found to be cost-effective. Such programs can be introduced within the usual health care of elderly persons living in the community. High-risk persons can be targeted.

Exercise programs for maintaining physical activity levels among the elderly without unduly increasing the risk of falls has been effective in reducing hip fractures through prevention of falls.
Driver training programs for senior drivers are offered throughout California by the AARP and AAA. Reducing water heater temperatures is very effective in preventing scald injuries.

**MONITORING**

Researchers note that important questions remain to be answered in order to identify optimal fall injury prevention strategies. Greater surveillance of circumstances surrounding falls could inform prevention program development.
OUTCOME: 3.0
ACUTE/INFECTIONOUS CONDITIONS

SUMMARY
In California in 1994, 9,151 adults 65 and older died from pneumonia. The rate was 69.8 per 100,000 among 65-74 year olds and 1319.7 among those over 85. In 1996, over 10,000 elderly Californians died as a result of pneumonia. This is a slight increase from 1994. The overall rate of 289.7 per 100,000 was higher than the nationwide rate of 221.4 per 100,000. Part of this difference is probably explained by the significantly worse levels of air pollution in California.\textsuperscript{758, 759} Influenza deaths, while far fewer in number, are also greater per capita in California than they are nationwide.

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</thead>
<tbody>
<tr>
<td>3.1 Pneumonia Deaths (1996)(\text{ICD Codes: 480-487})</td>
<td>10,206; 289.7 per 100K\textsuperscript{760}</td>
<td>221.4 per 100K\textsuperscript{761}</td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
Deaths from pneumonia have been increasing among California's elderly population since 1984.\textsuperscript{762}

DETERMINANTS & RISK FACTORS
Exposure to air pollution and to ozone are associated with increased hospital admissions for pneumonia.\textsuperscript{763, 764}

Failure to be vaccinated puts the elderly at higher risk for influenza.

Persons with chronic conditions, such as alcoholism, hypertension and chronic obstructive pulmonary disease (COPD) are at higher risk for pneumonia.

PREVENTION/POPULATION HEALTH PROMOTION
The elderly need information and education about influenza vaccination programs in order to find them acceptable. Public information campaigns and information from health care providers (especially physician recommendation) have increased acceptability and vaccine coverage.\textsuperscript{765, 766, 767}

MONITORING
Monitoring and reporting of air quality indicators can be important in minimizing the added risk of hospitalization among elderly patients with pneumonia or influenza.

Monitoring the delivery and receipt of appropriate immunization and health education.
OUTCOME: 4.0
DISABLING CHRONIC CONDITIONS

SUMMARY
A number of chronic conditions were selected as important components of health among the elderly. These conditions, their prevention, identification, and management can play a major role in the functioning and quality of life of the elderly. According to estimates from the National Health Interview Survey for the years 1992 and 1993, 40 percent of California’s population 65 and over experience some activity limitation due to one or more disabling chronic conditions. The nationwide rate is 39 percent.

The death toll from such conditions is also significant. For example, over 40,000 of California’s seniors died from heart disease in 1994. In addition, diabetes, hypertension and COPD claimed over 16,000 lives among California’s elderly the same year.

Arthritis is among the most prevalent diseases in the United States and the leading cause of disability.

In the table below, rates of several disabling chronic conditions are presented using data on prevalence calculated from the National Health Interview Survey and data on mortality from the National Center for Health Statistics.

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<tbody>
<tr>
<td>4.0 Disabled Chronic Conditions (1993)</td>
<td>40,000 per 100K768</td>
<td>39,000 per 100K769</td>
<td>9000 per 100K limited in performing two or more personal care activities770</td>
</tr>
<tr>
<td>4.1 COPD, Chronic Obstructive Pulmonary Disease Deaths (1996) ICD Codes: 490-496</td>
<td>9,927; 281.7 per 100K771</td>
<td>270.1 per 100K772</td>
<td>25 per 100K total population</td>
</tr>
<tr>
<td>4.2 Diabetes Cases</td>
<td>7240 per 100K (1992-93)773</td>
<td>12,640 per 100K (1995)774</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>4.3 Diabetes Deaths (1996)</td>
<td>3,925; 111.4 per 100K775</td>
<td>137 per 100K776</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>(ICD Code: 250)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.4 Arthritis (1995)</td>
<td></td>
<td></td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>4.5 Hypertension Cases</td>
<td>31,570 per 100K (1992-93)778</td>
<td>48,950 per 100K777</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>4.6 Heart Disease Deaths (1996)</td>
<td>44,595; 1,266 per 100K780</td>
<td>40,340 per 100K (1995)779</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>(ICD Codes: 390-398, 402, 404-429)</td>
<td></td>
<td>1,808 per 100K781</td>
<td>100 per 100K total population</td>
</tr>
<tr>
<td>4.7 Cancer Deaths (1996)</td>
<td>35,735; 1,014 per 100K782</td>
<td>1,039 per 100K783</td>
<td>No goal specified for this age group</td>
</tr>
<tr>
<td>(ICD Codes: 140-208)</td>
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</table>

TRENDS
Trends differ by condition. Importantly, heart disease deaths have declined significantly in California. Other chronic conditions have increased. In particular, deaths due to diabetes have increased rapidly since 1991 in California.

DETERMINANTS & RISK FACTORS

Smoking
Cigarette smoking is a major environmental risk factor for the development of COPD, hypertension and heart disease.765
Diet
Poor diet and nutrition play a role in causing hypertension, heart disease and diabetes.

Access to Care
Lack of access to medical care can prevent the diagnosis of diabetes and hypertension before significant disability has occurred. Although most of the elderly population are covered by Medicare, their access to care may still be limited by transportation difficulties, fear of crime, a shortage of Medicare providers within a short distance, and a lack of knowledge of symptoms that should receive medical attention.

Demographics
Minorities, seniors living in poverty and those with low educational attainment have disproportionately higher rates of hypertension, diabetes and arthritis (Asian Pacific Islanders and Hispanics have a lower rate of arthritis).786

COPD
Exposure to air pollution and to ozone is associated with increased hospital admissions for COPD.787, 788
There are also important genetic risk factors for the development of COPD.789

Diabetes
Incidence rates increase with age. For example, the death rate in 1994 was 73.03 in the 65-74 age group and 214.5 in the over-85 age group.

Arthritis
Overweight and obesity are associated with higher rates of arthritis.

PREVENTION/POPULATION HEALTH PROMOTION
Community- and policy-level interventions such as smoking bans, taxes on tobacco and anti-smoking media campaigns encourage smoking cessation.790 Smoking cessation programs assist individuals trying to quit smoking.791

Senior care programs that offer home visiting, meals, and transportation can be important elements of programs designed to provide health information, improve access to health care, and provide balanced nutrition and diet control.

MONITORING
Monitoring and reporting of air quality indicators can play a role in preventing added risk of hospitalization.
OUTCOME: 5.0
MENTAL HEALTH

SUMMARY
Rates of mental illness and emotional disorders in the population are difficult to determine. While the Epidemiological Catchment Area (ECA) survey conducted over 10 years ago and the recently completed National Co-Morbidity Survey determined rates of specific mental disorders in the U.S. population, no comparable survey exists for California. Yet mental health and functioning were selected as important components of the health of California's elderly population. Because of the gap in epidemiological data on mental health, proxy indicators of receipt of treatment and deaths from suicide are used to track this outcome.

