

THE
CHICAGO
COMMUNITY
TRUST
AND AFFILIATES

HEALTH REPORT

October 2009



Photo courtesy of Advocate Health Care

TABLE OF CONTENTS

Acknowledgements	Page 3
Executive Summary	Page 4
Chapter One: Issues, Challenges and Opportunities	Page 9
Chapter Two: A New Vision for Health	Page 22
Chapter Three: Recommendations	Page 24
Chapter Four: Special Indicators to Watch	Page 27
Appendices	
I. Health Planning Process	Page 53
II. CMAP Population Data	Page 54
III. Bibliography	Page 57
Endnotes	Page 62

This report was commissioned by The Chicago Community Trust in conjunction with *GO TO 2040*, the comprehensive regional planning campaign of the Chicago Metropolitan Agency for Planning (CMAP). It is one of several dozen reports (http://www.goto2040.org/strategy_papers.aspx) that examine potential strategies for implementing the *GO TO 2040* regional vision. The findings, conclusions, and recommendations of this report in their entirety have not been endorsed by CMAP or the Trust and do not necessarily represent their policies or positions. This report's recommendations may be considered for inclusion in the *GO TO 2040* plan, which will be adopted in October 2010.

ACKNOWLEDGEMENTS



This *Health Report* was developed by Richard Sewell, D. Patrick Lenihan and Amanda LeBreche at the University of Illinois at Chicago School of Public Health, in collaboration with an expert advisory committee. The report was commissioned by the Chicago Community Trust to support the *GO TO 2040* comprehensive regional planning effort led by the Chicago Metropolitan Agency for Planning.

ADVISORY COMMITTEE

- Principal Investigator: Richard H. Sewell, University of Illinois at Chicago
- Co-principal Investigator: D. Patrick Lenihan, University of Illinois at Chicago
- Research: Amanda K. LaBreche, University of Illinois at Chicago
- Trish Anen,* Metropolitan Chicago Healthcare Council
- Cynthia Barnard, Northwestern Memorial Hospital
- Andrea Bempong, Alliance of Chicago Community Health Services
- Joan D. Boomsma, MetroSouth Medical Center
- Patricia Canessa, Salud Latina
- Patricia Johnson, Department of Health and Human Services
- Mike Jones, Illinois Department of Healthcare and Family Services
- Candace M. King, DuPage County Federation on Human Services Reform
- Hong Liu, Asian Health Coalition of Illinois
- Terry Mason, Chicago Department of Public Health
- Patrick McNulty, McHenry County Health Department
- Harold Pollack, University of Chicago
- Sylvia Puente,** Latino Policy Forum
- Margie Schaps, Health and Medicine Policy Research Group
- Laura Schneider, Lake County Health Department
- Steve Seweryn, Cook County Department of Public Health
- Robert Vanecko, Institute of Medicine of Chicago

*Replaced Lawrence Haspel, DO

**Replaced Maricela Garcia

The University of Illinois at Chicago School of Public Health served as the lead agency for the development of this report. Also of assistance were Rich Forshee and Nolan Nosari, Illinois Department of Public Health; Dick Endress, DuPage Health Coalition; Mary Lally, Stacy Hoferka and Peggy Iverson, all of the DuPage County Health Department.

Editor for this report was Brenda Butler.

Editor for the Executive Summary was Don J. Terry

EXECUTIVE SUMMARY

INTRODUCTION

This Plan for Health is an unusual undertaking in two respects. It is part of the Go To 2040 regional master plan along with other human services components that have, historically, been outside the purview of planners, who are usually more concerned with issues such as land use, transportation, and solid waste disposal. And the planning horizon covers three decades, providing a rare opportunity for health planners to engage in truly long range planning.

Health is more than medical care: a variety of factors determine the health of individuals and a community. These “underlying determinants” include demographic composition, income and poverty, employment, social status, cultural beliefs and practices, level of educational attainment, environmental conditions, genetics, individual behaviors, and public health measures, in addition to the quality and utilization of health care services.

Most planning efforts, which attempt to affect community health, deal only with public health and medical services delivery, even though the other factors are known to have a greater influence on community and individual health.

This plan approaches the challenge differently; it focuses on the underlying determinants of health and moves beyond the narrower focus that health planners and public health officials traditionally take. This report identifies the connections that education, land use, transportation, food and hunger, civic engagement, workforce, and the economy have with health, and it focuses on strategies and interventions that can be pursued in these sectors to improve health throughout this region.

It has been said that “what gets measured gets done.” So, one key element in aligning the efforts of non-health sectors toward improving community health is to develop a set of indicators that track both the regional progress toward better health and the contributions that education, transportation, workforce, employment, and other non-health sectors make. The advisory committee believes that because many factors influence the health of a community, it is important to establish a focus. So it selected four areas of concentration that it determined would be most sensitive to local efforts and would have the greatest impact on the health of the region:

- **Disparities:** For most health conditions, disparities between higher income and lower income and minority populations exist. Targeting disparities ensures that areas of greatest need receive the most attention, thereby offering the greatest potential for overall health improvement.
- **Regional Efforts:** Local health conditions often reflect state or even national

trends that are beyond the influence of local or regional efforts. While policy changes at the state and national level are needed, the focus of this effort is on what can be accomplished in the Chicago region to improve health, and not on those factors that are beyond regional control.

- **Chronic Diseases:** Chronic diseases are the greatest cause of mortality and disability, accounting for more than 70 percent of all health care expenditures. Reducing the burden of chronic disease offers the greatest impact for improving the health of all population groups.
- **Prevention:** While medical technology and treatments dominate public attention, the most cost effective interventions involve prevention and health promotion. These interventions are best carried out through non-health sectors where people live, work, are educated, and go about their daily lives.

The region overall appears to be enjoying favorable health status, with a life expectancy that exceeds the national average and lower death rates for most causes of death. These summary measures reflect a region with low levels of poor health, relatively positive health behaviors and the use of preventive services. The region is served by an extensive health care system, which offers a wide variety of basic and specialized services spread across all counties. The region's population is effectively protected from infectious disease and environmental hazards by a network of local government-operated public health agencies

These overall favorable health conditions mask concerns that should be the focus of efforts to improve the health of the region. There is considerable variation among counties for nearly all measures of health status, which suggests room for improvement, especially if the lowest rates are viewed as potential but realistic goals for those counties which are not at the most favorable levels achieved by their neighbors. Within all counties there are population segments which have much poorer health status and access to health care. These are usually lower income and minority populations. Reducing health disparities is a national public health goal, which could also be adopted by this region. Lack of health insurance, and its consequences for access to health care, is a growing problem across the entire region, affecting larger numbers of people from all income groups. The region's public health system is also exhibiting signs of strain. Demands for public health service and population risks have increased, while financial support for the region's network of local health departments has eroded, due primarily to state and local government belt tightening.

Vision Statement

Sustainability: To meet the needs of the present without compromising the future, health planning and health policy formulation will take place above the level of service provider governing boards, local boards of health, and local elected officials. The formulation of health policy will be a higher priority and the process will be integrated with other regional planning concerns.

Equity: Since one-third of the region's population is expected to be Hispanic by 2030, health disparities based on race and ethnicity will be reduced and eliminated

by 2040. Desirable trends in health status and health systems performance indicator levels and a narrowing of the gaps based on race and ethnicity will exist. The vision of a fair distribution of the benefit and the burdens caused by the region's investments and policies to all parts of the region will apply to health resources.

Innovation: The region is home to important health and medical care trade association headquarters, medical schools, and excellent tertiary care and clinical research. By 2040, the region will have realized the competitive advantage of these resources and how to use them to drive regional growth and to address problems. Technological advances will reach all residents of the region and enhance their quality of life.

Quality of Life: The outcome of effective regional planning that includes health and human services will be an improved quality of life. Strong communities, housing, recreation, employment, and education systems are all determinants of health that influence quality of life.

Environment: The favorable relationship between open space and housing that the region currently enjoys will be maintained in 2040. This will be managed through regional planning and good leadership while accommodating the expected increase of 2.8 million additional residents by 2030. Threats to population health will be minimized through a strengthened environmental health effort by public health organizations.

Energy: Use of energy by health facilities and equipment will be reduced. Health and medical centers will be more decentralized so there is less reliance on individual transportation. A greater emphasis on primary prevention will decrease the population's dependence on the tertiary and quaternary features of the medical care system.

Water: The high quality of water supplies for human use in the region will be maintained and enhanced. Equitable distribution of water resources throughout the region will improve. Exploration of water recycling systems will yield promising results. This will be possible through improvements in regional planning and cooperation.

Housing: The fact that housing is a determinant of health will be a principle of regional planning. The result will be "safe, decent, affordable, and stable" housing across the income spectrum throughout the region.

