

Community Needs Assessment

Epidemiological Data Report

Using PRECEDE-PROCEED Model

for Ohio County, West Virginia

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Acknowledgements

Data for this profile were compiled by four students from West Virginia University, School of Community Medicine, Department of Community Health Promotion for use by the Ohio County Health Department.

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Executive Summary

Health is more than the absence of disease. It is affected by factors and conditions such as genetics, lifestyle, education, housing and employment. National studies estimate that, by reducing their behavioral risk factors alone, Americans could prevent as many as 1 million annual deaths. Both chronic disability and health care costs would be reduced substantially as well.

The leading cause of death in the United States, West Virginia and Ohio County is cardiovascular disease. Cancer is the second leading cause of death. Although our social assessment did not identify diseases of the heart or cancer as specific concerns, community members did perceive lifestyle factors such as lack of exercise, smoking, and poor eating habits as major health problems.

A community's health reflects its individual members. Their longevity is compromised by chronic conditions such as heart disease, osteoporosis, diabetes, cancer, depression, and Alzheimer's disease. Members of the Ohio County are concerned about health care costs, especially for seniors.

The population of the county has decreased almost ten percent in the past ten years. The county has numerous agencies and organizations, willing to work together to plan and implement those projects to improve the health of Ohio County residents.

By identifying community issues, prioritizing those critical needs, and initiating a planned, action-oriented process which includes community members and local resources, health promotion activities can improve the health of Ohio County residents. Heart disease and cancer are significant health problems for the county; the associated risk factors of smoking, obesity, and physical inactivity are modifiable targets for change.

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Introduction

On August 28, 2000, graduate students from the West Virginia University School of Community Medicine, Department of Community Health Promotion, met with Larry Lewis, Director of the Ohio County Health Department to develop a plan for assessing the needs of the community. Students Cheryl Kaczor, Valerie Noel, Bobbi Sykes and Kathy Yeater discussed with Mr. Lewis methods for data collection to define statistics, community perceptions and other social and economic concerns for the county. Green's model for health promotion planning, PRECEDE-PROCEED¹, and the West Virginia Department of Health and Human Resources' suggested guidelines for written community needs assessment will serve as guides to the process. The Ohio County Health Department will use collected data to select and implement programs to improve health in Ohio County.

Ohio County is bordered by the Ohio River in the northern panhandle of West Virginia, in the foothills of the Appalachian Mountains. Formed in 1776, the county is named for its principal river; its county seat, Wheeling, is 673 feet above sea level. There are 108.9 square miles in Ohio County. Neighboring metropolitan areas include Pittsburgh, PA (57 miles), Columbus, OH (130 miles) and Cleveland, OH (136 miles.)

The total population of Ohio County in 1999 was 47,719; in 1990, that figure was 50,871.² This represents a 9.4% decrease in population. The city of Wheeling is the third largest in the state with a total population of 34,500. Of particular interest is that 19.9% of the county's residents are aged 65 or older, a higher number of elderly residents than most counties in the state.³

Ohio County is an ethnically diverse county with the majority of ancestry backgrounds in European culture. German, Irish, English, Italian and Polish are the major ethnic backgrounds for many Ohio County residents. ⁴ However, 96% of the population by race is Caucasian; those other than white represented 3.6 % of the total, comparing to similar racial distribution figures for West Virginia statewide in 1990.⁵

Employment

Mining and manufacturing, once the principal industries in Ohio County, have been replaced by service sector jobs in health care, education, government, recreation and retail. The county's unemployment rate of 3.5% marks the lowest it has been since a high of 8.5% in 1992. ²

Local and State Health Assessment Activities

Phase I-Social Assessment

Methodology

Recognizing that social assessment of community needs requires multiple sources of information, both from institutions and individuals, the work group chose to survey both "Key Informants" and individual community members by intercept surveys. Larry Lewis suggested we use the forms written by PATCH: Planned Approach to Community Health, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Chronic Disease Control and Community Intervention, Atlanta, Georgia 30333, revised January 1995. (*Appendix 1*) Each committee member would complete 15 of each survey.

An initial list of key informant individuals and agencies included: Wheeling Mayor, state government delegate and senator, county commissioner, Ohio County Schools, Wheeling Hospital, Ohio Valley Medical Center, Ohio County HeadStart and Daycare, mental health services, Altenheim Resource and Referral Center, Wheeling Health Right, police chief, sheriff, Family Resource Network (FRN), Family Services, WIC, Florence Crittendon Home, nursing homes, local PATCH, YMCA, Stratford Athletic Club and the Howard Long Wellness Center.

From a list of FRN Community Partners, several additional agencies and individuals were identified. These included: The United Way, Weed and Seed, Junior League of Wheeling, Coop-WVNCC, Big Brothers/Sisters, Abstinence Coalition, Wheeling Housing Authority, Easter Seals Rehabilitation Center, The Greater Wheeling Coalition for the Homeless, Youth Services Systems, Boy Scouts of America, WV Youth Advocate Program, WVU Extension Service, Ohio Valley Volunteer Interfaith Caregivers, Sexual Assault Help Center and the Department of Justice. Surveying ministers from local churches was discussed.

Intercept surveys of community members were completed by Ohio County residents at the Ohio County Library, West Liberty State College, Warwood School, and in the Warwood, Chantal Court/Clator and Elm Grove neighborhoods.

Key Informant Summary

Sixty-four (64) key informants were contacted and fifty-five (55) completed surveys obtained, for a response rate of 86%. Survey data was completed by telephone interview, fax, or personal interview. Manual data reduction by grouping issues into general categories yielded results summarized in the table below.

Question	Response (n)
<p>From the perspective of your office or agency, what do you perceive as the top three problems facing community health?</p>	<ol style="list-style-type: none"> 1. Lifestyle factors (n=27) <ul style="list-style-type: none"> • Lack of exercise (8) • Smoking (6) • Nutrition (6) • Prevention not otherwise specified (6) 2. Health care costs, lack of coverage, insurance costs/non-coverage (n=22) <ul style="list-style-type: none"> • Health care for uninsured (10) • Costs of services (8) • Insurance non-coverage/prescription drug costs for elderly (4) 3. Legal reform/legislative issues (n=21) <ul style="list-style-type: none"> • Funding for programs (6) • litigation (4) • medical malpractice premiums (4) • managed care and reimbursement (4) • WV Provider tax on gross income (3)

Other issues categorized as pertaining to children (n= 13) were prenatal care (3), parenting (2), day care (2), lice(2), abuse and neglect and/or violence (2), and immunizations (2) . Prevention of chronic diseases such as obesity (6), heart disease (2) and cancer (2) ranked next frequently. Community awareness of resources was a concern; five cited a “lack of education about issues and prevention” and three mentioned knowledge of available resources.

Question	Response (n)
<p>What is your perception of the top three unmet needs or barriers to community health?</p>	<ol style="list-style-type: none"> 1. Accessibility and utilization of services (n= 33) <ul style="list-style-type: none"> • Accessibility not otherwise specified (6) • Social stigma re:public assistance, culture, old beliefs, fear and denial (9) • Laziness, lack of motivation, apathy (8) • Lack of transportation (7) • Shortage of nursing home beds (3) 2. Financial/costs (n=20) <ul style="list-style-type: none"> • Program funding and low reimbursement for services (9) • Lack of health insurance and "system" (9) • Cost of malpractice insurance (2) 3. Agency collaboration and communication (n=10) <ul style="list-style-type: none"> • Collaboration (5) • Knowledge of agencies/resources (4) • Communication between agencies (1)

Six key informants mentioned "lack of education" as a barrier without specifics; two or fewer noted particular areas such as parenting skills, stress management, poor eating habits, adolescent issues, drug and alcohol abuse or programs for the elderly as unmet needs. The police chief mentioned an environmental problem concerning unsafe housing structure removal.

Ratings for perceptions of "other community health functions" are summarized below. Key informants rated Ohio County's health functions as adequate to high

quality for most categories, except in the area of health care for the elderly, which received 17 low ratings, representing 31% of key informants responding.

Ratings n= 55

Indicator	Low	Adequate	High	No answer/don't know
Local Hospitals	1	23	30	1
Local Health Departments	7	25	20	3
Health Care for Children	10	21	22	2
Health Care for Adults	6	32	16	1
Health Care for Elderly	17	26	11	1
School system	4	20	28	3
Personal safety in community	2	25	26	1 (1 depends on location)
Safety in public or private schools	6	22	25	1 (1 potential problem)

The top three changes in the community's health key informants would like to see within the next ten years paralleled the health problems previously cited. Twenty-five percent cited more prevention programs and more education/community awareness; 14.5% indicated affordable health insurance; 9% cited reducing the number of smokers, decreasing the incidence of chronic diseases such as heart attack, stroke and obesity and increasing the accessibility of exercise programs.

