Understanding The Root Causes of Poor Health In Alameda County

The Challenge of Achieving Equity

Anthony Iton, M.D., J.D., MPH
Alameda County Health Officer

Fremont Community Meeting
May 19, 2007
Tri-City Health Profile 2007

February, 2007
Community Assessment Planning & Education Unit
Alameda County Public Health Department
## Age of Tri-City Residents

<table>
<thead>
<tr>
<th></th>
<th>Median Age</th>
<th>% &lt;18</th>
<th>% 65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda County</td>
<td>34.5</td>
<td>24.6</td>
<td>10.2</td>
</tr>
<tr>
<td>Fremont</td>
<td>34.5</td>
<td>25.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Newark</td>
<td>33.1</td>
<td>27.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Union City</td>
<td>32.8</td>
<td>27.8</td>
<td>8.1</td>
</tr>
</tbody>
</table>
Fremont

- Asian/PI: 37%
- AfAm: 3%
- Other: 1%
- Multirace: 4%
- Latino: 13%
- White: 42%
Figure 4: Household Income

Percentage of households

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Alameda County</th>
<th>Tri-City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $25,000</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>35%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Source: CAPE; Census 2000.
Life Expectancy by Tract

Life Expectancy at Birth

- Green: > 80.0
- Yellow: 74.3 - 80.0
- Red: < 74.3

Compared With Alameda County

Fremont:
★ Slightly younger
★ Wealthier
★ Higher Life Expectancy
<table>
<thead>
<tr>
<th>Objective</th>
<th>Tri-City</th>
<th>Alameda County</th>
<th>HP2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality per 1,000 live births</td>
<td>4.5</td>
<td>4.6</td>
<td>4.5</td>
</tr>
<tr>
<td>Early prenatal care</td>
<td>90.1%</td>
<td>90.7%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Coronary heart disease mortality (per 100,000)</td>
<td><strong>153.5</strong></td>
<td>146.7</td>
<td>166.0</td>
</tr>
<tr>
<td>All cancer mortality (per 100,000)</td>
<td>159.6</td>
<td>168.9</td>
<td>159.9</td>
</tr>
<tr>
<td>Lung cancer mortality (per 100,000)</td>
<td>43.6</td>
<td>42.9</td>
<td>44.9</td>
</tr>
<tr>
<td>Female breast cancer mortality (per 100,000)</td>
<td>19.0</td>
<td>23.4</td>
<td>22.3</td>
</tr>
<tr>
<td>Prostate cancer mortality (per 100,000)</td>
<td>24.5</td>
<td>26.9</td>
<td>28.8</td>
</tr>
<tr>
<td>Motor vehicle crash mortality (per 100,000)</td>
<td>7.2</td>
<td>7.9</td>
<td>9.2</td>
</tr>
<tr>
<td>Homicide (per 100,000)</td>
<td>2.9</td>
<td>8.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Healthy People 2010 Objectives Not Met in Tri-City</td>
<td>Tri-City</td>
<td>Alameda County</td>
<td>HP2010</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Low birth weight</td>
<td>6.9%</td>
<td>6.9%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Stroke mortality (per 100,000)</td>
<td>54.7</td>
<td>56.1</td>
<td>48.0</td>
</tr>
<tr>
<td>Childhood (&lt;5) asthma hospitalization (per 100,000)</td>
<td>312.4</td>
<td>633.4</td>
<td>250.0</td>
</tr>
<tr>
<td>Colorectal cancer mortality (per 100,000)</td>
<td>15.4</td>
<td>17.6</td>
<td>13.9</td>
</tr>
<tr>
<td>Unintentional injury mortality (per 100,000)</td>
<td>20.6</td>
<td>24.5</td>
<td>17.5</td>
</tr>
<tr>
<td>Suicide (per 100,000)</td>
<td>7.1</td>
<td>8.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Tuberculosis cases (per 100,000)</td>
<td>15.2</td>
<td>11.2</td>
<td>1.0</td>
</tr>
<tr>
<td>AIDS cases (per 100,000)</td>
<td>4.1</td>
<td>11.9</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Figure 129: Historical TB Case Rate