Deaths from suicide is one indicator of mental and emotional distress and illness in the population that is consistently monitored. This is an age group for whom underreporting may be quite high, as fewer deaths among seniors are investigated for suspicious circumstances or receive autopsies. In 1994, mortality statistics record that 764 Californians over age 65 committed suicide. The rate of suicide among California's elderly population is 65 percent higher than the rate in the 20-64 year old population. It also increases significantly with age in the over 65 age group. Nationwide the rate of suicide among the elderly is far less than it is in California and at 18.0 per 100,000 is not much higher than it is among the 20-64 year old age group. By identifying and treating depression associated with changes due to aging, suicides can be prevented.

STATISTICAL PROFILE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>California</th>
<th>U.S. Comparison</th>
<th>HP2000 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Mentally Ill</td>
<td>1,000 per 100K (ages 65-69) are mentally disabled^795</td>
<td>No comparable U.S. data for this age group</td>
<td>10.7 percent prevalence of mental disorders among adults</td>
</tr>
<tr>
<td>5.2 Suicide (1996)</td>
<td>800 per 100K (ages 80+) are mentally disabled^794</td>
<td>17.3 per 100K^794</td>
<td>10.5 per 100K total population; 39.2 per 100K white men 65+</td>
</tr>
<tr>
<td>5.3 Dementia</td>
<td>685; 19.5 per 100K^795</td>
<td></td>
<td>No goal specified for this age group</td>
</tr>
</tbody>
</table>

TRENDS
Between 1984 and 1994 the death rate among the elderly from suicide declined somewhat in California, although the drop to a pre-1984 rate occurred only in 1994. Nationwide, a similar decline took place beginning in 1991.

DETERMINANTS & RISK FACTORS
Suicide is higher among whites than among African Americans and other race/ethnicity groups in California, although higher rates of depression and other mental disorders are found in minority populations.

Alzheimer's disease is the most common cause of dementia in the elderly, one of the leading causes of disability.\^797

Alcohol abuse is a risk factor for dementia in the elderly and is often dually diagnosed with other mental illness.
PREVENTION/POPULATION HEALTH PROMOTION

Recognizing depression in elderly patients is a key role for primary care physicians. Increasing to 50 percent the review of patients' mental health by primary care physicians is a goal of Healthy People 2000. Available treatments, including antidepressants and counseling for depression, are underutilized but can significantly improve functioning and health status for those who suffer from depression.

Community support programs are available to assist persons with severe, persistent mental disorders. A goal of Healthy People 2000 is to increase use of these programs to 30 percent of this population.

MONITORING

As noted earlier, few data sources are available to describe the mental health status of the population, especially at the state and local level.
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REFERENCES


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Measures of teen pregnancy must always be interpreted loosely, as the rates of teen abortion are not always reported accurately.


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CHAPTER 4
POPULATION PROFILES

INTRODUCTION
Population groups differ systematically according to their health status. For example, minority populations and the poor generally have higher rates of sickness and disease and tend to die at younger ages. Numerous studies have documented this finding for the nation. In this chapter, we show that indicators describing several dimensions of health status reveal that poor outcomes are disproportionately concentrated among certain population groups in California. We also show that measures of health-related behaviors and access to health care exhibit similar patterns, as do indicators of socioeconomic status. We draw attention to this information because it is useful in designing programs and policies to improve population health in California. In particular, knowing the size and importance of health differentials will allow one to decide how necessary it is to have interventions that are targeted toward specific population groups rather than to the population as a whole, and how much of an improvement in population health is possible through this approach. Furthermore, it may suggest specific programs that, in addition to improving the health of the entire population, will also reduce health inequalities.

We focus in this chapter on profiling health outcomes and determinants by level of household income and by race and ethnicity. Although these factors may not constitute the most important differentials at all times and in every setting, they are clearly of high relevance due to their correlation with many other factors of interest. Our discussion centers on measures calculated from the National Health Interview Survey, because of limited information on geography and on demographic and socioeconomic characteristics for health and mortality data available from other sources. One consequence is that in our examination of factors that mediate the relationship between health and the two structural determinants we are examining, we focus on measures of access to care rather than on the broader range of process determinants that is suggested by our conceptual framework (see Chapter 2).

HEALTH PROFILES BY HOUSEHOLD INCOME
The profile of health status by household income reveals that the poor are more likely to be in worse health and are less likely to visit a physician than are those who are economically secure, both because they have fewer household resources and because they are more likely to be uninsured. In addition, the poor tend to delay seeking medical care, which may indicate that conditions and symptoms are more severe when they finally see a physician and hence treatment is more complicated and costly.

There are systematic differences in health status according to household income in California. In Table 4.1 we present data on differentials in perceived health status, activity limitations due to chronic conditions, and restricted activity days by poverty level. These data clearly reveal that individuals in households with incomes below the poverty line have poorer health according to all three of these measures. Other studies of mortality and morbidity show similar patterns of differentials at the national level and in specific California communities. Although these differences exist across the life course, they are most pronounced among the elderly. For example, well over half of all elderly individuals living below the poverty line have an activity limitation due to a chronic condition, compared to around one-third of elderly individuals with an income over twice the poverty line.

Table 4.2 also shows that the poor are much less likely to have health insurance than the nonpoor. Approximately two out of five individuals with income below the poverty level have no health insurance, compared to less than one in five individuals with income over twice the poverty level. For the moderately poor (incomes between one and two times the federal poverty level), levels of health
insurance are identical to the poor. Lack of insurance, though higher, is not limited to the adult poor. Thirty percent of infants and 23 percent of children under ten and living in below-poverty income households have no health insurance. For adolescents the rate is 38 percent.

### TABLE 4.1
HEALTH STATUS OF CALIFORNIANS BY INCOME LEVEL (%)

<table>
<thead>
<tr>
<th></th>
<th>INCOME BELOW POVERTY</th>
<th>INCOME 100-199% OF POVERTY LEVEL</th>
<th>INCOME 200+ % OF POVERTY LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERCEIVED HEALTH STATUS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceive Good - Excellent Health, Ages 0-64</td>
<td>86</td>
<td>89</td>
<td>95</td>
</tr>
<tr>
<td>Perceive Good - Excellent Health, Ages 65+</td>
<td>55</td>
<td>67</td>
<td>81</td>
</tr>
<tr>
<td><strong>CHRONIC CONDITIONS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity limitation Due to Chronic Condition, Ages 0-64</td>
<td>13</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Activity limitation Due to Chronic Condition, Ages 65+</td>
<td>58</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td><strong>RESTRICTED ACTIVITY DUE TO CHRONIC OR ACUTE CONDITION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted activity days in past two weeks, 0-64</td>
<td>12</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Restricted activity days in past two weeks, 65+</td>
<td>23</td>
<td>19</td>
<td>12</td>
</tr>
</tbody>
</table>