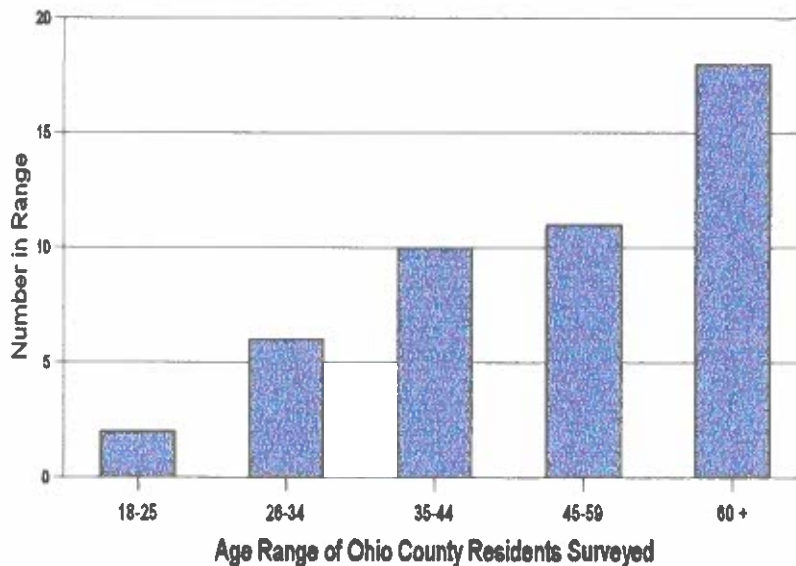
Community Opinion Survey Summary

Sixty-two Ohio County residents were personally interviewed using the survey questions described in Appendix 2. Gender and age information was available for 47; fifteen males and 32 females were recorded on completed interviews. The age ranges of respondents appear below.

Where do they go for health information?

Friends	12
Health department	3
Magazines/other publications	12
Pharmacist	8
Private MD /Health professional	43
TV/Radio	6
Other (Internet = 9, Relative=5)	14

Who Was Interviewed?



Survey participants were provided a list of areas and asked to rank them 1, 2, or 3:

“...Choose three areas that you believe should receive more emphasis in the community than they do now...”

Area	Cost of medical services	Cigarette smoking	Unhealthy diet and weight control	Health problems of older adults	Mental illness (includes Alzheimers)	Unemployment and poverty	Heart disease
Number ranking it in top 3	24	22	19	13	13	13	12
% of total	39%	36%	31%	21%	21%	21%	19%

Where do you go for health services, that is, nonemergency services?

Eighty-two percent (51 respondents) see a private physician for these services; 11% (7 surveys) use a walk-in clinic and 10 % (6 citizens) use the hospital emergency room. Only three persons of the 62 surveyed indicated they used the Ohio County Health Department and two cited a health maintenance organization (HMO).

Which specific health services and health education programs or activities are most needed in our community?

Ohio County residents rated the need for education about diet, weight loss, exercise and healthy lifestyle programs in 13% of the surveys; education about the effects of smoking and drinking was equally important to them. Third most frequently listed were health services for seniors (11%). Prevention of diabetes, heart attack and cancer concerns were listed by 8% of those surveyed.

How could existing health services be improved?

Awareness education, expansion of prevention programs, programs in the schools and increased media coverage were mentioned as needed improvements. In the area of accessibility and utilization, hours of service, time with a provider and obtaining results, as well as service to the uninsured and service costs received listings. Some participants did not answer the question or stated the answer was the same as the previous question.

Summary

From this preliminary data, both the key informants and community members are concerned about lifestyle factors and health care costs. Certainly these should guide health promotion efforts, in conjunction with epidemiological, behavioral, and environmental assessment results, in order to improve the health and well-being of this community.

Phase 2-Epidemiological assessment

In order to examine the health needs of Ohio County within a meaningful context, it is necessary to compile data from multiple sources. These include local county, state and federal sources such as the *West Virginia 1998 Vital Statistics Report*; *WV Cancer Registry*, *Kids Count Data Book*, and additional data from the CDC and WV DHHR Health Statistics Bureau. That these data are available testifies to the importance of epidemiological science as a foundation for public health practice and policy in the 21st century.

Ohio County
Selected Causes of Deaths, 1989 - 1998 ⁹
Number of Deaths

Selected Causes of Death	1989-98 Number of Deaths	1989-98 County Crude Rate	1989-98 County Adjusted Rate***	1994 U.S. Adjusted Rate***	Percent Difference from U.S.	SI #	County Rank
	6,642	1,335.9	989.7	917.1	7.9	#	25
Diseases of the Heart	2,298	462.2	336.0	298.4	12.6	#	34
Malignant Neoplasms	1,600	321.8	236.0	212.7	11.0	#	11
Lung	437	87.9	63.7	58.9	8.1		40
Colon	167	33.6	24.0	19.5	22.9	#	8
Breast	136	51.2	40.0	34.4	16.2		2
All Other Malignant Neoplasms	860	173.0	127.0	116.7	8.9	#	6
Cerebrovascular Disease (Stroke)	490	98.6	70.7	63.0	12.3	#	6
Chronic Obstructive Pulmonary Disease	375	75.4	53.2	40.5	31.3	#	23
Pneumonia and Influenza	236	47.5	34.9	33.7	3.5	#	23
Diabetes	200	40.2	29.9	22.7	31.7	#	22
Unintentional Injuries	177	35.6	31.3	35.6	- 12.1		49
Motor Vehicle	70	14.1	13.8	16.3	- 15.2		48
Non-Motor Vehicle	107	21.5	17.5	19.3	- 9.5		43
Intentional Injuries	74	14.9	15.5	21.4	- 27.6	#	43
Suicide	52	10.5	10.6	12.0	- 11.3		48
Homicide and Legal Intervention	22	4.4	4.9	9.3	- 47.8	#	30
All Other Causes of Death	1,192	239.7	182.3	189.1	- 3.6		26

Health Statistics Center, Office of Epidemiology and Health Promotion, West Virginia Bureau of Public Health 2000

A (#) indicates a statistically significant difference from the U.S. rate

*** Adjusted rates are adjusted by age to the 2000 U.S. standard million All rates are per 100,000 population

Years of Potential Life Lost (YPLL) Before Age 65 Ohio County

Selected Causes of Death	1989-98 YPLL	1989-98	1989-98	1994	Percent Difference from U.S.	St#	County Rank
		County Crude Rate	County Adjusted Rate***	U.S. Adjusted Rate***			
Total Deaths, All Causes	19,262	4,792.9	5,169.5	4,732.8	9.2	#	39
Malignant Neoplasms	3,902	970.9	1,000.4	768.0	- 30.3	#	20
Diseases of the Heart	2,980	741.5	759.1	587.0	29.3	#	39
Motor Vehicle Injuries	1,948	484.8	517.5	436.5	18.6	#	47
Non-Motor Vehicle Injuries	921	229.2	251.5	313.1	- 19.7	#	47
Suicide	1,363	339.1	368.6	262.6	40.4	#	24
Congenital Anomalies	897	223.3	259.5	202.2	28.3	#	37
Homicide and Legal Intervention	720	179.3	203.6	308.1	- 33.9	#	25
Sudden Infant Death Syndrome	580	144.4	173.2	92.1	88.1	#	17
Cerebrovascular Disease	247	61.5	60.9	102.2	- 40.4	#	47
Chronic Liver Diseases and Cirrhosis	281	69.9	73.9	91.3	- 19.0	#	29
Diabetes Mellitus	517	128.6	134.1	69.1	94.0	#	7
Prematurity	709	176.5	211.7	131.9	60.5	#	9
Chronic Obstructive Pulmonary Disease	325	80.9	74.0	59.9	23.6	#	25
Human Immunodeficiency Virus Infection	527	131.1	150.2	396.1	- 62.1	#	5

Health Statistics Center, Office of Epidemiology and Health Promotion, West Virginia Bureau of Public Health 2000

The YPLL gives greater weight to deaths at earlier ages, illustrating the effect of premature death resulting from the categories described. As noted by Green, "It is a measure, therefore that is more sensitive to the successes and failures of prevention and health promotion." ¹⁰ Again, both cancer and heart disease are top-ranked in their

impact on residents of Ohio County.