- Alameda County
- Tri-City
Figure 132: TB Cases by Country of Origin

Tri-City
n=147

Source: CAPE; Alameda County TIMS 2003-2005.
BARHII Framework
Mortality

Life expectancy
Leading Causes of Death, Alameda County, 2001-2003 (N=28,790)

- Heart Disease: 26.9%
- Cancer: 23.7%
- Stroke: 8.3%
- Chronic Lower Resp Dis: 4.5%
- Unintentional Injuries: 3.6%
- Influenza & Pneumonia: 3.2%
- Diabetes Mellitus: 3.0%
- Alzheimer's Disease: 2.1%
- Chronic Liver Dis/Cirrhosis: 1.4%
- Homicide: 1.3%

Total Deaths: 67%
Cardiovascular Disease
Coronary Thrombosis With Infarction
Figure 35: CHD Mortality by Area and Sex

The bar chart shows the rate of CHD mortality per 100,000 people for different areas and by sex. The areas included are Alameda County, Fremont, Newark, Union City, and Tri-City. The chart distinguishes between the total (All), male, and female populations.

- **Alameda County**: The rate for males is similar to the total rate, while the rate for females is slightly lower.
- **Fremont**: The rates for males and females are close, with the male rate being slightly higher.
- **Newark**: The rates for males and females are similar, with the female rate being slightly lower.
- **Union City**: The rate for males is significantly higher than the total and female rates.
- **Tri-City**: The rates for males and females are similar, with the female rate being slightly lower than the male rate.

The chart indicates that Union City has the highest rate of CHD mortality, particularly for males.
Hypertension and Stroke
Angiogram - Embolism Infarction
Figure 43: Stroke Mortality by Area and Sex
Diabetes
Figure 26: Historical Diabetes Mortality

Source: CAPE; Alameda County vital statistics files, CA DOF, Census 1990 and 2000.
Figure 27: Diabetes Mortality by Area and Sex

Figure 30: Historical Diabetes Hospitalization

Source: CAPE; OSHPD hospitalization files, CA DOF, Census 1990 and 2000.
Figure 31: Diabetes Hospitalization by Area and Sex

Mortality

Access to health care

10 – 15%

Chronic disease
Infectious disease
Injury (intentional and unintentional)

Disease and Injury

Mortality

Genetics

10 – 15%
Causes of Differences in Health Outcomes

- Genetics 10-15%
- Access to health care 10-15%

15% + 15% = only 30%

What causes the other 70%???
Individual health knowledge 70% ?

Medical Model

Risk Behaviors → Disease and Injury → Mortality

Smoking
Nutrition
Physical activity
Violence
Is This All About Personal Responsibility???

The Medical Model Assumes that “Risk Behaviors” are the Missing 70%
The Obesity Epidemic
The Basic Problem

- More foods available everywhere
- More meals out with bigger meals
- More large volume sugar-sweetened beverages
- Aggressive food advertising

- More TV, video, computers
- More car travel
- Fewer PE classes
- Fewer safe walking/bike routes
- Lower perception of safety

Decreased Energy Expenditure

Increased Energy Intake
Figure 1
Annual soft drink production in the United States (12-oz. cans/person)


Figure 2
Growth in soda container size (oz.)
### Table 6
Low soft-drink prices promote consumption