### TABLE 4.2
ACCESS TO HEALTH CARE FOR CALIFORNIANS BY INCOME LEVEL (%)

<table>
<thead>
<tr>
<th></th>
<th>INCOME BELOW POVERTY</th>
<th>INCOME 100-199% OF POVERTY LEVEL</th>
<th>INCOME 200+ % OF POVERTY LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNINSURED TOTAL POPULATION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uninsured Infants (&lt;1)</td>
<td>38</td>
<td>37</td>
<td>14</td>
</tr>
<tr>
<td>Uninsured Children (1-9)</td>
<td>30</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Uninsured Adolescents (10-19)</td>
<td>23</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>Uninsured Adults (20-64)</td>
<td>38</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td><strong>NO PHYSICIAN VISIT DURING PAST YEAR:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infants, good-excellent health</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Children, good-excellent health</td>
<td>14</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Adolescents, good-excellent health</td>
<td>36</td>
<td>37</td>
<td>22</td>
</tr>
<tr>
<td>Adults, good - excellent health</td>
<td>40</td>
<td>40</td>
<td>24</td>
</tr>
<tr>
<td>Elderly, good - excellent health</td>
<td>2</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td><strong>DELAYED SEEKING MEDICAL CARE BECAUSE OF COSTS, PAST 12 MONTHS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infants</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Children</td>
<td>5</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Adolescents</td>
<td>15</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Adults</td>
<td>6</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
One possible consequence for the poor of having lower levels of health insurance is that they are less likely to visit a physician for preventive and promotional care. In Table 4.2 we show the percentage of the population in good to excellent health that did not visit a physician in the past year, which serves as an indicator of access to and use of preventive and promotional care. For poor and moderately poor adolescents and adults, approximately 40 percent did not have a physician visit, which is almost twice the rate for the rest of the population. The likelihood of not visiting a physician in the past year among the poor is lowest for infants and children and the elderly, which are the population groups most likely to be covered through Medi-Cal or Medicare.

Information on delay in seeking medical care shows that although individuals below the poverty line tend to delay seeking health care because of cost at a rate far higher than those with incomes above twice the poverty level, it is actually those in households with incomes between one and two times the poverty level who fare the worst.

HEALTH PROFILES BY RACE AND ETHNICITY

The health profile by race and ethnicity shows that the minority population of California—and especially the state's African American population—fares substantially worse than the majority white population in almost every measure of health and access to health care. In many ways, the differentials by race and ethnicity mirror those by household income, though there are some significant differences between African Americans and Hispanics, the two main minority groups in the state.

Focusing first on measures in Table 4.3 relating to pregnancy, birth, and infant health, the clustering of high-risk pregnancies and poor birth outcomes among blacks is readily apparent. Less than 70 percent of black mothers begin prenatal care in the first trimester, compared to over 80 percent of white mothers. Black mothers are younger and are far more likely to be unmarried compared to white mothers. The consequences of these circumstances are a high proportion of low-birthweight babies and high infant mortality rates among blacks. Twice as many births to blacks are of low birthweight (13 percent versus 5 percent) and twice as many black infants die before their first birthday (20.5 per 1,000 versus 9.6 per 1,000).

<table>
<thead>
<tr>
<th>TABLE 4.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIRTH OUTCOMES BY RACE/ETHNICITY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>WHITE</th>
<th>AFRICAN AMERICAN</th>
<th>HISPANIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALIFORNIA POPULATION ('92)</td>
<td>35.5</td>
<td>7.0</td>
<td>27.4</td>
</tr>
<tr>
<td>PERCENT BELOW POVERTY LEVEL ('89)</td>
<td>9.1</td>
<td>21.1</td>
<td>21.6</td>
</tr>
<tr>
<td>INFANT MORTALITY ('91)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(By Mother's Race/Ethnicity) Deaths per 1,000 Live Births</td>
<td>9.6</td>
<td>20.5</td>
<td>10.6</td>
</tr>
<tr>
<td>Percent w/ Prenatal care beginning during first trimester ('89)</td>
<td>82.4</td>
<td>66.4</td>
<td>60.1</td>
</tr>
<tr>
<td>Percent Low birthweight (&lt;2500 grams)('89)</td>
<td>5.3</td>
<td>13.8</td>
<td>5.3</td>
</tr>
<tr>
<td>Percent of Births to mothers aged &lt; 20 years ('94)</td>
<td>11.3</td>
<td>23.2</td>
<td>17.8</td>
</tr>
<tr>
<td>Percent of births to unmarried mothers ('94)</td>
<td>25.4</td>
<td>70.4</td>
<td>43.1</td>
</tr>
</tbody>
</table>

Birth outcomes among Hispanics are quite similar to those for whites, although their levels of prenatal care, teenage births, and unmarried births are closer to those of the black population than the white population.

Perceived health status is somewhat worse among blacks and Hispanics under age 65 compared to whites, but is substantially worse among the minority elderly (Table 4.4). The data in Table 4.2 suggest that a large part of the reason for poor perceived health status among Hispanics may be low levels of health insurance, as evidenced by the fact that over one-third of Hispanic families are uninsured. Differences in health insurance status are unlikely to account for much of the black-white differential in health status, since blacks are insured at only slightly lower rates than whites. Furthermore, although a
similar proportion of black and Hispanic families live below the poverty line (21.1 percent and 21.6 percent respectively), levels of preventive and promotional health care (measured by the proportion in good health visiting a physician in the past year; see Table 4.5) are far lower among Hispanics. Thus, health insurance and access to health care are serious issues for Hispanics, while a combination of factors—many of which we have not measured—is likely to account for poor outcomes among blacks.

TABLE 4.4
HEALTH STATUS BY RACE/ETHNICITY (%)

<table>
<thead>
<tr>
<th>PERCEIVED HEALTH</th>
<th>WHITE</th>
<th>AFRICAN AMERICAN</th>
<th>HISPANIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceive good-excellent health, ages 0-64 (NHIS ’93)</td>
<td>94.0</td>
<td>88.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Perceive good-excellent health, ages 65+ (NHIS ’93)</td>
<td>76.0</td>
<td>60.0</td>
<td>64.0</td>
</tr>
</tbody>
</table>

TABLE 4.5
ACCESS TO HEALTH CARE BY RACE/ETHNICITY (%)

<table>
<thead>
<tr>
<th>UNINSURED TOTAL POPULATION</th>
<th>WHITE</th>
<th>AFRICAN AMERICAN</th>
<th>HISPANIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16.0</td>
<td>20.0</td>
<td>36.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO PHYSICIAN VISIT AMONG POPULATION REPORTING GOOD - EXCELLENT HEALTH</th>
<th>WHITE</th>
<th>AFRICAN AMERICAN</th>
<th>HISPANIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants &lt;Age 1</td>
<td>3</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Children - Ages 1-9</td>
<td>10</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Adolescents - Ages 10-19</td>
<td>22</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>Adults - Ages 20-64</td>
<td>25</td>
<td>27</td>
<td>40</td>
</tr>
<tr>
<td>Elderly - Ages 65+</td>
<td>12</td>
<td>26</td>
<td>21</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Although we have examined differences in health and health-related behaviors separately by household income and by race and ethnicity, it is important to realize that these two factors are closely related to each other. In fact, it has been suggested that the poorer health of minority populations probably reflects dimensions of lower socioeconomic status rather than race itself.9

Furthermore, process determinants may not simply serve as intervening factors in the effects of income or race and ethnicity on health. Rather, there may be interactive effects between structural and process factors or cumulative effects of these factors. Interactive effects may arise, for example, from differences in the effectiveness of health care services provided to minorities or to poorer patients due to delay in receiving care10 or quality of care.11 Cumulative effects on health represent the possible compounding over time of unhealthy behaviors, prior episodes of illness or disease, and limited use of health care services.12


CHAPTER 5

CRITICAL PATHWAYS TO COMMUNITY HEALTH

LINKING STRUCTURE PROCESS AND OUTCOME

The design of this report is intended not only to increase the explanatory value of the information presented, but also to fulfill pragmatic policy purposes. Communities across the nation are increasingly engaged in a variety of health improvement activities that range from targeted attempts to provide a specific service (e.g., immunizations) or a range of services (e.g., prenatal care) to programs targeted at major problems (e.g., teenage pregnancy, drug abuse, or family violence). In their most elaborate form, comprehensive community initiatives (CCIs) have been mounted to promote overall positive change in individuals, families and community characteristics through improving physical, economic and social conditions as well as promoting expansion and improvement of health and social services. All of these community-focused efforts demand better ways of assessing health status, profiling patterns of health in particular populations and groups, and evaluating the appropriateness and effectiveness of specific interventions and community-wide initiatives.