Another important segment of a county's health can be examined through birth measures, including neonatal and infant mortality, premature births and birth weights, and percentages of births to teen and unmarried mothers. The number of births to Ohio County residents continues to decline. In 1998, the county reported 1,712 total births, but only 541 of these were to county residents.

Infant mortality is an important indicator of a nation's health and is used as an international measure for comparing health status. The United States as a whole ranks 24th in infant mortality when compared to other industrialized nations.¹¹ The following tables are adapted from the 1999 edition of *West Virginia KIDS COUNT Data Book* and the US Department of Health and Human Services Health Resources and Services Administration (HRSA)^(12,13).

Measures of Birth and Death

Indicators	1990	1997	State	County
	Rate /%	Rate /%	Rate /%	Rank *
Low birth weight babies (<2500g)	6.3%	7.4%	8.1%	20
Infant mortality rate (per 1000 live births)	6.4%	10.5%	7.8%	47
Child death rate (ages 1-14 per 100,000)	29.8%	28.1%	27.2%	30
Teen birth rate (ages 15-19 per 1000 females)	47.2%	36.6%	50.2%	9
Percent births to unmarried teens (ages 10-19)	12.0%	11.6%	11.1%	37
Percent births without early prenatal care	28.1%	22.1%	18.0%	No rank

* County Rank is based on most recent available data; 1 = best, 55 = worst

Morbidity

COMMUNICABLE DISEASE CASE REPORTS						
Ohio County, West Virginia, 1995 Through October 6, 2000						
Disease Name	1995 Cases	1996 Cases	1997 Cases	1998 Cases	1999 Cases	2000 (YTD) Cases
Campylobacteriosis	4	3	3	7	3	3
<i>E. coli</i> O157:H7	0	0	0	0	0	2
Giardiasis	5	3	1	8	6	3
<i>H. influenzae</i> , Invasive Disease	0	0	0	0	1	0
Hepatitis A	0	0	1	0	15	6
Hepatitis B	1	1	1	0	3	1
Lyme Disease	0	1	0	0	0	4
Meningitis, Aseptic	4	0	2	2	2	2
Meningitis, Other Bacterial	2	5	2	1	1	0
Meningococcal, Invasive Disease	1	0	0	0	0	0
Rabies, Animal	0	0	2	0	1	0
Salmonellosis	11	4	5	6	10	10
Shigellosis	1	2	0	0	0	0
Strep., Group A Invasive Disease	0	1	0	0	1	2
<i>Strep. pneumoniae</i> , Drug Res. Inv. Dis.	0	3	1	0	0	1

Data table courtesy of M. Fernatt, data analyst WVDHHR 10/2000 personal communication, author Sykes

Communicable disease data are reported to the West Virginia Bureau for Public Health from laboratories, medical providers, and health care facilities (hospitals and clinics) as well as health departments across the state. Reporting is mandated by state law; surveillance data are also reported to the Centers for Disease Control at the national level. Timely and accurate reports are essential for identification of trends and identification, isolation and control of serious infectious agents.

Communicable diseases are relatively low in the county as well as the state.

OHIO COUNTY - OVERVIEW

In comparison to the U.S., Ohio County is

Better*	Similar	Worse*
Teen Fertility Rate	Cerebrovascular Disease	Diseases of the Heart
Low-Birthweight Births	Pneumonia and Influenza	Cancer - All Causes
Fetal Deaths	Unintentional Injuries	Lung Cancer
YPLL - All Causes	Motor Vehicle Accidents	Colon Cancer
No Health Insurance, Ages 18-64	Non-Motor Vehicle Accidents	Breast Cancer
Difficulty Seeing Doctor Because of Cost	All Other Causes	Cancer - All Other Causes
.	Late (3rd Tri)/No Prenatal Care	Chronic Obstructive Pulmonary Disease
.	Infant Deaths	Births to Unwed Mothers
.	Sedentary Lifestyle	Seatbelt Nonuse
.	Obesity	.
.	Hypertension	.
.	Cigarette Smoking	.
.	Smokeless Tobacco Use	.
.	Binge Drinking	.
.	Suicide	.
.	Homicide**	.

* An asterick (*) indicates a statistically significant difference from the U.S. rate.

** Number is too small for a valid comparison.

Adapted from Health Statistics Center (06/06/97), Office of Epidemiology and Health Promotion

In summary, after examining information from local, state and federal sources, heart disease and cancer were the top two causes of death in Ohio County for residents over age 24. Additional graphical information about the incidence and mortality burden of cancer is appended to this document. (*Appendices 3 and 4*).

Health Concerns for Ohio County

Phase 3-Behaviors and Risks

Contributing factors to health may be classified as either biological or behavioral; while the former are often well-defined, the latter involve concepts from the psychological, sociological and ecological sciences. Epidemiological data offers support to the cause-and-effect relationships between certain risk factors and the development of disease. Green and Kreuter further note “risk factors are characteristics of individuals; even if they refer to environmental conditions, when measured as a risk factor they refer to the exposure of the individual to that environmental condition.”¹⁴

The National Center for Health Statistics compiles data through numerous survey and surveillance systems, including the comprehensive National Health And Nutrition Examination Survey (NHANES) ; the National Center for Chronic Disease Prevention and Health Promotion maintains the Behavioral Risk Factor Surveillance System (BRFSS), National Program of Cancer Registries (NCPR) and the Youth Risk Behavior Surveillance System (YRBSS).¹⁵ From this national information, and state resources such as the West Virginia Bureau for Public Health (WVBPH), it is evident that a number of risk factors contribute to the leading causes of death in Ohio County.

Utilizing elements of the planning model PRECEDE, risk factors were classified as behavioral or nonbehavioral.¹⁶

Table 1**Risk Factors for Coronary Heart Disease**

Nonbehavioral	Behavioral	Related to Behavior
Age	Smoking	High blood pressure
Gender	High-fat diet	Elevated serum cholesterol/ triglycerides
Family history and heredity	Heavy alcohol consumption	Stress
Diabetes	Physical inactivity	Obesity and overweight
Menopause (women)		Oral contraceptive use/ hormone replacement

Adapted from Green and Kreuter, in *Health Promotion Planning*, 1999, p.117.