Health: The region will meet or exceed the "Healthy People, 2050" health objectives for the U.S. through improvements in lifestyle and health behaviors, environmental health, and the performance of health services. Data for mental health status and oral health status will be tracked and measured in the seven-county region. The public health infrastructure will be strengthened through strong partnerships, evidence-based community practices, a data sharing system that provides for real-time feedback and enhanced responsiveness, and the development

of population-based capacity. A capacity for regional planning for health will be in place and the cost of health care in the region will meet regional planning guidelines.

Safety: Public safety and significant reductions in criminal activities will be a by-product of the improvements cited under other topics in the 2040 vision.

Education: Education and training across the lifespan will be a system characteristic in the region. Workforce capacity and specialty challenges in the health enterprise will be connected to education and training program curricula and output. Resources for education and the performance of public schools will be adequate to meet needs regardless of income, race, or ethnicity.

Economy: Recognition that investments in human capital generate regional returns will be a planning principle. The multiplier effect of the health enterprise and the economic benefit of enhancements and integration of environmental, public health, social equity, cultural amenities, education, and physical infrastructure systems will be realized.

Reinvestment: Community reinvestment will result in improvements in community health status.

Transportation: Regional planning will connect transportation elements with a more decentralized system of health facilities.

Intergovernmental coordination and planning: The regional planning agenda that is concerned with land use, physical infrastructure, etc. will be coordinated with health and human services planning.

Civic involvement: Health leaders and health consumers will have significant involvement with the health system at the community and regional levels.

Recommendations

This vision can be achieved if the following recommendations are implemented:

Integrated Prevention/Health Promotion Strategy

1. Design a prevention/health promotion strategy built on the determinants of health. Use these determinants as the basis for planning for improved population health and improved performance of health systems coordinated with planning for physical infrastructure, education, transportation, and land use. The scope of the planning should be comprehensive with an emphasis on health workforce planning. Without workforce planning, adjustment to environmental forces is difficult.
2. Engage health leaders and community residents in regional planning and involve a large and diverse share of the regional population in volunteer activities related to planning a health system that reflects their needs.

3. Link planning for the design and implementation of the prevention/health promotion strategy to planning in other sectors. This should be an enduring function within the Chicago Metropolitan Agency for Planning.

Data for Integrated Planning and Monitoring

4. Take advantage of the emerging electronic medical records platform to create real time access to important health data by key users, including health planners and policy makers. Use an “all data” approach so that resources such as physician offices, pharmacies, clinical and testing laboratories, and retail clinics, etc. are included.
5. Establish a regional health status and health systems data center. Enhance access to Web-based data through a centralized entry point.
6. Create health planning capacity at the county level, built on public health requirements for community health improvement planning.
7. Provide an analytical framework for an integrated prevention/health promotion initiative.
8. Enable comprehensive health workforce planning.
9. Monitor and address health disparities.
10. Provide data for planning, policy-making and research in a more timely fashion.
11. Improve data quality and analytical capacity.

Public Health Infrastructure

12. Strengthen the public health infrastructure. While the region compares favorably to Illinois and the United States on most measures cited in this plan, there are populations of racial, ethnic, and economic minorities with alarming health statistics.

CHAPTER ONE

ISSUES, CHALLENGES AND OPPORTUNITIES

Health is more than medical care. A variety of factors determine the health of individuals and a community. These include demographic composition, income and poverty, employment, social status, cultural beliefs and practices, level of education, environmental conditions, genetics, individual behaviors and public health measures, in addition to the quality and utilization of health care services.

Most planning efforts deal with public health and medical services delivery only, and these are known to have a great influence on community and individual health. The *GO TO 2040* health plan, however, addresses these underlying determinants of health and moves beyond the narrower focus that health planners and public health officials traditionally take.

The health and health systems issues section will identify the connections that education, land use, transportation, food and hunger, civic engagement, workforce and the economy have with health and focus on strategies and interventions that can be pursued in these sectors to improve health throughout this region.

It has been said that "what gets measured, gets done." So one key element in aligning the efforts of non-health sectors toward improving community health is to develop a set of indicators that tracks both the regional progress toward better health and the contributions that education, transportation, workforce, employment and other non-health sectors can make through the *GO TO 2040* plan.

Community health is a very broad topic with many possible points of interest and a large number of indicators have been traditionally used to profile health. With so many factors influencing the health of a community, establishing a focus for selecting relevant indicators is important. Our approach was to select no more than 15 indicators that were sensitive to local efforts and that would have the greatest impact on the health of the region. Four considerations guided our thinking:

- For most health conditions, disparities between higher income and lower income and minority populations exist. Targeting disparities would ensure that areas of greatest need receive the most attention, thereby offering the greatest potential for overall health improvement.
- Local health conditions often reflect state or even national trends that are beyond the influence of local or regional efforts. While policy changes at the state and national level are needed, the focus of this effort is on what can be accomplished in the CMAP region to improve health and not on those factors that are beyond regional control.

- Chronic diseases are the greatest cause of mortality and disability; they account for more than 70% of all health care expenditures. Reducing the burden of chronic disease offers the greatest impact for improving the health of all population groups.
- While medical technology and treatments dominate public attention, the most cost-effective interventions involve prevention and health promotion. And prevention and promotion are best carried out through non-health sectors where people live, work, are educated and go about their daily lives.

Health and Health Systems Issues in Northeastern Illinois

This section of the report presents the current status of the region's health, drawing on a compact set of indicators most commonly used to profile the health of a community. The purpose of this summary is to provide a high-level overview that can help guide an understanding of the region's health status and provide a basis for tracking future progress. The focus is on each individual county to highlight differences that might exist across the region. Comparisons to the U.S. as a whole are made, when data is available, to provide a basis for interpretation.

- The profile begins with a set of summary measures for each county in the region and then takes a closer look at specific causes of death.
- Major behavioral contributors to health and the use of preventive services are next examined, followed by public health conditions that affect the entire region.
- Shifting the focus from individuals and populations to the health resources, a review of key health care and public health services is presented along with a summary of how accessible those resources are to residents of the region.
- The section concludes with findings and cross-cutting issues that emerge from the data.
- A final technical note is provided to help in understanding the data presented.

The Overall Health Picture of Northeastern Illinois

Many indicators can be used to profile the health of a community, with each one capturing some aspect of health such as age, level of risk, burden of disease, individual behavior, and health care resources. The federal Department of Health and Human Services has identified four factors that summarize the health of a community: average life expectancy; all causes of death; self-reported health status; and average number of unhealthy days reported in a recent month.

Table 1: Summary Measures of Health

County	Life Expectancy in years	All Causes Death Rate	Self- Reported Poor Health	Unhealthy Days in Past Month
Cook	75.6	868.8	15.8%	5.6
DuPage	79.6	721.6	10.2%	5.0
Kane	77.8	799.7	13.3%	4.9
Kendall	79.0	721.3	7.0%	3.4
Lake	78.6	785.1	12.5%	5.0
McHenry	78.0	806.0	11.9%	5.4
Will	77.8	814.4	9.8%	5.6
U. S. County Average	76.5	898.6	17.1%	6.0

Source: Community Health Status Indicators Report, DHHS, 2008

Average life expectancy in the U.S. in 2006 was 76.5 years. Overall, as seen in Table 1, life expectancy in the region is slightly above the national average, with six of the seven counties exceeding the national figure. Only Cook County, at 75.6 years, was below the national average. Life expectancy in DuPage County, at 79.6 years, was the highest – more than three years higher than the national average. Not surprisingly, the highest overall death rate (adjusted for population age structure) was for Cook County, where the largest proportion of the population also reported poor health. The lower life expectancy for Cook County together with the higher reported poor health is likely related to the greater proportion of lower income and minority populations in that county and a higher percentage of uninsured residents. Lower income and minority populations generally have poorer health status and report greater illness. However, Cook County along with the rest of the region appears to enjoy relatively favorable overall health status compared to U.S. averages, especially for Kendall County whose population reported the fewest unhealthy days and lowest level of poor health by a large margin.

Stage of Life and Cause Related Health Conditions

An examination of health measures at various stages of life and for specific conditions provides a closer look at the health of the region. Infancy is often examined because of the higher health risks associated with this period of life and infant mortality is perhaps the most commonly used public health indicator. Mortality rates are highest for infants, then drop dramatically in childhood and for young adults, and then rise again with advancing age due to certain causes that have an impact throughout the life cycle.