<table>
<thead>
<tr>
<th>Beverage</th>
<th>Cost</th>
<th>Cost per quart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cola, supermarket brand</td>
<td>$0.59/2 liters</td>
<td>$0.28</td>
</tr>
<tr>
<td>Coca-Cola</td>
<td>$0.69/2 liters</td>
<td>$0.33</td>
</tr>
<tr>
<td></td>
<td>$2.50/6½ liters</td>
<td>$0.79</td>
</tr>
<tr>
<td></td>
<td>$2.67/12 12-oz. cans</td>
<td>$0.59</td>
</tr>
<tr>
<td>Pepsi-Cola</td>
<td>$2.50/12 12-oz. cans</td>
<td>$0.56</td>
</tr>
<tr>
<td></td>
<td>$0.79/2 liters</td>
<td>$0.37</td>
</tr>
<tr>
<td>Sierra Mist</td>
<td>$0.89/2 liters</td>
<td>$0.42</td>
</tr>
<tr>
<td>Cranberry Juice Cocktail</td>
<td>$1.99/64 oz.</td>
<td>$1.00</td>
</tr>
<tr>
<td>Capri Sun Juice</td>
<td>$2/10 6¾ oz. pouches</td>
<td>$0.95</td>
</tr>
<tr>
<td>Bottled water (supermarket brand)</td>
<td>$0.89/gallon</td>
<td>$0.22</td>
</tr>
<tr>
<td>Bottled spring water (supermarket brand)</td>
<td>$0.89/gallon</td>
<td>$0.22</td>
</tr>
<tr>
<td>Seltzer water, club soda, supermarket brand</td>
<td>$0.89/2 liters</td>
<td>$0.42</td>
</tr>
<tr>
<td>Dannon water</td>
<td>$5.99/24 16.9-oz. bottles</td>
<td>$0.47</td>
</tr>
<tr>
<td>Milk</td>
<td>$2.99/gallon</td>
<td>$0.75</td>
</tr>
<tr>
<td></td>
<td>$0.95/quart</td>
<td>$0.95</td>
</tr>
<tr>
<td>Orange juice, frozen, supermarket brand</td>
<td>$1.49/12-oz. can</td>
<td>$0.99</td>
</tr>
<tr>
<td>Tropicana Orange Juice</td>
<td>$1.88/64 oz.</td>
<td>$0.94</td>
</tr>
<tr>
<td>Florida’s Natural Orange Juice</td>
<td>$2.50/64 oz.</td>
<td>$1.25</td>
</tr>
</tbody>
</table>

**Source:** Prices at Washington, D.C., area stores, late 2004–early 2005; many prices are specials.
Milk vs. Soda Consumption

Girls (6-11 years old)

Industry Perspective

• “A growing body of scientific evidence by governmental and academic researchers, looking specifically at soft drink consumption, shows there is no connection between soft drink consumption and health problems, including obesity, tooth decay and bone health.”

• National Soft Drink Association website
Industry Perspective

• “Limiting calories in schools is a sensible approach that acknowledges our industry’s long-standing belief that school wellness efforts must focus on teaching kids to consume a balanced diet and exercise more. Schools provide an opportunity to create a healthy environment that equips our children with these skills. Our industry will continue to do its part to contribute that environment.”

-Susan Neely, CEO American Beverage Association
The Alliance and Industry leaders set healthy school beverage guidelines for U.S. schools

The Alliance for a Healthier Generation – a joint initiative of the William J. Clinton Foundation and the American Heart Association – has worked with representatives of Cadbury Schweppes, Coca-Cola, PepsiCo, and the American Beverage Association to establish new guidelines to limit portion sizes and reduce the number of calories available to children during the school day. Under these guidelines, only lower calorie and nutritious beverages will be sold to schools.
Obesity Trends* Among U.S. Adults
BRFSS, 1986
(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1987

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1988

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 1989

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1991

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1992

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1993

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1994

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1995

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1996

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1997

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends Among U.S. Adults
BRFSS, 1998

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

No Data      <10%        10%–14%       15%–19%      ≥20
Obesity Trends* Among U.S. Adults
BRFSS, 1999

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2000

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs overweight for a 5’4” person)

No Data <10% 10%–14% 15%–19% 20%–24% ≥25%
Obesity Trends* Among U.S. Adults
BRFSS, 2003

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2004

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Figure 1. Prevalence of overweight among children and adolescents ages 6-19 years

SOURCE: CDC/NCHS, NHES and NHANES
An American Epidemic: Diabetes

The silent killer: Scientific research shows a "persistent explosion" of cases—especially among those in their prime.

By Jerry Adler and Claudia Kalb
CDC: Diabetes to afflict 1 in 3 born in 2000

Scientist says kids must eat healthier, exercise more

By JANET McCONNAUGHEY
Associated Press

New Orleans — One in three U.S. children born in 2000 will become diabetic unless many more people start eating less and exercising more, a scientist with the Centers for Disease Control and Prevention warned Saturday.