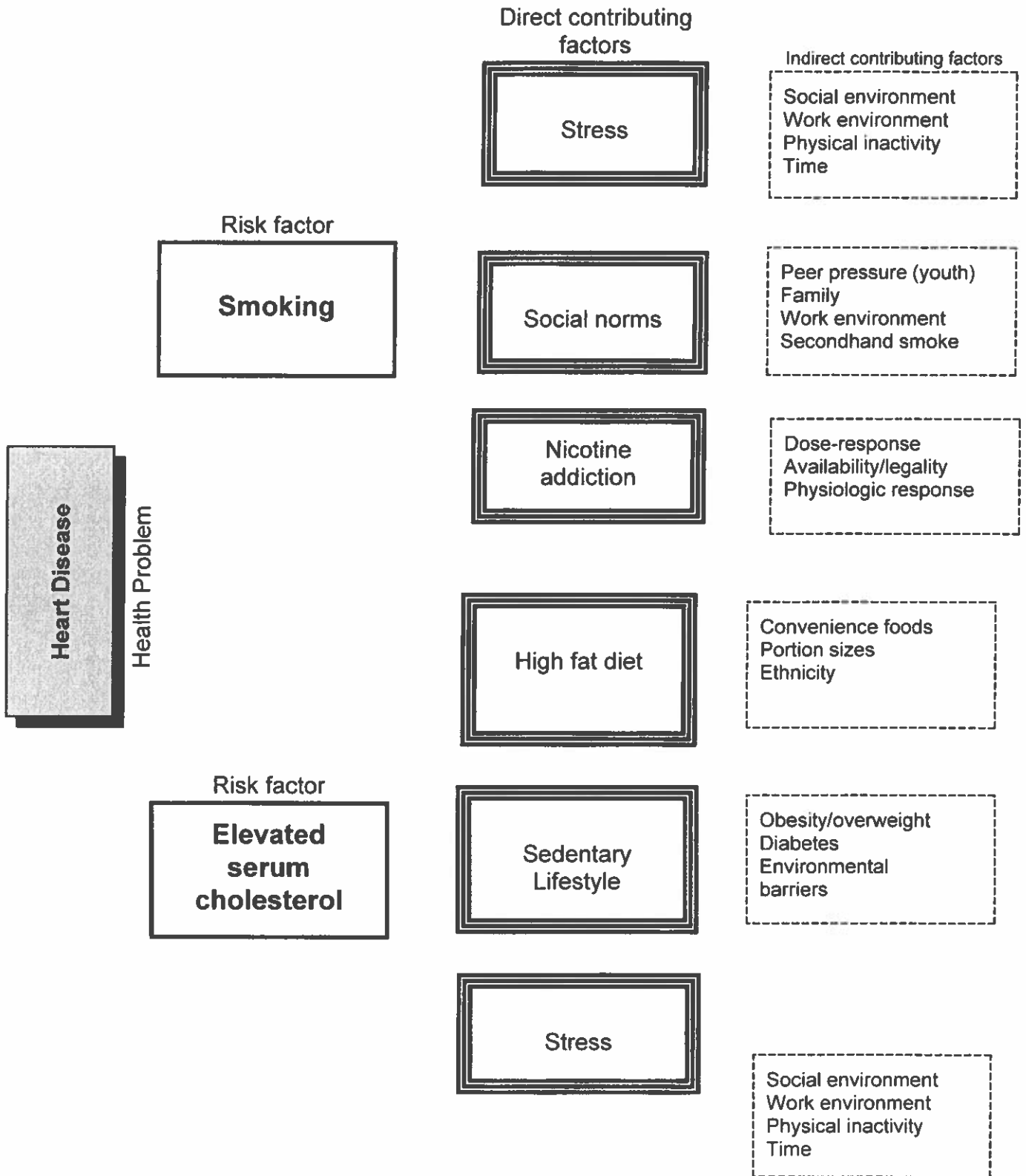
Table 2**Risk Factors for Cancer**

Nonbehavioral	Behavioral	Related to Behavior
Age	Smoking	Obesity and overweight
Gender	High-fat diet/ smoked, blackened, charred foods	Oral contraceptive use/ hormone replacement
Family history/ heredity	Heavy alcohol consumption	Environment
Occupational	Physical inactivity	Stress
Environment	Sunlight exposure	
Certain therapeutic drugs		
Nulliparity	Multiple sex partners/non-barrier contraception	

Kaczor, Noel, Sykes and Yeater, October 2000

Behaviors are often composed of multiple and interrelated influences; a flow chart was

completed for heart disease to determine modifiable factors for intervention.



Heart Disease

Health Problem

Risk factor
High Blood Pressure

Risk factor
Sedentary Lifestyle

Direct contributing factors

Overweight/ Obesity

Smoking

High salt diet

Lack of motivation

Lack of time

Diabetes

Indirect contributing factors

High fat diet
Overeating
Physical inactivity

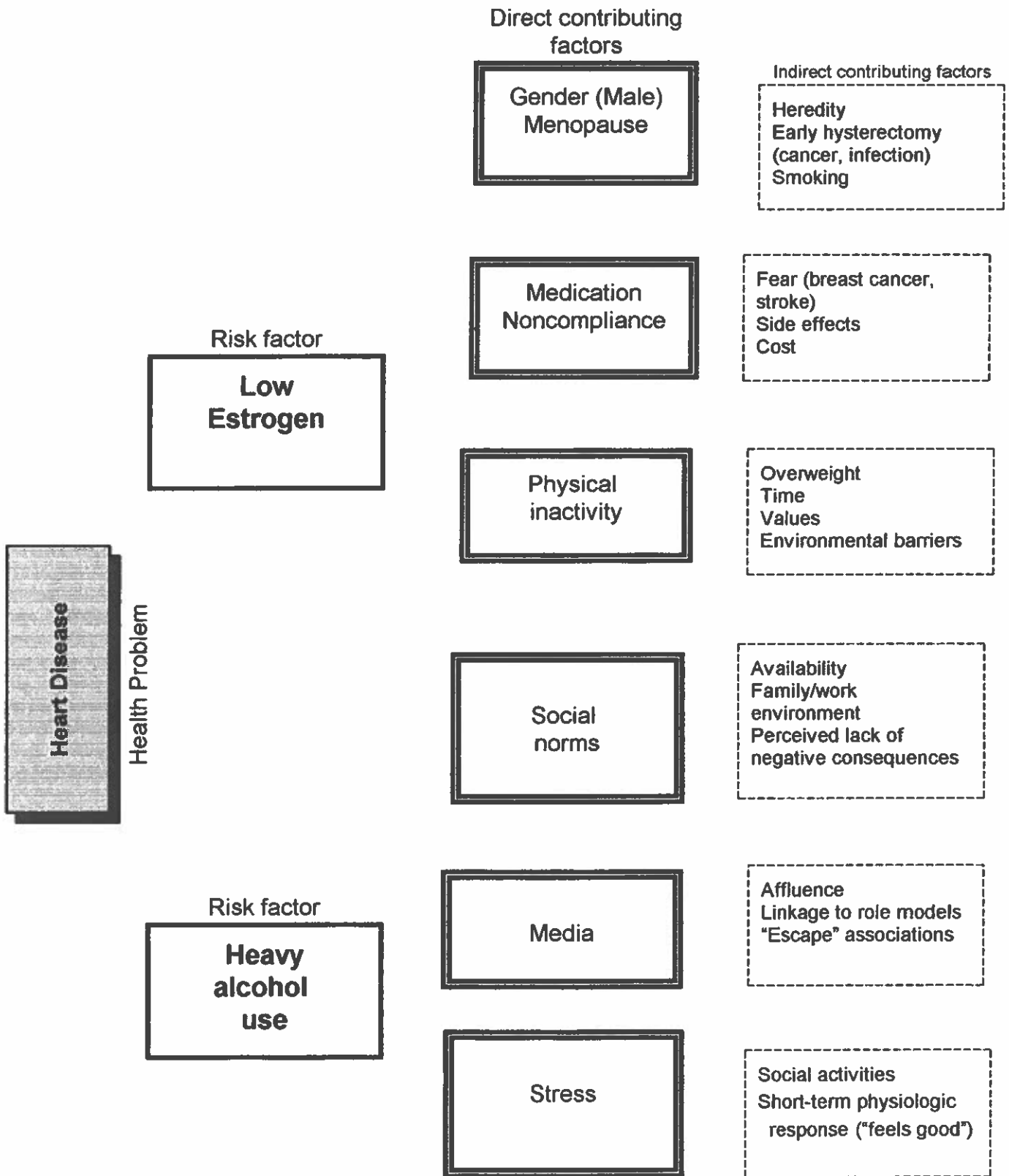
Stress
Social norms
Alcohol

Convenience foods
Ethnicity
Smoking

Overweight
Social environment
Alcohol

Values
Environmental barriers
Work/family demands

Obesity
Energy level



Applying the same chart model to the risk factors for cancer identified smoking, sedentary lifestyle, and dietary choices common to both heart disease and cancer. Risk ratios, prevalence data and evidence of causality were then reviewed to define which behaviors are both modifiable and important.

The number one killer in the United States, West Virginia and Ohio County is cardiovascular disease (CVD). There has been a significant decline in the number of deaths from CVD due to changes in personal health behaviors as well as improvements in medical technology. However, the decline in West Virginia has been substantially lower than those experiences in the nation as a whole. While the rate of CVD mortality declined 44% nationwide between 1960 and 1990, the decline in WV was only 32%.⁽¹⁰⁾ The three main behaviors linked to CVD that are modifiable are sedentary lifestyle, poor diet or obesity, and tobacco use.

The Behavioral Risk Factor Surveillance Survey (BRFSS) is an ongoing, random digit dialed survey of adults over age 18 in households. According to the 1998 BRFSS, 86.5% of West Virginia's adult population reported no regular and sustained physical activity.¹⁷ West Virginia ranked 3rd worst among 52 BRFSS participants for sedentary lifestyles.¹⁷ National data suggest that physical inactivity accounts for approximately 25% of all deaths from chronic diseases in the United States.¹⁸

Current recommendations from the Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine recommend, "Every American adult should accumulate 30 minutes or more of moderate-intensity physical activity over the course of most days of the week."¹⁹ Regular participation in physical activity has been shown to delay the

development of high blood pressure, reduce blood pressure in people with hypertension and lower blood cholesterol levels, all factors that contribute to CVD. In the 1997 BRFSS, Ohio County's hypertension rate was 21.5%.²⁰ The risk of developing high blood pressure is two - six times greater in people who are overweight. Modest weight loss may be the key to the control of hypertension in some people. The American Heart Association presents evidence that eating a diet low in total fat, saturated fat, and cholesterol and rich in fruits and vegetables effectively lowers blood pressure.²¹ Evidence also suggests that diets high in fat and low in fiber are associated with increased risk of cancer of the colon and rectum, uterus, prostate, and the breasts.⁸