Linking structural and process determinants to outcomes allows us to move from the conceptually driven model of health production to a pragmatic model of indicator selection and presentation. Critical Pathways represent a useful way of utilizing the best available empirical evidence to array community health outcomes along with those factors that the research literature suggests are important in determining those health outcomes. By highlighting linkages between the structure and process determinants and outcomes, critical pathways potentially provide policymakers and community stakeholders with an operational model for how a particular outcome is produced in a community setting, and what the potential leverage points are for either targeted or more comprehensive interventions. With further refinement of this approach, we hope the critical pathway analysis can eventually serve as a tool for community assessment and policy analysis, and can be used to inform strategic planning, resource allocation, and quality improvement activities. Critical pathways to community health can also serve to highlight new policy directions for a community. Many communities are attempting to tackle the toughest and most recalcitrant problems they face, such as family and neighborhood violence, drug abuse and mental illness. While the solutions they seek often involve new cross-sector strategies, they are confronted with categorically funded programs and isolated, "stove-piped" funding streams that stymie attempts at integrating services. By highlighting the full range of potential contributions to a particular outcome in a well-defined community-based critical pathway, policymakers can identify ways to design, develop and implement multisector solutions and more integrated policy responses.

WHAT IS A CRITICAL PATHWAY?

A critical pathway is a policy and decisionmaking tool used to link information about the relationship between structural and process determinants into an outcome-focused pathway. The pathway is constructed based on research literature that demonstrates which factors are important to or associated with a particular outcome of interest. A general model for a critical pathway is presented in Figure 5.1 below.
Figure 5.1
Analytic Framework for Critical Pathway

Of course, no structural indicator is solely related to a single process indicator, leading to a single outcome. In fact, most pathways in the real world, for better or for worse, are entangled webs with numerous linkages that represent the complex interactions between various factors that determine health outcomes (see Figure 5.2). The construction of critical pathways for community health necessarily requires some simplifications of real-world complexity, and those assumptions must be clearly represented. Moreover, depending on the pathway being constructed, an indicator such as drug abuse can be a determinant in a pathway leading to infant mortality or developmental delay, but it may also be an outcome in a pathway focused on adolescent drug abuse. The organization of determinants that compose the pathway into structural or process components can assist in deciding where and when interventions are possible and what degree of effort and coordination might be required to realize significant change.

Figure 5.2
Critical Pathways

To make this more concrete, we have chosen the example of infant mortality. Infant mortality is a sentinel health outcome that has been used to measure the health of populations, communities and states for most of the last century. We know by convention that infant mortality is divided into neonatal and post-neonatal mortality, and that each one of these indicators is influenced by a set of specific causes. The research literature also contains numerous studies that demonstrate the role that prenatal care can play in identifying potential risk factors that can lead to adverse perinatal outcomes and how assessing these risks can result in decreasing rates of mortality due to all neonatal causes. If we focus on the neonatal causes of infant mortality, we can construct a critical pathway, as illustrated in Figure 5.3.
These of relationships are conceptually defined and informed by the research data, but they are not empirically derived in the same way that they might be in a research analysis using multiple simultaneous regression equations or path analysis to designate specific statistical relationships between specific indicators. Nonetheless, they present a very useful set of relationships, depicting key linkage points between determinants and highlighting potential leverage points for outcome modification.

**HOW CRITICAL PATHWAYS CAN BE USED**

**Strategic Planning.** Critical pathways can potentially serve a useful role in the process of developing comprehensive community health initiatives or more modest efforts to address a specific problem, like infant mortality. It might not be immediately obvious when considering infant mortality to include public agencies such as the police department or the municipal transit authority or private-sector taxi companies at the table for a strategic planning session for a community-wide intervention. However, the critical pathway for infant mortality in the community illustrated in Figure 5.3 clearly highlights the role of inadequate transportation and threat to personal safety that pregnant women encounter waiting at bus stops. Critical pathways can inform the strategic planning process by defining the scope and parameters of community efforts, suggesting what data are necessary for informing the process, and identifying key touch points with other problems, outcomes, or pathways. The process of constructing a critical pathway can not only help delineate the complexity of the problem, but can be useful in identifying the relevant stakeholders. Critical pathway construction can help enlarge the circle
of stakeholders, potentially involved in creating solutions. Using critical pathways, we can begin to enumerate the relationships among different processes in the community that affect health outcomes, and assess potential to intervene in these processes.

**Quality Improvement.** One of the major criticisms of previous attempts at developing community report cards is that, because they have not accounted for the relationship between structure, process and outcome, it is difficult to use them as part of community-based quality improvement efforts. Continuous quality improvement and total quality management techniques that have been used in industry, and increasingly in health care settings, rely upon the ability to delineate the process involved in producing specific outcomes, as well as understanding how structural determinants and other contextual factors affect the process that produces the outcome of interest. Without a knowledge of the process, knowledge of what is effective in changing the process, and how that change can be efficiently engineered to accomplish desired outcomes, it becomes difficult to evaluate the quality of services being provided and to determine which interventions might be most effective in a community-based setting.

For example, when a community initiates a campaign to decrease infant mortality, traditional ways of launching such a campaign might include improving access to prenatal care, promoting outreach to high-risk and underserved communities, and general public education through public service announcements. Elaboration of the critical pathway for infant mortality helps identify the key stakeholders including those who are responsible for different components of that pathway (e.g., perinatologists for prenatal care, health insurance companies and Medicaid providers for prenatal care, bus and taxicab companies for transportation, police for safety in relationship to transportation).

By convening the stakeholders and identifying what role they and their programs and budgets play in producing the outcome of interest, a set of program development and quality improvement strategies can be enumerated that call for an integrated approach across agencies and stakeholders. This can also encourage diverse stakeholders/agencies to work together toward some objectives while at the same time attempting to modify those parts of the pathway for which they are responsible.

**META-DETERMINANTS: PRODUCING MULTIPLE OUTCOMES**

Utilizing the structure, process and outcome model that we used to develop critical pathways, it is possible to further array critical pathways in order to identify those determinants that appear in multiple pathways, and thereby play a role as key determinants for multiple outcomes. The analysis of key "meta-determinants" is important for community- and population-based initiatives. For example, in examining outcomes the community identified as important for adolescents, it becomes clear that several determinants appear in multiple causal pathways, leading to various outcomes. Factors such as substance abuse, unprotected intercourse and multiple sexual partners, poverty, and access to contraception can be identified as key determinants in the adolescent life period that contribute to key outcomes in different pathways. Identifying these meta-determinants of multiple outcomes of interest allows the community to assess how it might target specific population groups and develop longer-term strategies aimed at changing the conditions that give rise to these meta-determinants of multiple health outcomes.