Table 2: Infant Related Health Conditions

County	Infant Mortality	Low Birth Weight	No care in 1 st Trimester	Premature Births
Cook	8.5	9.1	17.2	13.3
DuPage	6.6	6.9	10.8	11.0
Kane	6.5	6.9	19.0	11.7
Kendall	7.0	6.0	10.3	10.9
Lake	5.0	7.3	16.3	11.3
McHenry	4.0	6.7	11.4	12.0
Will	6.2	7.3	8.7	12.0
U. S. (2003)	6.8	7.9	16.0	12.3

Source: Community Health Status Indicators Report, DHHS, 2008

Infant mortality, as presented in Table 2, varies greatly across the region, being twice as high in Cook County as in McHenry County. Infant mortality in all counties except Cook is either at or below the national average. Cook's higher infant mortality rate is related to several factors, including a relatively high proportion of pregnant women who do not start prenatal care early, a higher proportion of premature births and, most significantly, the higher proportion of African-American births. Infant mortality for African-Americans is two to three times the rate for whites, across the region, reflecting less access to care, higher poverty among African-Americans and other life stressors. Outside of Cook County, all indicators of infant health appear relatively favorable compared to U.S. averages with the exception of higher rates of late prenatal care in Kane and Lake counties, likely reflecting the large proportion of Hispanic populations in these counties and the access problems faced by undocumented immigrants.

Table 3: 2003 Causes of Death (adjusted rates)

County	Breast Cancer	Colon Cancer	Heart Disease	Homicide	Lung Cancer	Motor Vehicle Injuries	Stroke	Suicide	Other Injury
Cook	28.1	22.6	202.1	14.3	54.2	10.1	53.4	7.5	21.4
DuPage	28.7	18.6	144.1	1.5	46.8	7.9	55.2	7.3	14.7
Kane	31.0	21.3	150.4	4.5	56.0	10.8	59.9	8.4	17.1
Kendall	33.0	23.5	138.4		53.2	15.6	50.9	10.5	15.0
Lake	27.6	18.4	160.5	2.8	52.5	8.7	60.0	7.6	16.5
McHenry	29.5	25.5	157.6	1.4	55.8	14.5	55.7	6.4	15.3
Will	26.4	21.2	197.4	3.0	55.1	12.3	53.5	9.2	16.5
U. S.	25.3	19.1	172.0	6.0	54.1	14.8	53.0	10.8	17.3

Source: Community Health Status Indicators Report, DHHS, 2008

Table 3 presents the leading causes of death in the U. S. and for each of the seven counties in the region. While it appears that in many cases the rates are higher than for the U.S. average, most rates are comparable, after statistical adjustments are made, with a few exceptions (shaded in Table 3). Except for single conditions in individual counties, the overall pattern suggests that health status for the region reflects national trends. For breast cancer, colon cancer, heart disease and homicide, rates are significantly higher in Cook County, likely reflecting the sociodemographic and health insurance conditions. And for breast cancer, even after adjustments, rates are higher in Cook, DuPage and Kane counties. As breast cancer is most treatable at an early stage, this may indicate that some segments of the female population are not being screened, perhaps due to access limitations. Stroke death rates are also significantly higher in Kane and Lake counties, which may also reflect access to care and risk factor conditions associated with large pockets of lower income and underserved populations.

Health Behaviors and Use of Preventive Services

Many diseases and injuries are related to behaviors that put an individual at risk, or factors that increase the risk of more serious disease. Six behaviors and risks that are strongly associated with premature death are lack of exercise, diet (eating few fruits or vegetables), obesity, high blood pressure, smoking and diabetes.

Table 4: Health Behaviors and Use of Preventive Services

County	No exercise	Few fruits/veggies	Obesity	High blood pressure	Smoking	Diabetes
Cook	27.8	76.8	22.0	23.0	21.4	7.1
DuPage	21.7	71.5	17.4	19.5	18.9	5.2
Kane	26.9	81.5	22.6	20.4	17.9	5.6
Kendall	21.6		18.6		15.7	4.7
Lake	20.9	74.9	20.8	22.1	19.6	5.3
McHenry	21.1	73.0	21.3	19.1	22.3	4.9
Will	23.9	83.1	23.6	22.0	23.2	5.2

Source: Community Health Status Indicators Report, DHHS, 2008

While the patterns for the region (Table 4) are close to U.S. averages, these data suggest that residents of the Chicago metro area engage in the same unhealthy behaviors and experience the same conditions as do other U.S. residents. No one county stands out notably on either end of the spectrum, suggesting that there is room for improvement in adopting healthier behaviors. However, from the data in Table 5, it appears that a significant number of the region’s residents do utilize preventive health services, which may partially account for the generally favorable health status found in the region. But even with these seemingly good numbers, some variation is evident which suggests that a more focused effort in some counties could lead to better use of preventive services and improved health status.

Table 5: Adult Preventive Services Use (%)

County	Pap Smears	Mammography	Colonoscopy	Pneumonia vaccine	Flu Vaccine
Cook	83.2	80.3	38.8	51.7	56.8
DuPage	85.6	78.2	45.4	57.9	65.4
Kane	80.5	85.3	38.2	62.8	62.3
Kendall					
Lake	78.5	81.4	40.2	57.1	58.9
McHenry	84.2		34.1		
Will	80.9	79.2	35.1	37.8	53.5
U. S.					

Source: Community Health Status Indicators Report, DHHS, 2008

Infectious Disease and Public Health Conditions

Several conditions respond to public health control efforts. These include primarily infectious diseases, spread by person-to-person contact, and environmental hazards, which are spread from coming in contact with a toxic agent or infectious organism in the environment. One measure of the effectiveness of public health control efforts is the degree to which reported cases of infectious diseases matches expected cases. Lower numbers (less than 1) indicate effective control in preventing these diseases; numbers over 1 indicate a potential concern. Overall, public health agencies in the region appear to be effective in controlling infectious diseases, especially those that are primarily spread by person-to-person contact. However, food-borne illnesses may pose more of a challenge in that for most counties the number of E. coli and salmonella cases exceeds expected levels. Beyond these common infectious diseases, others such as HIV and emerging infections such as

MRSA pose a silent, ever-present threat, making them a challenge for local public health agencies.

Table 6: Infectious Disease Control: Reported to Expected Cases (2001-2003)

County	E.coli	Salmonella	Shigella	FluB	HepA	HepB	Pertussis	Syphilis
Cook	0.68	1.36	1.81		0.82	0.60	0.27	1.63
DuPage	1.82	0.82	1.07	0.79	0.49	0.62	0.33	0.96
Kane	1.62	1.03	0.66	1.15	2.11	0.74	0.25	1.31
Kendall	1.00	1.00	0.89	0.33	0.50	0.33	0.17	
Lake	1.60	2.13	1.60	0.80	0.57	0.33	0.38	0.50
McHenry	1.06	1.12	0.74	0.50	0.65	1.13	0.82	
Will	1.47	0.94	0.67	0.82	0.79	0.71	0.18	0.88

Source: Community Health Status Indicators Report, DHHS, 2008

The physical environment (i.e., safe water and clean air, healthy workplaces, safe houses, communities and roads) can be a measurement of good health. Table 7 indicates that each county contributes a lesser level of toxic agents released into the air, water and soil than the population of the region would suggest.¹

Table 7: Pounds of Toxic Agents Released into Air, Water, and Soil Compared with Population Share

County	% of Illinois' Toxic Agents Released into Air, Water, & Soil (pounds) 1994	% of Illinois Population - 1990
Cook	18.1%	44.7%
DuPage	0.9%	6.8%
Kane	0.5%	2.8%
Kendall	0.2%	0.3%
Lake	2.2%	4.5%
McHenry	1.0%	1.6%
Will	1.8%	3.1%
CMAF Region	24.6%	63.9%

Source for 1990 Illinois population: <http://www.ihatoday.com/about/facts/popweb.htm> 02/27/2009
Source for 1994 Toxic Agent data and 1990 County population data: <http://app.idph.state.il.us/> 02/27/2009

And it would appear, from Table 8, that the region enjoys good air quality as indicated from Environmental Protection Agency data reporting that all counties meet national air quality standards for six monitored air pollutants.

Table 8: National Air Quality Standards Met by County (2006)

County	Carbon Monoxide	Nitrogen Dioxide	Sulfur Dioxide	Ozone	Particulate Matter	Lead
Cook	Yes	yes	yes	yes	yes	yes
DuPage	Yes	yes	yes	yes	yes	yes
Kane	Yes	yes	yes	yes	yes	yes
Kendall	Yes	yes	yes	yes	yes	yes
Lake	Yes	yes	yes	yes	yes	yes
McHenry	Yes	yes	yes	yes	yes	yes
Will	Yes	yes	yes	yes	yes	yes

Source: Community Health Status Indicators Report, DHHS, 2008

The Three Health Resources

Several major categories of health resources are important to the health of individuals and a community. These include hospital services, primary care services and public health services.