Diet directly affects the development of atherosclerosis, the underlying cause of CVD. Diet can also affect blood cholesterol levels, body weight, blood pressure, and blood glucose levels. The National Health and Nutrition Examination Survey (NHANES) collects data from dietary interviews, physical examinations and biochemical and hematological tests conducted on a large probability sample of the U.S. population. According to NHANES III, the overall dietary pattern for the U.S. population was 50% of energy from carbohydrates, 15% of energy from protein, 34% of energy from fat, and 2% of energy from alcohol.²² It stated that although the percentage of fat has declined since the 1970's and 1980's, it is still above the recommended 30%. Mean cholesterol intakes for adult males were still above the recommended level as well.²²

Obesity is a serious and growing public health problem. According to 1998 BRFSS, 37.8% of WV adults were identified as overweight by body mass index, a 1.5% increase from 1997. This ranks the state highest in the nation for percentage of adults reporting overweight

by body mass index. In a letter published in the *Journal of the American Medical Association* on October 4, 2000, researchers from the Centers for Disease Control published alarming findings from the 1999 BRFSS data. Over only a one year period, 1998-1999, the prevalence of obesity increased 5.6% in men and women, across all sociodemographic groups and all regions of the United States.²³ The data shows a 57% increase in prevalence from 1991.

Smoking-caused heart disease results in more deaths per year than smoking-caused lung cancer. Cigarette smoking causes 30% of all heart disease deaths and it is the single largest preventable cause of heart disease in the U.S.¹⁸ Smoking triples the risk of dying from heart disease.¹⁸ Tobacco use is also the greatest factor for cancer in West Virginia. It is associated with cancer of the lung, larynx, oral cavity and pharynx, esophagus, bladder, kidneys, and renal pelvis, cervix, pancreas, and certain leukemias.⁸

The 1998 BRFSS reports that 27.9% of West Virginians were current smokers.¹⁷ West Virginia ranks third in smoking prevalence in the United States.^{8,17} It has been shown that people who quit smoking dramatically reduce their risk of dying from heart disease. The body begins to repair itself almost immediately. People who quit smoking can cut their risk of having another heart attack or dying of heart disease in half. In 15 smoke-free years, an ex-smoker's cardiovascular system will be as healthy as if he or she had never smoked.

A summary of Ohio County behavioral prevalences is attached as Appendix 5. Separate matrices for behaviors related to cardiovascular disease and cancer were developed to guide selection of intervention targets.

Behaviors Relating to Cardiovascular Disease

	More Important	Less Important
More Changeable	Smoking Eating foods with high fatty-acid content	Medical treatment, related behaviors
Less Changeable	Overeating Lack of exercise	Not relaxing (stress)

Source: Green and Kreuter, ' p.139

Behaviors Related to Cancer

	More Important	Less Important
More Changeable	Smoking High fat diet/smoked, blackened, charred foods Sunlight exposure Non-barrier contraception/ no contraception	Alcohol consumption
Less Changeable	Physical inactivity Environment Multiple sex partners	Response to stress

Behavior modification is a complex process. Glanz provides an excellent compendium of the theory, models, research and practice surrounding health problems and the work of public health professionals.²⁴ Prochaska, Norcross and DiClemente initially developed the Transtheoretical Model for behavioral change through their work with addictions: alcoholism and smoking cessation.²⁵ This model has been successfully applied across a broad range of behaviors, including dietary choice, using cocaine, exercising, using condoms and receiving sun exposure.²⁶

Nearly a decade ago, the National Cancer Institute launched the “5-a-Day” industry-government nutrition campaign to promote five daily servings of fruits and vegetables in the American diet. Numerous behavioral interventions have been designed, implemented and the outcomes evaluated as part of this program; the work of Davis, Baranowski *et al.*^{27, 28} provides recently published results. Successful dietary behavior modification in Ohio County was reported by Reger²⁹, who was able to reduce residents’ saturated fat consumption from milk.

These precedents, a careful consideration of the state and national Healthy People 2010 goals and objectives, and involvement of community members should guide behavioral health changes for Ohio County.

Phase 4 -Environmental Assessment

Obtaining clinical services or effecting behavioral changes requires that individuals make personal efforts to take necessary actions. Preventive environmental services, on the other hand, are for the most part passive, requiring little or no action on the part of the beneficiary. Some environmental prevention strategies (health protection)—such as safe water, fluoridation, lead abatement, regulations on public smoking, seat-belt laws, and safer

highways—generally require societal commitment for the implementation of the extensive interventions needed. Once these changes are made, they require little individual effort from the beneficiary and can have far-reaching impact.³⁰

Sources used to review various environmental influences on health-related problems in Ohio County include the Environmental Protection Agency (EPA) as well as numerous federal, state, and local agencies and organizations. The Health Problem Analysis Worksheet was also utilized to determine direct and indirect environmental contributing factors for the health problems of cancer and heart disease.

County Overview

Ohio County is located on the Ohio River between Ohio and Pennsylvania in West Virginia's Northern Panhandle. It is 687 feet above sea level in downtown Wheeling, ranging to 1,300 feet in some residential areas. The mean annual temperature is 50.5 degrees Fahrenheit with average annual precipitation of 37 inches. The government is a council/city manager with council members elected by wards; council appointing an administrative city manager; and the mayor elected at large. Electricity is provided by American Electric Power, natural gas by Mountaineer Gas Company, telephone by Verizon and the water/sewage is municipally owned and operated. Communication is by served by two daily newspapers, six radio stations, and three television stations. All major networks, as well as public and cable stations, reach Ohio County. There are more than 20 financial institutions in the metro area and over 100 places to worship.

Environmental Risk Factors

In the US, 1 of 4 deaths is from cancer; it is the second leading cause of death in the

United States, West Virginia and Ohio County. Nearly five million lives have been lost to cancer since 1990.³¹ In 2000, about 1,220,100 new cancer cases are expected to be diagnosed. The American Cancer Society tracks cancer occurrence, including the number of deaths, cases, and how long people survive after diagnosis. In Ohio County the five year incidence rate is 52.5 for colon-rectal cancer, 120.8 for breast cancer, and 73.1 for lung cancer. The rates are per 100,000 West Virginia residents and are age-adjusted to the 1970 U.S. standard population. Appendix 6 displays how Ohio County compares to the state of West Virginia.

Environmental factors (including smoking, diet, and infectious diseases) probably account for three quarters of all cancer cases in the United States. Moreover, smoking, diet, stress, physical inactivity are implicated in coronary heart disease. For most people, the risks from carcinogens in tobacco smoke and from nutritional factors, including obesity and physical inactivity, have a larger effect on personal health risks than do pollutants in food, drinking water, and air.³¹ However, for both voluntary and involuntary exposures, the degree of cancer hazard depends on the concentration, intensity, and duration of exposure.

Even low-dose exposures that pose only a small risk to individuals can represent significant public health hazards if the exposures are widespread (for example, secondhand tobacco smoke). Secondhand smoke, also known as environmental tobacco smoke (ETS), is a human carcinogen for which there is no safe level of exposure.³¹ Each year, about 3,000 nonsmoking adults die of lung cancer as a result of breathing secondhand smoke, and an estimated 35,000 to 40,000 deaths from heart disease occur in people who are not current smokers. Four chemicals in secondhand smoke (benzene, 2-naphthylamine, 4-aminobiphenyl, and polonium-210) are known human carcinogens, based on EPA standards. The EPA

classifies ten other chemicals in secondhand smoke as probable human carcinogens.

Because there are no safe levels of secondhand smoke, it is important that public policies to protect people from secondhand smoke be as strong as possible.³¹

Pesticides and Chemicals

Various chemicals show definite evidence of human carcinogenicity; others are considered probable human carcinogens based on evidence from animal experiments. Often in the past, direct evidence of human carcinogenicity has come from studies of workplace conditions involving sustained, high-dose exposures. Many kinds of pesticides (insecticides, herbicides, etc) are widely used in producing and marketing our food supply. Some evidence suggests that food chain bioaccumulation and persistent residues in body fat contribute to human cancer development.^{31, 32}

Radiation

Only high-frequency radiation, ionizing radiation (IR) and ultraviolet (UV) radiation, has been proven to cause human cancer. Exposure to sunlight (UV radiation) causes almost all cases of basal and squamous cell skin cancer and is a major cause of skin melanoma. Radon exposures in homes can increase lung cancer risk, especially in cigarette smokers; remedial actions may be needed if radon levels are too high.³¹ As of 1999, only 3% of 17,000 homes in WV have been tested/modified for radon. A WV Healthy People 2010 objective is to increase the proportion to 40%.³³

Toxic and Hazardous Wastes

Toxic wastes in dumpsites can threaten human health through air, water, and soil pollution. Although many toxic chemicals contained in such wastes can be carcinogenic at high doses, most community exposures appear to involve very low or negligible dose levels.