In order to assess which determinants play a role in the multiple pathways, we extracted those determinants that were present in at least three pathways for each life course period. For infants eight meta determinants emerged. These include poor maternal education, substance abuse, family structure/breakdown, maternal depression, maternal age, lack of prenatal care, and poverty. This analysis suggests that if California intends to provide children with a healthy start in life, that this aggregate set of issues would need to be addressed.

The meta-determinants are presented for each life course period in Table 5.1. In the table we also attempted to identify those determinants that are most salient across all life course periods. These include substance abuse, poverty, family breakdown, and access to appropriate care. This analysis suggests the triple threat of poverty, substance abuse, and family disruption has a profound impact on the health of all Californians, and when sources of care are not available the outcomes are even worse.
TABLE 5.1
META-DETERMINANTS ACROSS THE LIFE COURSE (OCCUR>3 TIMES)

<table>
<thead>
<tr>
<th>All Ages</th>
<th>Adults</th>
<th>Elderly</th>
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<tbody>
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<td></td>
<td></td>
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<tr>
<td>• substance abuse</td>
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<td>• isolation/lack of social support</td>
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<td>• cognitive/physical impairment</td>
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<tr>
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</tr>
<tr>
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<td>• multiple sexual partners</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>• poor maternal education</td>
<td>• status of partner(s)</td>
<td>• hypertension</td>
</tr>
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<tr>
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<td>• education level</td>
<td>• education</td>
</tr>
<tr>
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<td>• mental status</td>
<td>• access to medical care</td>
</tr>
<tr>
<td>• maternal depression</td>
<td></td>
<td>• lack of exercise</td>
</tr>
<tr>
<td>• maternal age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
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<td></td>
</tr>
<tr>
<td>• neglect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• poverty/socioeconomic status</td>
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<tr>
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<td></td>
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<tr>
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<td>Adolescents</td>
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<td></td>
</tr>
<tr>
<td>• substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• access to handguns</td>
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<td></td>
</tr>
<tr>
<td>• poverty/socioeconomic status</td>
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</table>
| Because meta-determinants are derived from critical pathways, there is a greater likelihood of selecting meta-determinants structural factors that are more removed from the outcome of interest. Thus, poverty is a meta-determinant not necessarily because of the direct effect of the number of dollars that an individual has in his or her pocket on whether a child will be abused or an adolescent will be exposed to AIDS, but because poverty is a more general condition that influences the other factors that give rise to and are associated with poor educational status, substance abuse, and the potential interpersonal and social relationships that one is able to form. Thus poverty becomes the source of many pathways that will result in various poverty-related outcomes.

The pattern of meta-determinants derived from our report and presented in Table 5.1 also suggests other interpretations and conclusions. Each of the identified meta-determinants has some connection to the nature and type of relationships that are available to individuals across the life course.
The meta-determinants for infant health outcomes are strongly dependent on the maternal child relationship. Child and adolescent meta-determinants depict a set of measures of family relationships defined by the type and nature of the relationships that children have with their families (for younger children) and with their peers (for adolescents). The relationship of community institutions, including schools and workplace becomes more salient as individuals get older and engage in work, civic and religious life. This set of relationships is depicted in Figure 5.4.

![Graph showing the relationship between age and different factors such as community, school, workplace, family, and individual.](image)

**Figure 5.2**
Individual Development and Social Factors

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CHAPTER 6

CONCLUSION

The California Health Report measures the health of California's population from a new perspective. In order to construct a comprehensive and more integrative measure of population health, we created a model of community health that specifies the unique role of different determinants on a range of health outcomes. The multideterminant model of community health was then simplified into structural and process determinants and their related health outcomes to inform an empirically based selection of indicators. The outcomes were selected as indicators of community health by a panel of health experts from throughout California involved in public health and social service practices as well as academia and public program administration. Determinants of the selected outcomes were identified by reviewing empirical studies of the relationship of outcomes to determinants in the available research literature. Once outcomes and determinants could be empirically linked, we constructed basic critical pathways to identify important relationships between relevant outcomes and their structural and process determinants. The life course approach that we used to select and organize outcomes also permitted us to develop some sense of how specific determinants influence outcomes in a particular life period as well as across the life course. This approach facilitates a greater understanding of both differences and commonalities across age groups, and suggests ways of improving the long-term impact of current health interventions.

This report is designed to be useful to broad audiences. First, the results should be of general interest to California residents and the state's policymakers and health planners. The report offers those interested in community health improvement a more integrated picture of how health is produced and what interventions are potentially available to address deficits or to enhance their capacity to respond effectively. It also identifies a number of gaps in how we monitor the health of our state, and suggests resources that could be useful in filling those gaps.

The model of community health production and the methods used to select indicators in this report are applicable to smaller geographic areas. With slight modifications of the procedures used here, local communities could select outcomes that were most important to their specific context, link structure and process determinants to those outcomes, and construct critical pathways with a distinctive local community flavor. The only limiting factor is the availability of data at the appropriate geographic level.

There are several conclusions that we can draw from our assessment of the health of California. These conclusions fall into two general categories. The first set of conclusions stems directly from the results of our analysis, the types of health outcomes identified and our attempt to link outcomes to their structural and process determinants. The second set of conclusions is more methodological and stems from the innovations that we introduced into the process of devising a new methodology that was both more conceptually driven and would have greater explanatory power for policy, planning and budgeting purposes.

THE HEALTH OF CALIFORNIANS

Compared to the rest of the United States, the health of Californians in general is about the same or better in most categories, and our results confirm findings from other reports. For example, the Reliastar State Health Status Index shows that, when compared to other states, California fares slightly better than the national average. This index, developed by Reliastar Financial Corporation and
published each year since 1989, uses 17 health status measures to generate a single number score for comparison purposes. On many indicators that were selected as important outcomes, California meets or exceeds the CDC's year 2000 goals (e.g., for motor vehicle deaths, teen suicide, and others). Given the current understanding of determinants that appear to be producing many of these outcomes, we have also been able to demonstrate that the prevalence of substance abuse, the levels of family discord and violence, and the concentrations of poverty and overall levels of prosperity all contribute to some of California's standing with regard to several of these indicators. For example, seat belt usage in California is among the highest in the United States contributing to the lower motor vehicle accident death rate.

The approach that we utilized for producing this report allowed us to identify a set of "meta-determinants" that seem to be key contributors to multiple specific health outcomes at different times during the life course. While we were able to identify these life-course specific meta-determinants, we were also able to suggest that across all ages, it is substance abuse, prosperity, family function and access to appropriate services that play an important role in producing many of the health outcomes included in the report. Moreover, these population meta-determinants are clearly interrelated: for example, the prevalence of substance abuse is notably higher in poor communities and it is known that substance abuse and poverty play havoc with family function and contribute heavily to reports of family violence and violence toward children.

We also assessed the health status of specific vulnerable populations. We defined these vulnerable populations on the basis of income and ethnicity, which are admittedly simple and coarse markers of risk. Nevertheless, we were able to demonstrate higher levels of adverse outcomes and greater exposures to risk in these populations. However, this analysis of vulnerable population was limited by the fact that very little state-level data is available to measure outcomes and assess the determinants for populations that might be considered highly vulnerable, such as the homeless, the severely emotionally disturbed, those with chronic disabling medical conditions, and individuals afflicted with HIV. Because existing monitoring systems are inadequate, we could only profile vulnerability in a very general way. This suggests that there is a great need to develop better monitoring efforts for highly vulnerable groups, not only to develop interventions and social policies that could potentially reduce needless suffering and improve quality of life but because these vulnerable populations currently impose a great financial burden on the state and its taxpayers.