Hospital Services: Nearly 100 hospitals are located within the Chicago metropolitan area; therefore it is well served. However, the distribution is skewed toward the more populated counties and the city of Chicago, which have a greater concentration of hospitals, especially tertiary and teaching hospitals offering the highest level of specialty care. All but Kendall County have at least four hospitals located within the county; no hospitals are located within Kendall County. When transportation patterns are considered, all counties appear to have access to emergency and basic hospital services, with tertiary services available at a greater distance. While there are no generally accepted standards for hospital availability, one indicator of access and availability is occupancy rate, which is the proportion of hospital beds that are used on any given day. Very high occupancy rates would indicate that availability of hospital services might be compromised, for at least some days of the year. Overall, hospital occupancy is under 70% across the region, with the lowest occupancies in the Chicago and Cook County area and the highest for more distant counties. With future population growth in the region, especially in Kendall County, additional hospitals may be needed.

The nature of hospital services has changed dramatically over the last 20 years with outpatient services becoming an increasing part of the overall hospital services mix. This has been driven by changes in medical practice, efforts to control costs, and advances in medical technology which now allow more procedures to be performed on an outpatient basis. All hospitals in the region have seen phenomenal growth in their outpatient service volume, including care provided in the emergency department. Unfortunately, with the increase in the numbers of uninsured and underinsured, the emergency room has become an overutilized source of care for people without insurance.

Primary Care: Primary care includes those medical, dental, and mental health providers that deliver basic health care services at office sites throughout the region. Included in these sites are community-owned federally qualified health centers, which have been established especially to serve low income and uninsured residents. It is generally accepted that a minimum of 29 physicians per 100,000 people are needed for adequate availability of primary care services. While the range of primary care availability across the region, as indicated in Table 9, is great, all counties except Kendall are well above the minimum standard. The large numbers in Cook and DuPage counties reflect the many federally qualified health centers serving these areas, and in Cook County, local government-operated primary care clinics. It also appears that there are currently significant numbers of dental care providers in the region, but continued population growth may increase the need for these and other primary care providers.

It is difficult to assess the adequacy of mental health services and there is little uniform data on needs or services. Mental health services are provided by a variety of professionals including physicians, psychologists, clinical social workers and counselors. However, as mental health services are less likely to be covered by private insurance and with cutbacks in public sources of care, anecdotal information reported by the region's local health departments indicates that there is a shortage of mental health services for the region's lower and middle income residents.

A recent addition to the stock of primary care services has been the growth of retail clinics, usually in department and big-box pharmacy stores. Operated on a walk-in basis, retail clinics are usually staffed by advance practice nurses who, working under the off-site supervision of a physician medical director, offer a wide range of more basic primary care services customarily provided in a physician's office, including vaccinations, school physicals, upper respiratory infection and flu treatment, and preventive screenings and tests. The growth of these new primary care sites has been very rapid across the region. While their impact on primary care availability has yet to be assessed, the sites are undoubtedly convenient for those who use them.

Table 9: Physician and Dentist Availability

County	Primary Care MD Ratio	Dentist Ratio
Cook	137.2	67.4
DuPage	150.4	78.1
Kane	48.5	47.1
Kendall	28.9	22.6
Lake	109	73.7
McHenry	57.2	50
Will	42.9	26.3

Source: Community Health Status Indicators Report, DHHS, 2008

Public Health Services: Local health departments are responsible for overall population health, controlling communicable diseases, providing environmental health services and delivering some basic healthcare services, such as immunizations for children and seniors, and care to low-income pregnant women, infants and new mothers. Eleven certified health departments serve the region. Certified local health departments are recognized by the Illinois Department of Public Health for meeting a set of established public health practice standards. Each county in the metro area is served by a full-service, county government-affiliated health department. The City of Chicago also has a certified health department, which serves that jurisdiction and three municipal/township health departments serve Skokie, Evanston, Oak Park and Stickney Township.

No Insurance: A Drawback to Access to Health Resources

Beyond these resources discussed above, lack of insurance limits the appropriate use of health care services. Health care resources appear adequate overall, but access to care may be significantly less for certain segments of the region's population, especially those without insurance. While the region overall is near the national average (an estimated 14%-15% of the population), rates of uninsurance vary greatly across the region. Highest rates are in Cook County, estimated at more

than 16%, with lowest rates in Lake County, at just over 7%. Uninsurance rates in other counties are estimated to range between 9%-12%. As a whole, more than 1.1 million residents of the region are estimated to lack health insurance. Lack of insurance disproportionately impacts the working poor and immigrant populations, who are more likely to hold low-wage jobs that do not offer health insurance.

Table 10: Lack of Health Insurance

County	Uninsured (2000)	
	Percent	Number
Cook	16.1%	852,932
DuPage	9.9%	91,691
Kane	11.6%	56,073
Kendall	7.2%	5,757
Lake	10.5%	74,013
McHenry	8.9%	27,204
Will	8.9%	57,127
Region	13.8%	1,164,797
U.S.	14-15%	

Source: Community Health Status Indicators Report, DHHS, 2008

Somewhat buffering the effect of no health insurance within the region is a safety net of public providers, including a three-hospital network and affiliated community clinics serving Cook County. The Chicago Department of Public Health also operates six comprehensive neighborhood health centers and 12 mental health clinics serving Chicago. As noted above, Chicago is home to the nation’s largest number of federally qualified health centers. However, outside Chicago, there are fewer public providers or federally qualified health centers.

Conclusion

The region overall appears to be enjoying favorable health status, with a life expectancy that exceeds the national average and lower death rates for most causes of death. These summary measures reflect populations that report low levels of poor health and relatively positive health behaviors and the use of preventive services. The region is served by an extensive health care system, which offers a wide variety of basic and specialized services spread across all counties. The region’s population is effectively protected from infectious disease and environmental hazards by a network of local government-operated public health agencies.

Even though the overall health conditions are favorable, a focused effort to improve the health of the region is needed. There is considerable variation among counties for nearly all measures of health status, which suggests room for improvement.

Within all counties there are population segments which have much poorer health status and access to health care. These are usually lower income and minority populations. Reducing health disparities is a national public health goal, which could also be adopted by this region.

Lack of health insurance, and its consequences for access to health care, is a growing problem, affecting larger numbers of people from all income groups in the region. The public health system is also exhibiting signs of strain. Demands for public health services have increased, while financial support for the region's network of local health departments has eroded, due primarily to state and local government belt-tightening.

Beyond these region-specific factors, the health of the region will be impacted by national trends and policies as well as the economy. A continued economic downturn could change the landscape, causing layoffs and benefits reductions, especially employer-sponsored health insurance. This has a double-edged consequence affecting both those who lose their health insurance and health care providers, particularly hospital emergency rooms and community clinics to which the uninsured turn for care. The state of Illinois' fiscal crisis also plays a role; Medicaid payment delays to providers strain their ability to serve their communities.

On the positive side, national health reform could effectively reduce the number of uninsured in the region and expand the numbers of providers, such as community health centers. Even partial reform measures, most notably electronic medical records (EMR), could reduce costs of providing care to the medically indigent, who frequently shop around to multiple providers, compromising their continuity of care and causing duplication of expensive testing. However, as EMR strategies are likely to be implemented on a state or regional basis, local providers, insurers and government agencies can play a key role in assuring that these and broader benefits of EMR are realized.

Technical Notes About The Data

Two final technical points will help in understanding the data. First, health measures of a community are very much influenced by its age structure. In this analysis, measures have been adjusted to make the comparisons more valid. Second, numbers can fluctuate from year to year, hiding the extent of a condition and making surface differences in measures between communities seem larger than they really are. Statistical adjustments have been made to account for this.

The data in Table 7 is currently being updated by Chicago Metropolitan Agency for Planning in their Regional Air Quality snapshot, available online at <http://www.cmap.illinois.gov/snapshot.aspx#Air>. Pollution data is derived from point source data based on readings from monitoring stations throughout the region. One monitoring station could have a high reading and the entire region could be considered in non-attainment. Air pollution sources may be outside the region. A significant amount of CMAP regional pollution ends up in Wisconsin and Michigan.

THE INDICATORS, PROBLEM DRIVERS AND HEALTH THREATS

Earlier in Chapter One, we listed several factors that determine the health of a community and the people who live there: demographic composition, income and poverty, employment, social status, cultural beliefs and practices, level of education, environmental conditions, genetics, individual behaviors and public health measures and the quality and utilization of health care services.

The scope of this health plan was predicated on indicators or problem drivers – health threats – which we introduce briefly here. (In Chapter Four, we will present more fully each of the indicators, or health threats, and their supporting data.) For perspective, some CMAP region data is compared with the data of *Healthy People 2010*, the national health promotion and disease prevention initiative designed to identify the most significant preventable threats to health and establish national goals to reduce those threats.

These are the health care challenges for the medical personnel in hospitals, clinics, emergency rooms and for the people who must live with these conditions. They encompass chronic and infectious diseases, bad lifestyle choices, environmentally caused ailments, mortality rates, and quality of care. The health of a community can be measured by the frequency and prevalence of any of these conditions or factors.