The West Virginia Department of Environmental Protection (DEP) maintains a database under the U.S. EPA's Toxics Release Inventory (TRI). TRI covers toxic chemicals released by manufacturing operations only. Options for expanding TRI to include non-industrial sources are being studied for future implementation. Reported releases are annual estimates based on accepted estimation techniques, not necessarily exact measurements. Each monitored chemical is listed separately by site.³⁴

The WVDEP lists 166 organizations in Ohio County that generate large quantities of hazardous waste.³⁴ Disposal of waste is subject to federal and state regulations, and organizations must register with the United States Environmental Protection Agency. Both agencies maintain programs and offices to monitor compliance and specific threats to air, water and land quality from disposal practices.

A West Virginia Environmental Protection Agency listing of emergency and remedial responses by the U.S. EPA on hazardous waste accidents in West Virginia identifies 534 statewide responses over the last ten years. Twenty-six of the responses were in Ohio County. These incidents ranged from barges sinking in the Ohio River, to sewer contamination, acid spills, and longer lasting lead contaminations.

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as "Superfund" legislation lists 24 sites in Ohio County under the program. Five West Virginia sites are on the National Priority List Hazardous Waste; none is in Ohio County.³⁴

Historically, the Ohio Valley has been a major mining and manufacturing area. Recently, industry has been replaced by health care, retailing, banking, education, and recreation. Air quality has improved in recent years. The West Virginia Pollution Control

Commission responded that air quality in Ohio County is good to moderate. There were no recorded days of unhealthy readings from October 1994 through October 1996. ³⁴

National Air Quality Standards met by Ohio County (1998)

Carbon monoxide	Nitrogen dioxide	Sulfur dioxide	Ozone	Particulate matter	Lead
Yes	Yes	Yes	Yes	Yes	Yes

Data Source: Environmental Protection Agency (*Toxic Chemical Release Inventory, AIRS Data 1998*)

Soil Pollution

Soil pollution in Ohio County is a threat to public and private water supplies. Potential agricultural pollution sources in the Northern Panhandle include cropland, permanent pasture and hayland, other farmland; feedlots, dairy, swine, and poultry farms, fertilizer runoff and streambank erosion as waste contaminants. ³⁴

The West Virginia Department of Environmental Protection, Office of Waste Management, has identified 166 locations containing underground storage tanks in Ohio County. Of these locations, 47 are known to be active or inactive leaking underground storage tanks. These are actual or potential sources of land or water pollution. ³⁴

Water and Sewage

The single most widespread drinking water problem in the United States is contamination from byproducts of the disinfection process, such as chloroform, that may cause cancer. Lead contamination is another major problem for public water supplies. The EPA has found that more than 800 cities exceeded the lead action level established under the Safe Drinking Water Act.

In Ohio County, water service is provided primarily through municipal systems or public service districts. The water is reported to be of high quality. ³⁴

<u>Sources of Water in Ohio County</u>		<u>Sewage Disposal in Ohio County</u>	
Public system or private company	22,207	Public Sewer	20,704
Individual drilled well	624	Septic tank or cesspool	2,359
Individual dug well	69	Other means	166
Some other source	329		

(Source: *Census of Population and Housing, 1990*)

Sewage disposal in Ohio County is serviced through a modern secondary sewage disposal plant, operated by the City of Wheeling. Municipal sewage treatment systems exist in all of the incorporated communities in the Wheeling area, except for the small communities of Clearview, Valley Grove, and West Liberty. Sewage systems serve 75% of the Ohio County area's population.

Income

Poverty data for West Virginia presents an alarming picture. Forty-eight of West Virginia's 55 counties have an overall poverty rate that exceeds that of the United States. In 1995, the U.S. poverty threshold for a family of four was \$16,029. Children are 40% of the poor although they are but 26% of the population. ¹² Poverty for children has been at or above 20 percent since the early 1980's in the U.S.; in West Virginia, poverty levels for children have increased from 26.2% in 1990 to 30.0% in 1995. ¹² Specific indicators for Ohio County and the state appear in the following tables.

Poverty in Ohio County and West Virginia

	Ohio County	West Virginia
Number of residents below the poverty line (1990 Census)	7,332	345,093
Percent of residents below the poverty line (1990 Census)	15.0 %	19.7 %
Number of children below the poverty line (1990 Census)	2,278	115,073
Percent children in poverty (1995) (Source: KIDS COUNT 1999)	23.8 %	30.0%

Adapted from: West Virginia Food Security Status Report, 1996 and KIDS COUNT 1999)

Ohio County Income, 1990 Census

Indicator	County	WV	County Rank
Per Capita Income	\$12,348	\$ 10,520	52
Median Household Income	\$ 22,489	\$ 20,795	46

Source: WV Bureau of Public Health, Office of Epidemiology and Health Promotion

The unemployment rate for Ohio County in 1999 was 4.9% while West Virginia's unemployment rate was 7.5%. ² Appendix 7 lists the major metropolitan Wheeling employers. Appendix 8 lists the non-locally owned major industrial facilities for the Bel-O-Mar counties (Belmont, Ohio, Marshall, and Wetzel counties). The largest employer in Ohio County, Wheeling Hospital, provides either partial or full health and hospitalization insurance benefits to 77% of its employees. Prescription drug partial coverage is available to full-time employees only.

Housing

Adequate housing is an important element in the health of every community. Forty-six percent of the homes/housing units in Ohio County were built before 1940. A growing health concern in the Ohio Valley is childhood lead poisoning. Lead-based paint and lead-contaminated dust and soil remain the primary source of lead exposure in West Virginia. In 1978, the Consumer Product Safety Commission banned the manufacture of paint containing more than a minimal amount of lead on interior and exterior residential paint, toys, and furniture. Homes built prior to 1978 have the potential risk for contamination with lead-based paint.³⁴

There are 23,229 housing units in Ohio County; of these 2,583 are vacant housing units and 20,646 are occupied housing units. Sixty-seven percent of the occupied housing units are occupied by the owner, while 6,876 units are renters or lease-occupied. In Ohio County 1,236 mobile homes and trailers serve as housing units to county residents.³⁵

Homelessness

In West Virginia, homeless statistics are often difficult to determine. In terms of health concerns and problems, homeless individuals are at greater risk for developing health problems. In the United States, 13.5 million Americans have been homeless at some point in their lives.¹¹ The Wheeling Coalition for the Homeless provided unduplicated statistical information on homelessness in the greater Wheeling area for 1999. Seventy-eight percent of the adults served were Ohio County residents.

Homeless Statistics for Ohio County 1999

Cases

Number of Cases seen at intake:	446
Number of Cases serviced:	212
Number of Cases no service:	234
Number of Cases closed:	228

People

Number of People seen at intake:	942
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Of those people:

- 673 were adults
- 269 were children
- 550 were adult Caucasian
- 123 were adult African American
- 370 were adult males
- 303 were adult females
- 112 were veterans
- 255 had a physical disability or mental illness-
- 28 were victims of domestic violence
- 339 had a High School Diploma or GED
- 16 were college graduates

Source: (The Greater Wheeling Coalition for the Homeless, 1999)

Hospitals and Clinics

Ohio County has two acute care hospitals, Ohio Valley Medical Center, which has 200 beds and Wheeling Hospital, which has 276 beds. Both hospitals are accredited by JCAHO. Until October 2000, both hospitals maintained Level 2 Trauma designations; however, the area's practicing neurosurgeons have relocated and trauma service above Level I will require helicopter flight to Pittsburgh, PA or Morgantown, WV. This situation has grave implications for the safety of Ohio County residents and those from the surrounding tri-state area.

The West Virginia Health Care Cost Review Authority lists 62 hospitals in West Virginia. The Wheeling-Ohio County Health Department provides public health care to Ohio County residents, and coordinates the federally-funded West Virginia Breast and Cervical Cancer Screening Program. The Wheeling Health Right, Inc. clinic provides income-based health services to the uninsured, and Dr.'s Urgent Care is a private outpatient clinic serving the area.