**METHODS**

We have contributed important methodological innovations in the development of the *California Health Report*. These include the development of a conceptual framework appropriate for considering the determinants of community health, the use of critical pathways of community health, and meta-determinants.

Past reports of community health have displayed indicators according to various conceptual frameworks, such as the CDC's Year 2000 objectives or pathways of human development. The development, selection and presentation of indicators in our report was based on the understanding that determinants of health are numerous and diverse and include a wide range of individual, environmental, political and community characteristics. Beginning with the systems approach developed by Evans and Stoddart, which was simplified for measurement purposes, we outlined a model of community health that allowed us to link structure and process determinants with health outcomes. We elaborated this framework by also introducing a life course health development perspective that identifies broad determinants in relationship to their impact and effect on different stages of the life cycle. This conceptual framework also allowed us to enumerate domains and subdomains of determinants that have not generally been considered part of routine health-monitoring activities. Unfortunately, although we were able to identify many processes that play an important role in determining several important health outcomes, it was often difficult to find available data to document these processes. Again, if population health measurement is going to more accurately reflect those processes that contribute to health outcomes, new data collection methods and activities must be considered.
Another innovation introduced in this report is the notion of critical pathways to community health. Critical pathways were used for analytic purposes in order to array determinants into causal pathways. We also highlighted the role that critical pathways could serve in communities with planning, policy development, and quality-improvement exercises. We believe that the further development of critical pathways for community health will be essential as communities plan and implement community-wide health initiatives.

The third innovation that was introduced in this process is the notion of meta-determinants. Identifying those determinants that affect several critical pathways allows more focused attention to be directed to processes that contribute most importantly to certain outcomes. Attention to identifying meta-determinants could potentially allow communities to more effectively prioritize those processes to which they want to pay more attention.

By combining community-level indicators with population-based survey data, we were able to more systematically construct a picture of important health outcomes and determinants. However, there were also methodological limitations that we encountered in the development and production of this report. There were whole domains of determinants that were omitted due to lack of appropriate data. Important measures of the quality and appropriateness of health care, service integration and continuity of care, social support and community cohesiveness, and community organizational functioning and capacity were all generally lacking. Since the research literature has increasingly focused attention on the importance of these kinds of activities, it is important for California to consider ways in which these data gaps can be overcome in the future.

LESSONS LEARNED

In working through the process of developing the report, there were several lessons learned by our research team. First, there is a wealth of data that exists to measure health, but it is inconsistent both in quality and geographic coverage. For example, California has an excellent birth defect registry that has permitted us to assess the prevalence of birth defects and to, more importantly, ascertain in greater detail their determinants. Expanding the scope of other registries for other areas, such as major diseases, to include major determinants such as substance abuse and income status, would begin to provide some of the missing information that is needed.

In the process of constructing this report, a great deal of effort was expended on evaluating other reports, data sources and indicators with regard to their quality, appropriateness, reliability, validity and availability. While difficult to accomplish, there needs to be better access to such information, and mechanisms should be developed within the state to facilitate the dissemination of this information.

In collecting community and state reports from all over the nation, we also learned of data collection and software development activities like those of the King County Health Department in Seattle, which are enabling some local health departments to develop competitive, user-friendly systems of analysis and presentation. Given the ongoing revolution in information technology, the wider use of such systems will hopefully accelerate the process of developing more comprehensive and integrated reporting mechanisms at the local level.

NEXT STEPS

Future work to measure and document population health and its multiple determinants that builds on this report is likely to proceed in several directions.

The most important next step is to translate the report from the state level to the community level. Although there are many challenges that confront this process – such as the limited availability of appropriate data – the local community is where much activity is currently taking place to improve population health. The community health improvement process would benefit tremendously from more comprehensive and conceptually grounded approaches to measuring local population health, such as the one used in this report.
The design of better data collection and monitoring systems is another important next step that emerges from this report. In addition to the improvements regarding vulnerable populations and certain dimensions of community life discussed above, new data collection efforts should focus on aiding local communities to produce health reports such as this by facilitating access to data and establishing new data collection activities. This report provides a useful "wish list" of data that would improve our ability to launch and sustain community wide population health promotion and prevention programs.
Domains, Factors, and Indicators for Health and Well-Being Outcomes

**DOMAIN/SUBDOMAIN**

**Global Measure of Health and Well-Being**
Health-Related Quality of Life

**Life Expectancy/Mortality**
Overall Measure—Life Expectancy
By Age Group
- Infant Mortality
- Child Mortality
- Adolescent Mortality
- Adult Mortality
- Old-Age Mortality

Cause Specific
- Violence/Homicides, Accidents, Suicide
- Malignant Neoplasms, Cardiovascular, Other

**Morbidity/Disease/Disability**
Overall Measure
- Population Disease/Disability Burden
By Age Groups
- Infant Morbidity
- Child Morbidity
- Adolescent Morbidity
- Adult Morbidity
- Old-Age Morbidity

Cause Specific
- Injuries
- Acute and Chronic Diseases, Mental Health, Oral Health

Service Specific
- Ambulatory-Sensitive Levels of Asthma, Other Diseases
- Prevalence of Vaccine-Preventable Diseases

**Developmental Delay/Deviations from Standard Functional Status**
Deviation from Developmental Trajectory Regarding Functional Status Measures
Overall Measure
- Disability-Free Life Expectancy

Children
- Prematurity
- Low Birthweight
- Learning Disabilities
- Other Measures

Adolescence
- Teenage Childbearing

Adults
- Deviation from the Maintenance of Health Status and Functioning
Elderly
  Dependency
  Other Measures of Deviation from Downward Sloping Developmental Trajectory
All Groups
  Physical Activity Limitations
  Social Limitations
  Emotional Limitations
  Malnutrition

**Behavioral Risk and Protective Factors**
Health Capacity
  Obesity
  Blood Pressure
  Lung Capacity
Heart/Circulation System
  Smoking
Alcohol Abuse
Drug Abuse
Diet/Nutrition
Activity/Exercise
Stress/Relaxation
Safe Sex
Hygiene
  Personal (Oral, etc.)
  Community (Food/Restaurant Inspection)
Accident/Injury Prevention
  Seat Belt Use
  Bike/Motorcycle Helmet Use
  Road Safety
  Recreation and Sport Safety
  Occupational Safety
  Household Safety
Knowledge of Health Information
Community Safety
  Neighborhood Watches, etc.
Workplace Health Promotion
School Health Promotion Programs
Community Health Programs
  Health Care System Monitoring
  Community Health Monitoring
  Health Improvement Initiatives
  Cross-Sectoral Integration

**Regular Preventive and Promotional Health Care Over the Life Course**
Infancy & Childhood
  Prenatal Care
  Delivery Type and Care
  Immunization
  Screening
Adolescence
  Safe Sex
  Contraception

Adulthood
  Cancer Screening
  Cardiovascular Disease
  Family Planning

Old Age
  Glaucoma Screening
  Diabetes Screening
  Alzheimer's Screening

All Ages
  Screening for Hearing, Sight, Weight, Allergies, Dental, etc.
  Screening for Mental Health