The odds are worse for African-American and Latino children. Nearly half of them are likely to develop the disease, said Dr. K.M. Venkat Narayan, a diabetes epidemiologist at the CDC.

“I think the fact that the diabetes epidemic has been raging has been well-known to us for several years. But looking at the risk in these terms was very shocking to us,” Narayan said.

The 33 percent lifetime risk is about triple the American Diabetes Association’s current estimate.

By 2050, to 29 million, an earlier CDC study by Narayan and others found.

“These estimates I am giving you now are probably quite conservative,” Narayan said in an interview before the diabetes association’s annual scientific meeting here.

Narayan said it would be difficult to say whether undiagnosed cases would rise at the same rate.

If they did, that could push the 2050 figure to 40 million or more.

Doctors had known for some time that Type 2 diabetes — what used to be called adult-onset diabetes because it typically showed up in middle-aged people — is on the rise, and that patients are getting younger.

Nobody else had crunched the numbers to look at current odds of getting the disease, Narayan said.

Overall, he said, 39 percent of the girls who now are healthy 2½- to 3-year-olds and 33 percent of the boys are likely to develop diabetes, he said.

For Latino children, the odds are closer to one in two: 53 percent of the girls and 45 percent of the boys. The numbers are about 49 percent and 40 percent for African-American girl
A Potential Decline in Life Expectancy in the United States in the 21st Century

S. Jay Olshansky, Ph.D., Douglas J. Passaro, M.D., Ronald C. Hershow, M.D., Jennifer Layden, M.P.H., Bruce A. Carnes, Ph.D., Jacob Brody, M.D., Leonard Hayflick, Ph.D., Robert N. Butler, M.D., David B. Allison, Ph.D., and David S. Ludwig, M.D., Ph.D.

ABSTRACT

Forecasts of life expectancy are an important component of public policy that influence age-based entitlement programs such as Social Security and Medicare. Although the Social Security Administration recently raised its estimates of how long Americans are going to live in the 21st century, current trends in obesity in the United States suggest that these estimates may not be accurate. From our analysis of the effect of obesity on longevity, we conclude that the steady rise in life expectancy during the past two centuries may soon come to an end.
Obesity and Poverty in Alameda County School Districts 2000-2003

- % Overweight
- % Poverty

Cities: Piedmont, Pleasanton, Fremont, Alameda, Dublin, Castro Valley, San Lorenzo, Livermore, Newark, San Leandro, Emeryville, Hayward, Oakland

% Overweight and % Poverty data for various school districts in Alameda County from 2000 to 2003.
Disease and Injury Mortality

Individual health knowledge

Risk Behaviors → Disease and Injury → Mortality

Smoking
Nutrition
Physical activity

Violence

70% ??
Service Intensity FY05-06
Alameda County Public Health Department

Includes MCAH, Nursing, Cmty Probation, PM160, PM357

Source: CAFE.
Service Intensity FY05-06
Alameda County Public Health Department

Communicable Disease

Includes CD, TB

Source: CAPE.
Service Intensity FY05-06
Alameda County Public Health Department

Includes IPPO, ECC, Special Start, SIDS

Source: CAPE.
Medical Model Interventions

“SERVICES”

- Tend to focus is on individuals
- Tend to be remedial in nature
- Do not address underlying conditions
- Expensive and difficult to sustain
- Majority of Health, Social Services & Criminal Justice budget spent on these kind of interventions
What About The Environment?
Mortality Rate and % Poverty
Alameda County Census Tracts
2000-2003

Poverty Rate

Mortality Rate

0% 10% 20% 30% 40% 50% 60% 70%

0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000

0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000
High school grads: 90%
Unemployment: 4%
Poverty: 7%
Home ownership: 64%
Non-White: 49%

High school grads: 81%
Unemployment: 6%
Poverty: 10%
Home ownership: 52%
Non-White: 59%
High school grads: 65%
Unemployment: 12%
Poverty: 25%
Home ownership: 38%
Non-White: 89%
High school grads: 90%
Unemployment: 4%
Poverty: 7%
Home ownership: 64%
Non-White: 49%