Public Transportation

Ohio County is enhanced by its transportation network. Local highways are well-developed and highly accessible. Interstate 70 is a major east to west route. West Virginia Route 2, between I-70 and I-470, carries approximately 19,000 vehicles per day and is the major north to south artery in the area. In Ohio County there are over 380 miles of roadways. It is estimated that it could take as long as 40 to 45 minutes for residents from some rural areas of Ohio County to reach a health care facility. In spite of this highway system, transportation, especially for the elderly, is a problem in Ohio County.³⁵ Wheeling is serviced by Ohio Valley Regional Transit Authority bus service, but the buses do not operate outside the city limits. Both hospitals provide courier van transportation within the city; the vans do not reach rural Ohio County residents. Several charter bus companies and taxi firms are available.³⁷

Ohio County is served by the Wheeling Ohio County Airport for charter service facilities (private and corporate aircraft) and is an hour's drive from Pittsburgh International Airport Midfield Terminal. Rail transportation is CSX for freight and Amtrak for passengers (located within a 90 minute drive in downtown Pittsburgh).

Public Recreation and Miscellaneous Services

Not all environmental factors are negative, nor are all factors disease related. Many factors have to do with quality of life and general well-being; these include the vast recreation and miscellaneous services provided in a community.

Oglebay Institute is the largest nonprofit arts organization in the state of West Virginia. Oglebay Institutes's Environment Education Department provides opportunities that foster relationships with nature while encouraging stewardship with the environment. Oglebay provides entertainment and performing arts, museums, a theater, and cinema.

The Wheeling Recreation Department offers multiple programs geared toward recreation for adults and children. Adult and child swims, day camps, tennis, playground Olympics and a roller hockey league offer participants opportunities both indoors and outside. The Wheeling Recreation Department, in conjunction with the Ohio County Public Library, serves the area with a bookmobile. There are two public libraries located in Ohio County.

Wheeling is also home to a professional ice hockey team, The Wheeling Nailers, and an Indoor Football League team, Wheeling Smash. Appendix 9 includes a listing of community resources.

Violence

Violence plays an important role in the social and physical health of a community. In West Virginia, crime has decreased and the statistics are below the national norms for street violence and other crime rates. Ohio County ranked 5th in the 1993 West Virginia crime rate.

In the year 1999, the Wheeling Police Department responded to 31,062 calls for service, compared to 27,280 in 1998, and 24,757 in 1997. This reflects an increase of 25% in dispatched calls over the three-year period. Beginning January 1, 1999, the National Incident-Based Reporting System replaced the Summary-Based System previously used statewide. NIBRS records every crime that occurs during a reported incident, which results in an increased number of crimes statistically.

The total number of crimes which were reported to the Wheeling Police Department increased from 3011 in 1998 to 3163 in 1999, for an overall increase of 5%. Ohio County's crime rate is low when compared to the nation. ³⁸

Individual categories of major crimes which **increased** from 1998 to 1999 include:

	Total Reported Incidents	
	<u>1999</u>	<u>1998</u>
Murder	2	1
Robbery	35	29
Assault/Battery	555	510
Assault/Threats	148	129
Vandalism	525	483

Individual categories of major crimes which **decreased** from 1998 to 1999 include:

	Total Reported Incidents	
	<u>1999</u>	<u>1998</u>
Aggravated Assault	52	67
Burglary	182	221
Breaking and Entering	71	99
Theft	719	736

In 1999, the Wheeling Police Department made arrests of 1321 adult violators and 143 juveniles. There were 1535 traffic collisions or accidents. (*Annual Report, Wheeling Police Department 1999-2000*)

Domestic Violence

West Virginia ranks first in the nation in the number of reported domestic violence crimes. The Family Violence Prevention Program is located in Wheeling, providing support, shelter and advocacy to victims of domestic violence.

In 1999, there were 1705 clients serviced by the staff at the Family Violence Prevention Program in Wheeling. This figure does not include the month of June, as that data is not available at this time. Also in 1999, there were 337 children either residing in shelter or meeting with an Advocate on an outreach basis. A total of 198 adults and children came to the emergency shelter for safety purposes. (*YWCA Family Violence Prevention Program, 10/2000*)

A graphical representation of the services provided by the program for the years 1996-1999 may be referenced in Appendix 10. All data represents 12 months except for 1999.

Many of the environmental risks discussed are addressed through public policy and regulatory agencies. Yet, the individual has a responsibility, as a member of a community, to examine personal action in the context of his environment. U.S. EPA Administrator Carol M. Browner remarked recently at the National Press Club:

Protecting the environment is a duty we hold in perpetuity. Each generation adds to the foundation, but finality is an illusion, almost like parallel lines meeting at the horizon; it doesn't happen. But still we need to look to the horizon and beyond, because that is where the solutions to our new challenges lie. As our reach should exceed our grasp, so must our vision extend beyond plain view."

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The work group concluded that the areas of physical inactivity, nutrition and tobacco use were those environmental factors most likely to be changeable through intervention in Ohio County.

Phase 5-Educational and Ecological Assessment

Individual behavior and action are caused by many factors. The factors are intertwined to increase or decrease the probability the action will be performed. The three main conditions that must be considered for the average person's behavior/action to change are predisposing conditions, enabling conditions and reinforcing conditions. "The classification of predisposing, enabling and reinforcing determinants of behavior offers a broad framework within which one can organize more specific theories and research."⁴⁰

Predisposing factors include knowledge, beliefs, values, attitudes, and confidence.

Enabling factors include availability and accessibility of health resources, community/government laws, priority and commitment to health, and health-related skills.

Reinforcing factors include family, peers, teachers, employers, health providers, community leaders, and decision-makers.⁴¹

Once these factors have been defined, models and theories may be applied to develop an effective intervention strategy. Individual-level theories, such as the Health Belief Model, are generally most appropriate for addressing predisposing factors; community-level theories, which suggest environmental changes, are appropriate for enabling factors; and the communication channels and methods of interpersonal-level theories are appropriate for reinforcing factors.⁴² The concept of reciprocal determinism, describing continual interaction of the individual, behavior, and environment was advanced

by Bandura in 1978.²⁶ Central to Social Cognitive Theory, this concept emphasizes the complexity of behavioral change and the many dimensions which must be considered in health promotion planning. Glanz provides an excellent review of these models, theories and constructs as well as examples of field applications.²⁴

This educational and ecological assessment identifies specific factors in Ohio County that will positively or negatively impact behavioral change. Because a motivated behavior cannot occur without enabling factors, and “Of the three factors...those that reinforce (reward or punish) health behavior are likely to be the most influential in relation to the development of complex behavior that must be maintained”⁴³, we particularly looked at factors in Ohio County that influenced the availability of goods and services. These included the availability, accessibility and cost of health care resources such as hospitals, urgent care facilities, health care providers, classes in self-care, exercise/fitness programs and other prevention programs. We examined the hours the facilities were open, the cost for use of the facility and the availability of transportation.

Other sources of information we used include: the 2000 Ohio County Community Health Status Report¹³, the U.S. Census Bureau⁷, the West Virginia Bureau of Public Health³, the Ohio County Health Department and community members from Wheeling Hospital, Ohio Valley Medical Center, the Health Plan of the Upper Ohio Valley, and Wheeling Health Right.

Access to care

The population of Ohio County is 47,719.⁷ The population density is 461 people per square mile. Approximately 15.4% of the county’s residents are living below the poverty

level.¹² Both population and income affect health resource utilization pattern.

In addition to use of services, access to care may be characterized by medical care coverage and service availability. Although the statistics from 1999 show there is no shortage of health professionals, Ohio County has lost all practicing neurosurgeons; the nearest neurosurgeons are in Morgantown, WV or Pittsburgh, PA, distances of 79 and 84 miles, respectively. Moreover, the medical malpractice liability concerns which contributed to these specialists' relocation are now affecting the obstetricians and gynecologists who practice in the county; modifications in their care delivery could seriously impact the quality of prenatal and obstetrical care for Ohio County residents and their babies. The data below do not include this recent information.

ACCESS TO CARE	
Uninsured individuals in the State (1998) ¹	302,000
Medicare beneficiaries (1998) ²	
Elderly (Age 65+):	9,540
Disabled:	1,140
Primary care physicians per 100,000 pop.(1998) ³	221.0
Dentists per 100,000 pop. (1998) ³	79.8
Community/Migrant Health Centers (1999) ³	Yes
Health Professional Shortage Area (12/17/99)	No

Source: *Community Health Status Report, July 2000 (6)*

¹ Estimate of uninsured individuals in the State was obtained from the U.S. Census Bureau, Current Population Survey, 1998

² Health Care Financing Administration

³ Area Resource File, Health Resources and Services Administration

Predisposing, Enabling and Reinforcing Factors

The PRECEDE acronym stands for *predisposing, reinforcing and enabling constructs in educational diagnosis and evaluation*. (1) In the previous phases of this model, behavioral objectives for health promotion in Ohio County were developed by examining risk and contributing factors to disease, ranking them in terms of importance and changeability. Community members, community leaders and local health professionals have shared their knowledge and concerns; the residents surveyed for the social assessment indicated an awareness about lifestyle change and its impact on their health. The group categorized predisposing, enabling and reinforcing factors, positive and negative, for each of the behavioral objectives. Factors are interdependent and may be applicable to more than one category.