The goal is, over time, with education and best practices and medical breakthroughs, to lower the rate of any of these occurrences. These are the problem areas that provide the impetus for the strategic health care planning for 2040.

INFANT MORTALITY

The infant mortality rate for the region is 162% of the *Healthy People 2010* target and each county compares with its peer counties as follows:

Table 11: Infant Mortality Rate (IMR) Comparisons Between CMAP and Peer Counties and *Healthy People 2010*

CMAP County	IMR	Peer County Low IMR	% of PCL
Cook	8.1	4.7	172%
DuPage	6.9	4.1	168%
Kane	6.3	4.0	158%
Kendall	7.1	3.6	197%
Lake	5.1	4.1	124%
McHenry	4.4	4.2	105%
Will	5.7	4.0	143%
CMAP Region	IMR	Healthy People 2010	% of HP 2010
	7.3	4.5	162%

Source of peer county and *Healthy People 2010* rates:

<http://www.communityhealth.hhs.gov/MeasuresOfBirthAndDeath.aspx?GeogCD=17197&PeerStrat=10&state=Illinois&county=Will> 03/12/2009 (2001 – 2003 peer county data). Source of CMAP and County rates: IPLAN-individual counties, IMR, Aggregate years 2003, 2004, 2005, race and ethnicity

Age-Adjusted Death Rates

For the leading causes of death, CMAP counties have higher age-adjusted death rates than their lowest peer county rate and the *Healthy People 2010* target with the following exceptions:

Table 12: Instances Where Age-Adjusted Death Rates Equal or are Better Than Rates for Peer Counties and *Healthy People 2010* Targets

County	Cause of Death	Comment
DuPage	Coronary Heart Disease	Better than <i>Healthy People</i>
	Unintentional Injury	Better than <i>Healthy People</i>
	Motor Vehicle Injuries	Better than <i>Healthy People</i>
	Homicide	Better than <i>Healthy People</i> and peer counties
Kane	Coronary Heart Disease	Better than <i>Healthy People</i>
	Unintentional Injury	Same as <i>Healthy People</i>
Kendall	Coronary Heart Disease	Better than <i>Healthy People</i> and peer counties
	Stroke	Same as peer counties
	Unintentional Injury	Better than <i>Healthy People</i> and peer counties
Lake	Coronary Heart Disease	Better than <i>Healthy People</i>
	Unintentional Injury	Better than <i>Healthy People</i>
	Homicide	Same as <i>Healthy People</i>
McHenry	Coronary Heart Disease	Better than <i>Healthy People</i>
	Unintentional Injury	Better than <i>Healthy People</i>
	Suicide	Better than peer counties
	Homicide	Better than <i>Healthy People</i>
Will	Unintentional Injury	Better than <i>Healthy People</i>

Source: <http://www.communityhealth.hhs.gov/MeasuresOfBirthAndDeath.aspx?GeogCD=17197&PeerStrat=10&state=Illinois&county=Will> 03/12/2009 (2001 - 2003 peer county data)

Diabetes Mellitus

The prevalence of diabetes among adults in the region is more than two and one half times the target level. The trend in ambulatory sensitive hospitalizations for Types 1 and 2 diabetes mellitus is up in the region.

Childhood Obesity and Overweight

Among 3rd graders, the prevalence of obesity is more than two and a half times the target level; the prevalence of overweight is more than three times the target.

Smoking and Early Tobacco Use

The prevalence of smoking among adults is more than two and a half times the target level. The percent of 8th graders who used tobacco in the last month is more than two and one half times the target level.

Early Drinking

The percent of 8th graders who used alcohol in the last month is more than two and a half times the target level.

Early Marijuana Use

The percent of 8th graders who used marijuana in the last month is more than two and a half times the target level.

Asthma

The prevalence of asthma is more than two and a half times the target level. The downward trend in ambulatory sensitive hospitalizations for primary asthma must be maintained. The trend for secondary asthma is up.

Sentinel Cancer Events

There are places and populations in the region where *in situ* breast cancer and late cervical cancer rates are higher than the Illinois rates.

Health Professions Shortage Areas

Health Professions Shortage Area scores for primary care, dental health and mental health are too high in some places in the region.

Range of Uninsured Individuals

There are more than 1 million uninsured individuals in the region.

Sexually Transmitted Disease

The incidence of syphilis is more than two and a half times the target rate, the incidence of chlamydia is two and a half times the target level, and the incidence of gonorrhea is just under two and a half times the target rate.

Childhood Lead Screening

Not all the children under 6 living in high risk zip codes are tested for elevated blood lead levels.

AIDS

The incidence of AIDS is more than three and a half times the target level.

CHAPTER TWO

A NEW VISION FOR HEALTH

The following vision statement was developed, consistent with the *GO TO 2040* regional vision for metropolitan Chicago:

Sustainability: *To meet the needs of the present without compromising the future, health planning and health policy formulation will take place above the level of service provider governing boards, local boards of health, and local elected officials. The formulation of health policy will be a higher priority and the process will be integrated with other regional planning concerns.*

Equity: *Since one-third of the region's population is expected to be Hispanic by 2030, health disparities based on race and ethnicity will be reduced and eliminated by 2040. Desirable trends in health status and health systems performance indicator levels and a narrowing of the gaps based on race and ethnicity will exist. The vision of a fair distribution of the benefit and the burdens caused by the region's investments and policies to all parts of the region will apply to health resources.*

Innovation: *The region is home to important health and medical care trade association headquarters, medical schools, and excellent tertiary care and clinical research. By 2040, the region will have realized the competitive advantage of these resources and how to use them to drive regional growth and to address problems. Technological advances will reach all residents of the region and enhance their quality of life.*

Quality of Life: *The outcome of effective regional planning that includes health and human services will be an improved quality of life. Strong communities, housing, recreation, employment, and education systems are all determinants of health that influence quality of life.*

Environment: *The favorable relationship between open space and housing that the region currently enjoys will be maintained in 2040. This will be managed through regional planning and good leadership while accommodating the expected increase of 2.8 million additional residents by 2040. Threats to population health will be minimized through a strengthened environmental health effort by public health organizations.*

Energy: *Use of energy by health facilities and equipment will be reduced. Health and medical centers will be more decentralized so there is less reliance on individual transportation. A greater emphasis on primary prevention will decrease the population's dependence on the tertiary and quaternary features of the medical care system.*

Water: *The high quality of water supplies for human use in the region will be maintained and enhanced. Equitable distribution of water resources throughout the region will improve. Exploration of water recycling systems will yield promising*

results. This will be possible through improvements in regional planning and cooperation.

Housing: The fact that housing is a determinant of health will be a principle of regional planning. The result will be “safe, decent, affordable, and stable” housing across the income spectrum throughout the region.

Health: The region will meet or exceed the “Healthy People, 2050” health objectives for the U.S. through improvements in lifestyle and health behaviors, environmental health, and the performance of health services. Data for mental health status and oral health status will be tracked and measured in the seven-county region. The public health infrastructure will be strengthened through strong partnerships, evidence-based community practices, a data sharing system that provides for real-time feedback and enhanced responsiveness, and the development of population-based capacity. A capacity for regional planning for health will be in place and the cost of health care in the region will meet regional planning guidelines.

Safety: Public safety and significant reductions in criminal activities will be a by-product of the improvements cited under other topics in the 2040 vision.

Education: Education and training across the lifespan will be a system characteristic in the region. Workforce capacity and specialty challenges in the health enterprise will be connected to education and training program curricula and output. Resources for education and the performance of public schools will be adequate to meet needs regardless of income, race, or ethnicity.

Economy: Recognition that investments in human capital generate regional returns will be a planning principle. The multiplier effect of the health enterprise and the economic benefit of enhancements and integration of environmental, public health, social equity, cultural amenities, education, and physical infrastructure systems will be realized.

Reinvestment: Community reinvestment will result in improvements in community health status.

Transportation: Regional planning will connect transportation elements with a more decentralized system of health facilities.

Intergovernmental coordination and planning: The regional planning agenda that is concerned with land use, physical infrastructure, etc. will be coordinated with health and human services planning.

Civic involvement: Health leaders and health consumers will have significant involvement with the health system at the community and regional levels.

CHAPTER THREE **RECOMMENDATIONS**

The vision for health in 2040 can be achieved if the following recommendations are implemented.

INTEGRATED PREVENTION/HEALTH PROMOTION STRATEGY

Recommendation One: Design a prevention/health promotion strategy built on the *determinants of health*. Use these determinants as the basis for planning for improved population health and improved performance of health systems coordinated with planning for physical infrastructure, education, transportation, and land use. The scope of the planning should be comprehensive, with an emphasis on health workforce planning. Without workforce planning, adjustment to environmental forces is difficult.

The determinants of health are demographic composition, income and poverty, employment, social status, cultural beliefs and practices, level of education, environmental conditions, genetics, individual behaviors and public health measures and the quality and utilization of health care services.