Unmet Need/Excess Supply of Health Care Services and Appropriateness of Care
General Health Care
  Physicians/Population
  Hospital Beds/Population
  Malpractice
  Unnecessary Procedures
  Abortion

Specialized Health Care
Special Services
  Child Abuse Treatment/Prevention
  Foster Care Clinic Capacity

Crisis Intervention/Emergency Services
Rehabilitation

Accessibility of Health System
Financial Accessibility
  Population Coverage through HMO or Health Insurance
  Proportion of Providers Accepting Medicaid
  Comprehensiveness of Coverage
  Resources to Treat Indigent and High-Risk Groups

Physical Accessibility
  Average Travel Time to Doctor, Nearest Hospital, etc.
  Other Measures of Geographic Location
  Average Wait, Doctor Appointment for Routine Care

Organizational Accessibility
  Outreach Services to Vulnerable Populations
  Coordination of Services for Individuals with Multiple Needs
  Co-Location of Services for Individuals with Multiple Needs

System Integration/Continuums of Care
Integration of Health Care Services
Integration with Social Services, Preventive Care, Long-Term Care
  Chronically Mentally Ill
  Abused Children
  High-Risk Mother and Infants
AIDS Victims
Etc.

Social, Cultural, and Family Environment
Demographic Characteristics
  Population Growth
  Age Structure
Race/Ethnicity
Culture
  Language
  Immigrants
Social Class/Status
  Occupation Mix
Social Support/Community Cohesiveness
Mobility
Family Structure and Living Arrangements
Crime/Lawlessness
Homelessness
Child Care
Abuse and Neglect
  Child Abuse
  Domestic Abuse
  Elder Abuse

Education
Attainment
Achievement
Assistance
Diversity
Investment in Education
Literacy

Physical Environment
Pollution
  Air Quality
  Water Quality
  Ground Contamination
  Radiation
  Household Toxins
  Noise Pollution
  Sewage
Land Use
  Park Land
  Industrial Mix
  Abandoned/Vacant Buildings
  Agriculture
  Uncultivated Land/Open Spaces
Housing Quality
Energy Use
Technology
Transportation
Natural Disasters (Earthquakes, floods, fires, etc.)

**Prosperity**
Per Capita Income
Inequality
  Income
  Wealth
  Dynamics of Inequality
Poverty
Employment/Unemployment
Public Assistance/Welfare
Taxation
Business/Commerce

**Community Organizational Functioning and Capacity**
Activism
Leadership
Motivation
Civic Commitment
Integrative Dimension
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**NATIONAL**

| National | Not Specifically | Index | Health, Economic, Demographic | Elderly, Children | Record | Yes | No | Yes | No | ? | 17 | Fordham University, The Index of Social Health: Measuring the Social Well-Being of the Nation, Tarrytown, NY: Fordham University, Graduate Center, School of Social Service, Fall 1987 |
| National | N/A | Objectives | All | All | All | Yes | Yes | Yes | ? | P | 61 | US Department of Health and Human Services, Healthy People 2000, Washington, DC: Public Health Service, DHHS Publication No. (PHS) 91-50213 |

**NATIONAL/STATE**

| National, State | Yes | Profile | Health Needs; Health Insurance; Medicaid | Children; Elderly; Poor | Record | Yes | No | No | Yes | T | 600 | The Kaiser Commission on the Future of Medicaid, Health Needs and Medicaid Financing: State Facts, Washington, DC, Kaiser, April 1995 |

APPENDIX B

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133 Task I Inventory
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<td>Hardwick, Susan E., P. Jennifer Pack, Elizabeth Ann Donohoe, and Kristen J. Aleksa, Across the States 1994: Profiles of Long-Term Care Systems, Washington DC: America Association of Retired Persons, Center on Elderly People Living Alone, Public Policy Institute, 1994.</td>
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APPENDIX B

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<td>Population Crisis Committee, Cities: Life in the World's 100 Largest Metropolitan Areas, Washington, DC: Population Crisis Committee, Washington, DC. 1990.</td>
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<td>Zero Population Growth, &quot;Children's Environmental Index,&quot; The ZPG Reporter, Vol. 27, No. 3, June 1995.</td>
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**STATE**

| State | No | Profile | Family; Community; Security; Economy; Health; Education | Children | Record | Yes | No | Yes | No | P | 79 | University of Washington, The State of Washington's Children, School of Public Health and Community Medicine, Institute for Public Policy and Management of the Graduate School of Public Affairs, Seattle, WA, October 1994 |
| State | No | Profile | Poverty; Education; Violence | Adolescents | Record | Yes | No | No | Yes | P | 80 | Children's Action Alliance, Changing the Odds For Arizona's Youth, AZ, September 1995 |
| State | No | Report Card | All | Children, Adults, High-Risk | Record | Yes | No | Yes | Yes | P, T | 11 | Connecticut Department of Public Health and Addiction Services, Connecticut's Health Report Card, April 1994. (includes supplemental info and data sources appendix.) |

**APPENDIX B**

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<td></td>
<td>Dumbauld, Sheila, James A. McCullough and James W. Sutocly, Analysis of Health Indicators for California's Minority Populations, Minority Health Information Improvement Project No. 180M-S-92, February 1994.</td>
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<td>Yes</td>
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<td>The Field Institute, A Survey of California Adults on Population Health Issues, conducted for the California Center for Health Improvement.</td>
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<td>No</td>
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<td>Kentucky Department for Health Services, Kentucky Health Interview and Examination Survey, 1993, Frankfort, KY, June 1995.</td>
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<td>Yes</td>
<td>51</td>
<td>Minnesota Planning, Minnesota Milestones 1993 Progress Report, St. Paul, MN.</td>
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<td>Yes/No</td>
<td>53</td>
<td>Moloney, Thomas W. and Kristina Emanuels. Living Well, Californians Consider Public Policies That Foster Better Health, 1995. Sacramento: CA. California Center for Health Improvement.</td>
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<td>Northwestern National Life (NWNL), The NWNL State Health Rankings, 1994.</td>
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<td>Yes</td>
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<td>Lifestyle, access, occupational safety &amp; disability, disease &amp; mortality</td>
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<td>Yes</td>
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<td>Yes</td>
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<td>Ohio Department of Education, 1993 Ohio Youth Risk Behavior Survey, What Ohio Students Reported.</td>
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<td>Yes/No</td>
<td>77 Sherman, Richard E. and Samuel Gillespie, Use of Social Indicators In Assessment of AODA Treatment Needs Within Illinois Substance Abuse Areas, Illinois Department of Alcolholism and Substance Abuse Needs Assessment Office, November 1995.</td>
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<td>78 KIDS COUNT - WASHINGTON Washington Kids Count, Charting a Course for the Future, Seattle, WA, December 1994.</td>
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<td>Yes</td>
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<td>2 California Department of Health Services, County Health Status Profiles, 1995, Department of Health Services and the California Conference of Local Health Officers, Public Health Week April 3-9, 1995.</td>
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<td>California Department of Health Services, Healthy California 2000, California’s Experience in Achieving the National Health Promotion and Disease Prevention Objectives, Sacramento, CA, July 1995.</td>
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<td>Children's Health, Crime, Education &amp; Child Abuse</td>
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<td>No</td>
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<td>Connecticut Association for Human Services, Connecticut’s Children: Still At Risk, 1995 Data Update, Hartford, CT.</td>
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<td>County of Los Angeles Department of Health Services, Health Status: Los Angeles County, 1995.</td>
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<td>Yes/No</td>
<td>25</td>
<td>KIDS COUNT - ARIZONA Bierlein, Louann, and Lori Mulholland, Kids Count Factbook: Arizona's Children, 1994, Arizona State University, Morrison Institute for Public Policy, June 1994.</td>
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<td>Yes</td>
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<td>Bierlein, Louann, and Lori Mulholland, Kids Count Factbook: Arizona's Children, 1994, Executive Summary and Arizona Chapter, Arizona State University, Morrison Institute for Public Policy, June 1994.</td>
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<td>KIDS COUNT - IOWA Iowa KIDS COUNT, Family Matters: Indicators of Well-Being for Iowa Children, Des Moines, IA: Child and Family Policy Center, 1994.</td>
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<td>KIDS COUNT - KANSAS Kansas Kids Count, 1995 Kansas Kids Count Data Book, Topeka, KS: Kansas Action for Children, Inc., 1995.</td>
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<td>KIDS COUNT - NEW MEXICO New Mexico Advocates for Children &amp; Families, Kids Count 1994 Data Book, Albuquerque, NM.</td>
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| State, Local | No | Profile | Contains list of core and optional Kids Count indicators | Children | Record | Yes | No | Yes | No | P | 45 | KIDS COUNT - SOUTH DAKOTA
| State, Local | No | Profile | Health, Education, Safety, Poverty, Family, AFDC | Children | Record, YRBS Survey | Yes | No | Yes | No | P | 46 | KIDS COUNT - WEST VIRGINIA
| State, Local | No | Ranking/Profile | Family income, education, child health, juvenile justice, social services | Children | Record | Yes | No | Yes | Yes | P | Yes | 47 | KIDS COUNT - WISCONSIN