TOBACCO

WV Healthy People 2010 Objective

OBJECTIVE 27.2 Reduce the prevalence of cigarette smoking among pregnant women to 12% or lower. (Baseline: 25.4% in 1998.)

Predisposing factors (Attitudes, beliefs and values, knowledge, confidence)

POSITIVE

- Smoking is harmful for the baby and self
- I want a healthy baby

NEGATIVE

- Smoking does not hurt the baby
- I'll gain even more weight
- I just cannot quit
- Smoking helps me relax
- I've smoked all my life and I am fine

Enabling factors (Skills, availability/accessibility, laws, community resources)

POSITIVE

- Laws prohibit tobacco sales to minors
- Surgeon General's warning on cigarette packages
- Non-smoking areas
- Smoking cessation programs
- Good counseling and information about the dangers/effects of smoking

NEGATIVE

- Low SES and everyone around them smokes
- Cigarettes available for smoking
- Lack of regular smoking cessation programs
- Physicians not providing counseling about dangers/quit methods

Reinforcing factors (Support from family, peers, teachers, employers, health providers)

POSITIVE

- Stigma about smoking while pregnant
- Economic benefits when not buying cigarettes (more money to spend on baby)
- Praise from MD, family, friends for not smoking
- Baby healthier (better birth weight, fewer respiratory problems from secondhand smoke)

NEGATIVE

- Peers, coworkers and family smoke
- No release of tension/relaxation
- Cigarette advertising

The benefits of smoking cessation have been widely studied, and a better understanding of the causes of heart disease has helped Americans make lifestyle

changes in the last two decades.⁴⁴ Cigarette smoking is a risk factor for lung cancer and cervical cancer.⁸ Low birth weight babies and increased incidence of childhood respiratory problems and infections are also consequences of parental smoking.³¹

Prochaska, who studied more than fifteen high risk behaviors, has observed that “less than 20% of a problem population are prepared for action at any given time.”²⁵ The individual must recognize a need for change and change begins with improving awareness of the impact of the behavior on their lives. The pregnant woman experiences physical and emotional changes which may cause her to think about her health practices. She is more likely to have contact with health care providers who could enable and reinforce smoking cessation.

In Ohio County, both hospitals, Wheeling Health Right and The Health Plan of the Upper Ohio Valley (HMO) offer smoking cessation programs. The hospitals charge for their programs; the HMO offers a reduced rate to its members, and the Health Right clinic is free. None of the programs, except for the Health Right clinic, is available regularly. The work group concluded that although smoking cessation program existence is a positive enabling factor, cost and limited availability restrict accessibility.

eat to live, but food choices are made within the context of social, economic and cultural environments. Food preferences are strongly influenced by family and ethnic backgrounds, levels of education and income, age and gender.⁴⁶ Although American consumers are increasingly well informed about the relationship between diet and health, data from the National Health and Nutrition Examination Surveys (NHANES) indicates many are not following dietary recommendations to reduce fat consumption and increase fruits and vegetables intake.⁴⁷ This survey is collected from a large probability sample nationwide, using dietary interviews, physical examinations and biochemical testing. NHANES III is ongoing and has supplied evidence about the prevalence of obesity.

In Ohio County, Reger and colleagues demonstrated a sustained and successful change to 1% or less milk using serial mass media campaigns.²⁹ By targeting a single dietary component, this intervention successfully addressed both predisposing and enabling factors for Ohio County residents. The group agreed this may also be evidence that community members are receptive to dietary changes and that intervention through media channels is positive. Diet and nutrition are part of the public school curriculum county-wide, bringing primary prevention to children.

A number of community resources which address skills, self-efficacy and social support are available, affordable and accessible in Ohio County. These include Weight Watchers meetings with both morning and evening times; a TOPS (Take Off Pounds Sensibly) group; Wheeling Hospital's Healthy Eating for Life eight week program; diet modification counseling in Wheeling Health Right clinics; the Wheeling Hospital Cardiac Rehabilitation and Diabetes Keys to Change programs; and both hospitals' worksite

wellness initiatives. All of the above are located on a bus line and, with the exception of Wheeling Health Right, charge approximately \$12-18 per session.

Although one local large grocery store offers an extensive variety of healthful, unprocessed foods, many are expensive. An excellent speciality fruits and vegetables market with high quality and reasonably-priced foods is available in Ohio County; its downtown location and lack of evening hours may be a barrier to residents who demand convenience. A new market which hopes to operate on a coop basis has opened in the Woodsdale neighborhood and will have a juice bar. Labeling laws have improved information about foods, but many consumers, especially the elderly, are confused about dietary messages.

PHYSICAL ACTIVITY

WV Healthy People 2010 Objective

OBJECTIVE 22.2 Increase to at least 17% the proportion of people aged 18 and older who engage regularly, preferably daily, in sustained physical activity for at least 30 minutes per day. (Baseline: 13.5% in 1998.)

Predisposing factors (Attitudes, beliefs and values, knowledge, confidence)

POSITIVE

- If I exercise I will live longer, lose weight, feel better, have more strength and energy

NEGATIVE

- Not enough time
- Too tired and no energy
- Need a rest
- Exercise does not matter
- Don't know what to do

Enabling factors (Skills, availability/accessibility, laws, community resources)

POSITIVE

- Walking trails
- Variety of affordable fitness facilities
- Accessibility to facilities or trails
- Low cost programs
- Child care available
- Employer-sponsored time/programs

NEGATIVE

- Labor saving devices
- Lack of child care
- Lack of financial resources
- Lack of transportation
- Lack of worksite programs

Reinforcing factors (Support from family, peers, teachers, employers, health providers)

POSITIVE

- Feel better
- More energy
- Lower blood pressure
- Lower cholesterol
- More mobility
- Social aspects
- Friends and family exercise with you
- Worksite incentives

NEGATIVE

- Friends and family do not support/encourage exercise
- No knowledge of where to go
- Safety issues for trail/outdoor areas
- Injuries from overuse of muscles
- Family commitments and time constraints
- Work commitments

Sedentary people who improve their physical fitness are less likely to die of all causes and cardiovascular disease than those who remain sedentary.²¹ The health benefits of regular physical activity are well documented^{18, 21} and in 1995 the Centers

for Disease Control and Prevention and the American College of Sports Medicine amended previous guidelines to state "Every American adult should accumulate 30 minutes or more of moderate-intensity physical activity over the course of most days of the week." ¹⁸ Accessibility and affordability for fitness facilities in the county appears in following chart.

Ohio County Fitness Facilities				
Facility	Hours	Cost	Accessibility	Child Care
Stratford Athletic Club 137 Waddles Run Road	Mon.-Fri.: 6 am-9 pm Sat.: 8 am-5 pm Sun.: noon-5 pm	Single \$105/3mos Family \$150/3mos	No bus service	Mon-Wed-Fri 9 am - 11 am
Howard Long Wellness Center Medical Park	Mon.-Thurs.: 5:30 am-10 pm Friday: 5:30 am-9 pm Sat.: 7 am-7 pm Sun.: 9 am-7 pm	Single \$30/joining \$48/month Family \$90/joining \$82/month	On bus line	Mon - Fri 8:30 - 1:00 pm 3:30 - 8:00 pm Saturday 8:30-2:30 pm
YMCA-Warwood 1610 Warwood Ave.	Mon.-Fri.: 7 am-9 pm Sat.: 7 am- 5 pm Sun.: noon-5 pm	Single \$50/3mos Family \$100/3mos (use only Warwood)	On bus line	No
Chambers YMCA Elm Grove	Mon.-Fri: 6 am- 10 pm Sat.: 7 am- 5pm Sun.: noon - 5pm	Single \$75/3mos Family \$125/3mos	On bus line	No
Jazzercise Zion Lutheran Church Bethlehem	Mon-Wed-Fri., Sat. : 9:15 am Mon -Fri: 5:30pm one hour classes	\$33/month	Near bus line	Mon-Wed-Fri 9:15 am

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