Some of these environmental forces affecting health are:

- Growth in the region's Hispanic population;
- An imbalance in physician specialties;
- Aging of the health workforce;
- Inadequate use of mid-level practitioners;
- Inadequate of minority health professionals.

Recommendation Two: Engage health leaders and community residents in regional planning and involve a large and diverse share of the regional population in volunteer activities related to planning a health system that reflects their needs.

Recommendation Three: Link planning for the design and implementation of the prevention/health promotion strategy to planning in other sectors. This should be an enduring function within the Chicago Metropolitan Agency for Planning.

Members of the Northern Illinois Public Health Consortium, the certified local public health departments, should be partners in this effort and use this mechanism to implement their plans required by the Illinois Department of Public Health (IPLANS).

Other participants should include health affinity and civic-oriented philanthropic organizations, agencies of state government, the regional office of the U.S.

Department of Health and Human Services, civic organizations throughout the region, school districts, employers, faith communities, and transportation agencies.

The sources of funding for this function should be local governments participating in CMAP, the federal government and local foundations. The estimated annual cost of this effort for planning and implementation is \$1 per capita or \$7.8 million.

DATA FOR INTEGRATED PLANNING AND MONITORING

Recommendation Four: Take advantage of the emerging electronic medical records platform to create real time access to important health data by key users, including health planners and policy makers. Use an “all data” approach so that resources such as physician offices, pharmacies, clinical and testing laboratories, and retail clinics, etc., are included.

Recommendation Five: Establish a regional health status and health systems data center. Enhance access to Web-based data through a centralized entry point.

Recommendation Six: Create health planning capacity at the county level, built on public health requirements for community health improvement planning.

Recommendation Seven: Provide an analytical framework for an integrated prevention/health promotion initiative.

Recommendation Eight: Enable comprehensive health workforce planning.

Recommendation Nine: Monitor and address health disparities.

Recommendation Ten: Provide data for planning, policy-making and research in a more timely fashion.

Recommendation Eleven: Improve data quality and analytical capacity.

Civic engagement in this planning process should be a key feature.

Other key agencies in this effort should be area universities with health, medical, and informatics capacity.

Other participants should include hospital associations, community health centers and their associations, medical and dental societies, pharmaceutical companies, voluntary health associations, businesses with information technology competencies, and the Illinois Public Health Institute.

The sources of funding for this function should be local governments participating in CMAP, the federal government, local foundations, and business.

Comment [bd1]: Note – some universities outside the CMAP region, like NIU or UIUC, could also be involved.

The cost of this capability includes professional consultation for design and facilitation on consensus building. The cost estimate should be the result of a feasibility study on the most effective design.

PUBLIC HEALTH INFRASTRUCTURE

Recommendation Twelve: Strengthen the public health infrastructure. While the region compares favorably to Illinois and the United States on most measures cited in this plan, there are populations of racial, ethnic, and economic minorities with alarming health statistics.

There are signs of a deteriorating public health infrastructure. The higher than expected number of E.coli and salmonella cases cited earlier is disturbing. Control of infectious disease by public health agencies appears to be going well when human to human transmission is involved, but for food borne transmission, there are higher than expected levels.

The regional health system is not performing well enough when the burdens of chronic disease and its attendant costs are considered.² Funding for local public health activities should be more independent of government and less subject to government control. Similar to important education and transportation initiatives, public health activities should capture the attention of leaders and enjoy a high level civic involvement.

The lead agency in strengthening the public health infrastructure should be the Civic Committee of the Commercial Club.

CHAPTER FOUR

SPECIAL INDICATORS TO WATCH

In this chapter, the indicators, problem drivers and health threats are individually explored, with goals and objectives.

INFANT MORTALITY

Infant mortality continues to decline for all racial and ethnic groups in the U.S. largely due to advances in neonatal intensive and intermediate care. The gap, however, between blacks and whites continues to widen.

Causes

The leading causes of infant death include congenital abnormalities, pre-term/low birth weight, Sudden Infant Death Syndrome (SIDS), problems related to complications of pregnancy and respiratory distress syndrome.³ There is a correlation between low standard of living and overall mortality and morbidity. Infant mortality has, historically, been a reliable index of the standard of living.⁴

Disparities by County

Table 13: Rates by County and the CMAP Region, 2003, 2004, 2005

		Race			Ethnicity	
		Asian/PI	Black	White	Hispanic	NonHisp
Cook County	8.1					
DuPage County	6.9					
Kane County	6.3					
Kendall County	7.1					
Lake County	5.1					
McHenry County	4.4					
Will County	5.7					
CMAP Region	7.3	1.6	15.2	5.6	5.9	7.9

Source: IPLAN-individual counties, IMR, Aggregate years 2003, 2004, 2005, race and ethnicity

Note: The infant mortality rate is the number of infant deaths divided by the number of live births multiplied by 1,000.

Goal

The Infant Mortality Rate for the CMAP region and for each county in the region should be no more than the lower of the infant mortality rate at the Healthy People level or no higher than 110% of the lowest rate among their peer counties in the Community Health Status Report.⁵

Peer counties for Cook County, IL listed in the report are:

Maricopa County, AZ	Alameda County, CA
Los Angeles County, CA	Orange County, CA
Riverside County, CA	Sacramento County, CA
San Bernardino County, CA	San Diego County, CA
Santa Clara County, CA	Broward County, FL
Dade County, FL	Palm Beach County, FL
Middlesex County, MA	Oakland County, MI
Wayne County, MI	Hennepin County, MN
St. Louis County, MO	Clark County, NV
Bronx County, NY	Kings County, NY
Nassau County, NY	New York County, NY
Queens County, NY	Suffolk County, NY
Cuyahoga County, OH	Franklin County, OH
Allegheny County, PA	Philadelphia County, PA
Bexar County, TX	Dallas County, TX
Harris County, TX	Tarrant County, TX
King County, WA	

Objective

By 2015, all counties in the CMAP region will attain or exceed the Healthy People 2020 levels for low birth weight and very low birth weight (For Healthy People 2010, the levels were 5.0% of live births for low birth weight and 0.9% of live births for very low birth weight.)

AGE-ADJUSTED DEATH RATES FOR LEADING CAUSES⁶

Causes of Cardiovascular Disease

- Many of the risk factors for cardiovascular disease are similar to the risk factors for Type 2 diabetes.⁷ Potentially modifiable risk factors for Type 2 diabetes include smoking, hypertension, sedentary lifestyle, overweight and obesity, high dietary fat, hypercholesterolemia, high sodium intake, dyslipidemia, significant alcohol consumption and stress.
- Existing data show that undesirably high or low levels of particular plasma lipoproteins are major cardiovascular disease risk factors, and that gene-environment interactions influence plasma lipid concentrations, thus increasing the risks for development of cardiovascular disease.⁸
- Genetic factors: A family history of cardiovascular disease can be due to genetic and/or acquired factors.⁹ Age is a known risk factor for hypertension and cardiovascular disease.¹⁰ Some studies have documented that cardiovascular risk factors are more prevalent in males than in females. Devroey, et al., reported two cardiovascular risk factors: low HDL-cholesterol and high triglycerides were more prevalent in males than in females.¹¹ There is a pattern of racial and ethnic disparities in the risk factors and morbidity related to cardiovascular disease.

- Inflammatory and prothrombic processes are known risk factors for both cardiovascular disease and diabetes.¹²
- Excessive exposure to free radicals generated through contact with pesticides, chlorinated water, air pollutants and other toxic chemicals is a strong risk factor for cardiovascular disease.
- Chronic emotional stress is also a significant risk factor and acute emotional or physical stress may precipitate a heart attack.
- Stress not only raises the blood pressure and constricts the arteries, it also generates large quantities of adrenaline which the body converts to adrenochrome – a potent free radical.
- The role of alcohol in the development of cardiovascular disease is controversial. Recent research has shown that consumption of moderate amounts of wine, especially red wine, actually reduces the risk of developing heart disease; other studies dispute this. Heavy drinking, however, is still considered a potent risk factor for heart disease.
- A high overall cholesterol level and a high level of LDLs (low density lipoproteins) are strong risk factors for cardiovascular disease in men. The high density lipoprotein (HDL) level and the level of triglycerides are far more important risk factors for women than are total cholesterol and LDL levels. The helicobacter pylori bacterium has also been implicated in the development of coronary heart disease.

Prevention Of Heart Disease

- A healthy diet is the strongest protection against cardiovascular disease. A heart-healthy diet is rich in fruits and vegetables and low in saturated fat, cholesterol, meat, and sugar. Many scientific studies have shown that lack of vitamin C and other antioxidants increases the risk of heart disease and stroke.
- Avoidance of smoking and secondhand smoke vie with dietary modifications as the single-most effective measure in avoiding cardiovascular disease. Women smokers who also use oral contraceptives increase their risk of heart attack substantially.