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<td>Yes/No</td>
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<td>Massachusetts Department of Public Health, Health Status Indicators: Community Health Network Areas (4 reports covering the Western Region, Southeast Region, Central Region, Metro Boston Region, Northeast Region), Boston, MA; Massachusetts Department of Health, June 1994.</td>
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<td>Michigan Public Health Institute, City of Detroit Health Department, Community Health Profile, Version 2.0, 1995.</td>
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<td>Vermont Department of Health, The Health Status of Vermonters, Selected Health Status Indicators, 1988-1993, Burlington, VT.</td>
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**LOCAL**

| Local | No | Profile | Community; Family | Survey | Yes | Yes | No | Yes | T | 81 | Itzkowitz & Associates, Waukesha County Families First Initiative: Survey Report, Plover, WI, October 1994 |
| Local | No | Profile | Demographic; Health; Morality/Years of Potential Life Lost | Record | Yes | No | Yes | Yes | P | 83 | Lee County Public Health Unit, Healthy Communities, Healthy People Committee: Assessment Protocol for Excellence in Public Health, Ft. Myers, FL, Lee County Public Health Unit, April 1995 |

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APPENDIX B

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<td>13</td>
<td>County of Los Angeles, Los Angeles County Health Risk Assessment, 1994: Methods and Preliminary Findings for Los Angeles County, Los Angeles, CA: County of Los Angeles-Department of Health Services, Public Health Programs and Services, Planning and Policy Department, August 1995.</td>
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<td>Yes</td>
<td>75 a/b</td>
<td>Deloitte &amp; Touche LLP, KPMG Peat Marwick LLP, Orange County Health Network, Progress Report - Setting a New Direction for Our Community, Executive Briefing, September 19, 1995, Costa Mesa &amp; Long Beach, CA.</td>
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<td>Fall River Area Community Health Network, 1995 Community Health Assessment, Omaha, NB: Professional Research Consultants, Inc., 1995.</td>
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<td>HEALTHY COMMUNITIES INITIATIVE, Community Health Profile, South Bend, IN: Healthy Communities Initiative of St. Joseph County, December 2, 1993.</td>
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<td>Healthy Community Initiative, Orange County Health and Quality of Life Assessment, January 1995, Orlando, FL.</td>
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<td>Jacksonville Community Council, Inc., Life in Jacksonville: Quality Indicators for Progress, Jacksonville, FL: Jacksonville Chamber of Commerce, November 1994.</td>
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<td>Together 2000, Healthy Community Index, Franklin County, Ohio, December 1994.</td>
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<td>Together 2000, Report to the Community, Franklin County, OH, 1995.</td>
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<td>65</td>
<td>Weitzman, Michael and Andrew Doniger, Pathways to a Coordinated System of Health Care &amp; Human Services for Children &amp; Families in Rochester, New York, August 1994.</td>
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**NEEDS CLASSIFICATION**

**MISSING**

21 **Hospital Association of Pennsylvania, A Guide for Assessing and Improving Health Status, 1993.**

32 The Polis Center, SAVI, Social Assets and Vulnerabilities Indicators, Indianapolis, IN: Purdue University Indianapolis, 1995.

64 **Washington State Department of Health, Public Health Improvement Plan, Public Review Draft.**

**REPORTS THAT INCLUDE POTENTIAL INDICATORS**

500 City of Toronto, A Strategy for Developing Healthy City Indicators, Toronto, Canada: Healthy City Toronto, July 1994.


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<td></td>
<td>University of Louisville, Social Indicators for Human Services, Roger A. Bell, et al., eds., Louisville, KY: University of Louisville, Department of Psychiatry and Behavioral Sciences, School of Medicine, 1982.</td>
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### MORBIDITY, DISABILITY, & DEVELOPMENTAL DELAY INDICATORS

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# MORBIDITY, DISABILITY, & DEVELOPMENTAL DELAY INDICATORS

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<td>Cases of Decayed Primary or Permanent Teeth</td>
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<td>MORTALITY INDICATOR</td>
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<td>Somewhat Important</td>
<td>Very Important</td>
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<tr>
<td>---------------------</td>
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<tr>
<td>All Cancer Deaths</td>
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<td>All Deaths due to Unintentional Injury</td>
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<td>Cirrhosis of the Liver Deaths</td>
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<tr>
<td>Cerebrovascular Disease Deaths</td>
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<th>MORBIDITY, DISABILITY, &amp; DEVELOPMENTAL DELAY INDICATORS</th>
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<th>Somewhat Important</th>
<th>Very Important</th>
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<tbody>
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<td>Injuries from Violence/Abuse</td>
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<td>Work-Related Injuries</td>
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<td>Visual Impairment Disabilities</td>
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<td>Childbearing Age Women Who Test Positive for HIV</td>
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### Mortality Indicator

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<tbody>
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<td>Heart Disease Deaths</td>
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<tr>
<td>All Cancer Deaths</td>
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<td>Cerebrovascular Diseases Deaths</td>
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<td>Pneumonia and Influenza Deaths</td>
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<td>All Deaths due to Unintentional Injury</td>
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<tr>
<td>Motor Vehicle Crash Deaths</td>
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<tr>
<td>Fall-Related Deaths</td>
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<td>Suicides</td>
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### Morbidity, Disability, & Developmental Delay Indicators

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<tbody>
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<td>Injuries due to Violence/Abuse</td>
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<td>Self-Inflicted Injuries</td>
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<td>Hip Fracture Injuries</td>
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