High school grads: 81%
Unemployment: 6%
Poverty: 10%
Home ownership: 52%
Non-White: 59%

High school grads: 65%
Unemployment: 12%
Poverty: 25%
Home ownership: 38%
Non-White: 89%

Life Expectancy

>80

74.3 - 80

<74.3
Neighborhood Context

- Parks & recreational space
- Walkability, bikeability
- Access to amenities
- Concentration of alcohol outlets, fast food
- Housing stock
- Point sources of pollution
- Jobs
Overall: Compared to 1969
Americans drive:
- 88% farther to shop
- 137% farther for errands

Mega-Mileage Moms
• Family “chauffeur”

• Average minutes per day spent in car:
  - Women overall: 64 minutes
  - Single mothers: 75 minutes

Surface Transportation Policy Project: 2000
We have changed how much we walk or bike

★ Percent of children who walk or bike to school:
★ 1974: 66%
★ 2000: 13%

(CDC, 2000)
Institutional Power → Neighborhood Conditions → Risk Behaviors → Disease and Injury → Mortality
Fremont Unified District 2006
4th Grade Reading Level

<table>
<thead>
<tr>
<th></th>
<th>Prof/Adv</th>
<th>Basic</th>
<th>Below Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>44%</td>
<td>30%</td>
<td>26%</td>
</tr>
<tr>
<td>Latino</td>
<td>44%</td>
<td>30%</td>
<td>26%</td>
</tr>
<tr>
<td>White</td>
<td>70%</td>
<td>10%</td>
<td>7%</td>
</tr>
<tr>
<td>Asian</td>
<td>90%</td>
<td>3%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Legend:
- **Prof/Adv**: Proficient/Advanced
- **Basic**: Basic
- **Below Basic**: Below Basic
Fremont Unified District 2006
11th Grade Reading Level

<table>
<thead>
<tr>
<th></th>
<th>Black</th>
<th>Latino</th>
<th>White</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof/Adv</td>
<td>54%</td>
<td>28%</td>
<td>22%</td>
<td>72%</td>
</tr>
<tr>
<td>Basic</td>
<td>21%</td>
<td>25%</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td>Below Basic</td>
<td>5%</td>
<td>5%</td>
<td>10%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Legend:
- Green = Prof/Adv
- Yellow = Basic
- Red = Below Basic
Mortality Rate and % HS Education
Alameda County Census Tracts
2000-2003
Disease and Injury Risk Behaviors

Social Inequalities → Institutional Power → Neighborhood Conditions → Risk Behaviors → Disease and Injury → Mortality

Race/ethnicity, Class, Gender, Immigration status
Results of the statistical comparison of weather and deaths over 12 years show that blacks and those with a high school education or less are most likely to die on extremely hot days. – Harvard School of Public Health study of almost 8 million deaths in 50 cities from 1989 to 2000.
Chicago also suffers from an everyday "emergency in slow motion" that its leaders refuse to acknowledge. The heat wave was a particle accelerator for the city: It sped up and made visible the hazardous social conditions that are always present but difficult to perceive. Yes, the weather was extreme. But the deep sources of the tragedy were the everyday disasters that the city tolerates, takes for granted, or has officially forgotten. —Eric Klineberg, author of Heat Wave
A Proposed Model

Understanding Health In Context
Health Inequities

Socio-Ecological Model

- Bay Area Regional Health Inequities Initiative

Medical Model

UPSTREAM SOCIAL FACTORS

SOCIAL INEQUALITIES
Class, Race/ethnicity, Gender, Immigration Status

INSTITUTIONAL POWER
Corporations & other businesses, Gov't agencies, Schools

NEIGHBORHOOD CONDITIONS
Environment, Social, Physical, Residential, Segregation

INDIVIDUAL HEALTH KNOWLEDGE
Risk Behaviors, Genetics

RISK BEHAVIORS
Smoking, Nutrition, Physical activity, Violence

DISEASE & INJURY
Infectious disease, Chronic disease, Injury (intentional & unintentional)

DOWNSTREAM HEALTH STATUS
Mortality, Infant mortality, Life expectancy

HEALTH CARE ACCESS