Causes of Cancer

- Certain types of cancer share some of the same lifestyle and socioeconomic status risk factors as Type 2 diabetes and cardiovascular disease. These findings suggest that lifestyle modification, including appropriate diet and nutrition, regular physical activity, weight control, and smoking cessation can help to prevent certain types of cancer.
- Lung Cancer: Cigarette smoking is the leading cause of lung cancer. In addition, a number of demographic, environmental, nutritional, genetic, hormonal and lifestyle factors may be linked to an increased risk of lung cancer.¹³ Gender, age, racial/ethnic, and socioeconomic status differences in smoking habits have been reported.¹⁴ A number of studies have discovered a link between air pollution, including both outdoor and indoor air pollution,

and lung cancer.¹⁵ Investigators have discovered a causal relationship between exposure to ambient tobacco smoke or second-hand smoke and lung cancer incidence. Instances of asbestos contamination in public water supplies have triggered studies to evaluate the environmental health effects of asbestos contamination.¹⁶ Several studies have shown that physical activity reduces lung cancer risk.¹⁷ Some investigations show that the consumption of certain foods, such of fruits and vegetables, dietary supplements, and vitamins may protect against lung cancer.¹⁸

- **Breast cancer:** There are multiple risk factors for breast cancer and pre-malignant breast cancer.¹⁹ Some of these factors are genetic and suggested by family history, while others are personal, lifestyle or environmental/occupational factors.²⁰ Mutations in the BRCA1 or BRCA2 genes are possible precursors of breast cancer. A number of reproductive and hormonal factors have been linked to increased risk of breast cancer. Studies have found that risk factors for breast cancer include: early menarche, late age at birth of first child; low parity; years of menstruation and menopausal status.²¹ Obesity and insulin resistance have been implicated as risk factors for breast cancer.²² Researchers have implicated nutritional factors as risk factors or protective factors for breast cancer.²³ Based on a sample of postmenopausal women, they reported that high fat intake was related to elevated breast cancer risk. Epidemiologic reports have linked alcohol use to increased breast cancer risk.²⁴ Physical activity has been identified as a possible protective factor in reducing the risk of breast cancer.²⁵ Regular physical activity helps individuals control their weight and may reduce the breast cancer risks associated with obesity and associated insulin resistance. Research evidence indicates that cigarette smoking is associated with an elevated risk of breast cancer.²⁶ Research studies have shown a possible association between environmental and occupational exposures and elevated breast cancer risk.²⁷ Ionizing radiation is a well known risk factor for breast cancer.²⁸ Age in relation to reproductive and hormonal factors has been associated with breast cancer risk.²⁹
- **Colorectal Cancer:** In the U.S., colon cancer incidence is higher in African-Americans than in other racial and ethnic groups.³⁰ Socioeconomic disparities may be linked to the prevalence of colon cancer among African-Americans. Persons in low-income groups may be especially at risk for developing colon cancer. Cigarette smoking is a risk for colon cancer.³¹ Low physical activity along with high energy intake and obesity are consistently linked with an increased risk of colorectal cancer.³² Micronutrients commonly found in fruits and vegetables, especially folate and calcium, may be protective factors in colorectal cancer.³³ Obesity, low physical inactivity and poor nutrition are related to increased colorectal cancer risk.³⁴ Both hyperinsulinemia (excessive production of insulin in the body) and hyperglycemia (excessive presence of sugar in the blood) appear to increase the colorectal cancer risk.³⁵
- **Skin cancer:** Risk factors for skin cancer include a number of genetic conditions: family history of skin cancer, phenotypic expressions, such as fair

complexion, hair and eye colors, and nevus counts, as well as various dermatologic conditions and syndromes.³⁶ Racial/ethnic, demographic, socioeconomic, and socio-cultural differences may be associated with different risks for skin cancer.³⁷ In the U.S., whites have a much higher absolute risk of developing cancer compared to African-Americans.³⁸ Ultraviolet B radiation exposure increases the risk of melanoma and non-melanoma skin cancers in whites.³⁹ Reduced immunity, possibly related to aging, is also associated with an elevated risk of skin cancers.⁴⁰ A link between prolonged or multiple exposure to carcinogens and increased incidence of skin cancer and other cancers has been found.⁴¹

Causes of Strokes

Stroke results from either of two types of cerebral vascular disturbance: ischemia or hemorrhage. Ischemia, the most common cause of stroke, can be caused by either local thrombosis or embolization from a distant site, such as the heart. Transient ischemic attack and acute stroke are medical emergencies that require prompt diagnosis, because they may be treatable with antiplatelet drugs, anticoagulants, thrombolytic agents or surgery. The incidence increases with age, with about two-thirds of all strokes occurring in those over age 65 years, and is somewhat higher in men than in women and in African-Americans than in whites. Risk factors for stroke include systolic or diastolic hypertension, hypercholesterolemia, cigarette smoking, heavy alcohol consumption and oral contraceptive use. The incidence of stroke has decreased in recent decades, largely because of improved treatment of hypertension. Other risk factors: heart disease and high red blood cell count.

Death Rates by County

Table 14: Age-adjusted rates for the leading causes of death by county, 2001-2003

County	Cause ⁴²	Rate (000,000) ⁴³
Cook	Coronary Heart Disease	202.1
	Lung Cancer	54.2
	Stroke	53.4
	Breast Cancer (Female)	26.1
	Colon Cancer	22.6
	Unintentional Injury	21.4
	Homicide	14.3
	Motor Vehicle Injuries	10.1
	Suicide	7.5
DuPage	Coronary Heart Disease	144.1
	Stroke	55.2
	Lung Cancer	46.8
	Breast Cancer (Female)	28.7
	Colon Cancer	18.6
	Unintentional Injury	14.7
	Motor Vehicle Injuries	7.9
	Suicide	7.3
Homicide	1.5	

Death Rates by County (continued)

Kane	Coronary Heart Disease	150.4
	Stroke	59.9
	Lung Cancer	56.0
	Breast Cancer (Female)	31.0
	Colon Cancer	21.3
	Unintentional Injury	17.1
	Motor Vehicle Injury	10.8
	Suicide	8.4
	Homicide	4.5
Kendall	Coronary Heart Disease	160.5
	Stroke	60.0
	Lung Cancer	52.5
	Breast Cancer (Female)	27.6
	Colon Cancer	18.4
	Unintentional Injury	16.5
	Motor Vehicle Injury	8.7
	Suicide	7.6
	Homicide	2.8
Lake	Coronary Heart Disease	160.5
	Stroke	60.0
	Lung Cancer	52.5
	Breast Cancer (Female)	27.6
	Colon Cancer	18.4
	Unintentional Injury	16.5
	Motor Vehicle Injury	8.7
	Suicide	7.6
	Homicide	2.8
McHenry	Coronary Heart Disease	157.6
	Lung Cancer	55.8
	Stroke	55.7
	Breast Cancer (Female)	29.5
	Colon Cancer	25.5
	Unintentional Injury	15.3
	Motor Vehicle Injury	14.5
	Suicide	6.4
	Homicide	1.4
Will	Coronary Heart Disease	197.4
	Lung Cancer	55.1
	Stroke	53.5
	Breast Cancer (Female)	26.4
	Colon Cancer	21.2
	Unintentional Injury	16.5
	Motor Vehicle Injury	12.3
	Suicide	9.2
	Homicide	3.0

Goal

Age-adjusted death rates for the leading causes of death for CMAP counties should be the lower of the *Healthy People* target or no more than 110% of the lowest rate among peer counties in the *Community Health Status Report*.

Objective

By 2020, the age-adjusted death rates for the leading causes of death for CMAP counties will trend down toward the goal level.

For example, the peer counties listed for DuPage County in the report are:

California

- Contra Costa County
- San Mateo County
- Ventura County

Colorado

- Jefferson County

Connecticut

- Fairfield County
- Hartford County
- New Haven County

Georgia

- Cobb County
- Gwinnett County

Hawaii

- Honolulu County

Illinois

- Lake County

Maryland

- Baltimore County
- Montgomery County
- Prince George's County

Massachusetts

- Bristol County
- Essex County

Massachusetts

- Norfolk County
- Worcester County

Michigan

- Kent County
- Macomb County

New Jersey

- Bergen County
- Middlesex County
- Monmouth County

New York

- Westchester County

North Carolina

- Wake County

Pennsylvania

- Bucks County
- Delaware County
- Montgomery County

Utah

- Salt Lake County

Virginia

- Fairfax County

Washington

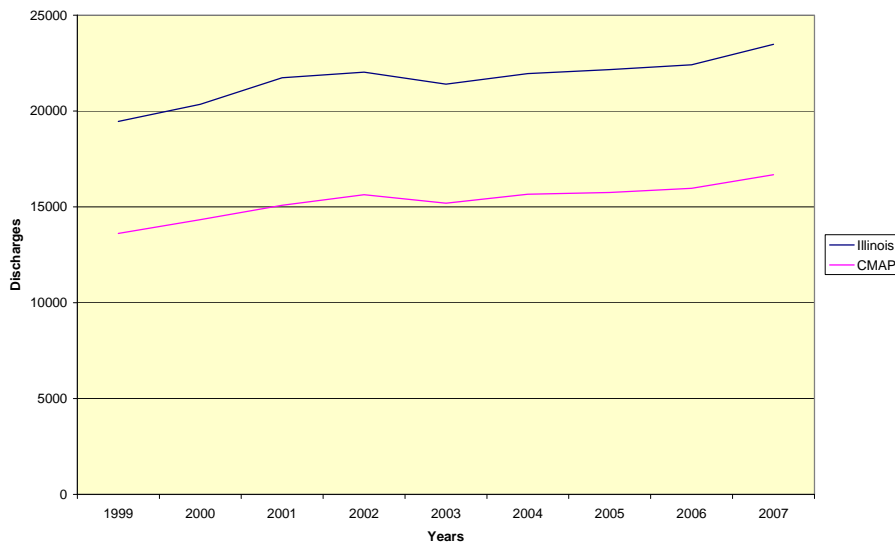
- Snohomish County

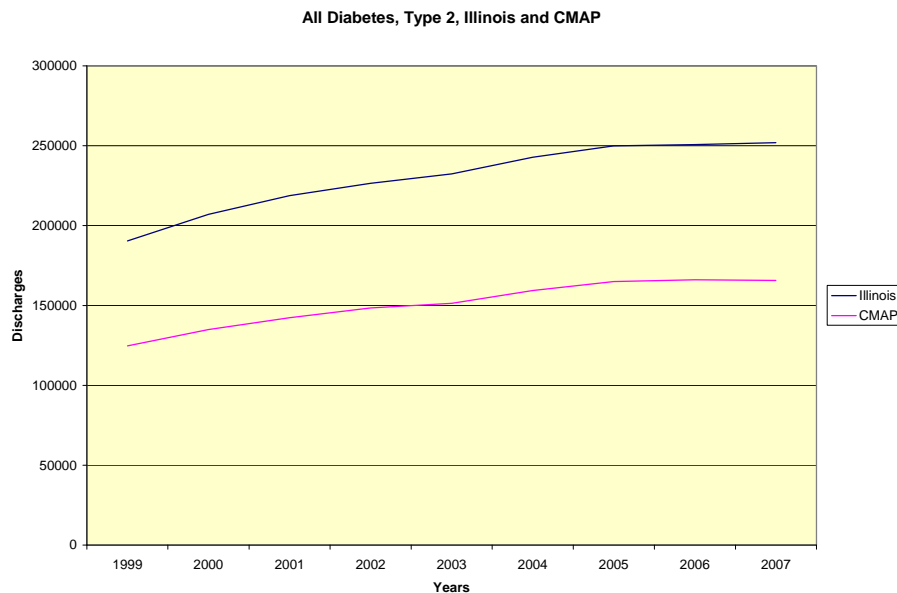
DIABETES

Diabetes is a chronic disease with an increase in prevalence and in age-adjusted death rate trends. Obesity, sedentary lifestyle, unhealthy eating habits, and high blood pressure and high cholesterol are among the modifiable risk factors. Family history and genetics, increased age, and history of gestational diabetes are among the non-modifiable risk factors.⁴⁴ Type 2 diabetes is “a diabetic condition whose underlying cause is not genetics or environmental conditions.”⁴⁵ The prevalence of diabetes among adults in the CMAP region is 3.6%.⁴⁶

Trends In Ambulatory Sensitive Hospitalizations For Type 1 And Type 2 Diabetes Mellitus⁴⁷

All Diabetes, Type 1, Illinois and CMAP





Goal

The prevalence of diabetes should be no greater than 1.4% based on responses in the Behavioral Risk Factor Surveillance System.

The goal level is based upon incremental improvements of 15% every five years starting in 2015.

Objective

By 2015, the prevalence of diabetes should be no greater than 3.1% based on responses in the Behavioral Risk Factor Surveillance System.

Goal

The trend in hospitalizations for type 1 and type 2 diabetes mellitus should be down for the CMAP region.

The goal level is based on a desire to reverse the uptrend for ambulatory sensitive hospitalizations for Type 1 and Type 2 diabetes from 1999 to 2007. Ambulatory sensitive hospitalizations may "indicate worsening in ambulatory care access or quality for those conditions."⁴⁸

Objective

By 2015, a regional mechanism will be established to monitor ambulatory sensitive hospitalizations for diabetes mellitus.

CHILDHOOD OBESITY AND OVERWEIGHT

In the U.S., an estimated 16% of children aged 6-19 years were overweight in 1999-2000. This was a 45% increase from 1988-1994.⁴⁹ These factors increase the risk that a child will be obese by age 7:

- Parental obesity;
- Higher birth weight;
- Spending more than eight hours watching TV when 3 years old;
- Sleeping less than 10.5 hours per night when 3 years old;
- Size in early life;
- Rapid weight gain in the first year of life;
- Rapid catch-up growth between birth and 2 years;
- Early development of body fatness in the preschool years (before age 5-6 years, when body fat should be increasing).

Prevalence of “obese” and “overweight” in Cook County and collar counties among 3rd graders: 18.5% are obese and 18.5% are overweight.⁵⁰

Goal

No more than 7% of third graders in the CMAP region should be obese. No more than 5.9% of third graders in the CMAP region should be overweight.

The goal levels are based upon incremental improvements of 15% every five years starting in 2015, from a survey finding that 18.5% of third graders in the region were obese and 18.5% were overweight. The Health Advisory Committee believes that the target for overweight should be more ambitious than the target for obese.

Objective

By 2015, the Child Health Examination Surveillance System (a State of Illinois unfunded mandate) should be operational and each school district and the Illinois State Board of Education should make aggregate BMI data available to regional planners, public health authorities, health leaders, and community residents.

SMOKING AND EARLY TOBACCO USE

Slightly lower adult smoking rates have been recently observed, but smoking continues to impose significant health and financial costs to society.⁵¹

Factors that influence adult smoking are similar to the factors associated with youth smoking, as almost 90% of adult smokers started smoking at or before age 19.⁵²

There is a standstill in decline of smoking among teen populations according to data from the CDC National Youth Risk Behavior Survey. Funding and commitment to anti-smoking campaigns has waned. Research findings suggest that smoking rates (especially among youth) would be less if states followed CDC tobacco prevention guidelines. There is a lack of proper state investments.

Factors associated with youth tobacco use include low socio-economic status, use/approval of tobacco use by peers/siblings, smoking by parents/guardians, accessibility/availability/price of tobacco, perception, lack of parental support, low academic achievement, lack of skills to resist/refuse influences/offers, low self-image/esteem.⁵³

Prevalence of smoking among adults in the CMAP region: 19.3% are smokers.⁵⁴

Percent of 8th graders in the CMAP region who used tobacco in the last month: 8% used tobacco in the last month.⁵⁵

Goal

No more than 7.3% of adults in the CMAP region should be smokers according to the Behavioral Risk Factor Surveillance System. No more than 3.0% of 8th graders in the CMAP region will have used tobacco in the last month according to the Illinois Youth Survey.

The goal levels are based upon incremental improvements of 15% every five years starting in 2015.

Objective

By 2015, no more than 16.4% of adults in the CMAP region should be smokers according to the Behavioral Risk Factor Surveillance System. By 2015, no more than 6.8% of 8th graders in the CMAP region will have used tobacco in the last month according to the Illinois Youth Survey.

EARLY ALCOHOL AND ILLEGAL DRUG USE

The identified risk factors for substance abuse fit into four categories, or domains, that consist of community, family, school and individual/peer. By reducing risk factors and increasing protective factors, the likelihood that adolescents will participate in alcohol, tobacco and other drugs can be reduced.⁵⁶

- Individual (biological and psychological dispositions, attitudes, values, knowledge, skills, problem behaviors);
- Peer (norms, activities);
- Family (function, management, bonding);
- School (bonding, climate, policy, performance);
- Community/Society (bonding, norms, resources, awareness/mobilization, policy/sanctions).

Percent of 8th graders in the CMAP region who used alcohol in the last month: 26% used alcohol in the last month.⁵⁷

Percent of 8th graders in the CMAP region who used marijuana in the last month:

8% used marijuana in the last month.⁵⁸

Early Drinking

Goal

No more than 9.8% of 8th graders will have used alcohol in the last month according to the Illinois Youth Survey.

The goal level is based upon incremental improvements of 15% every five years starting in 2015.

Objective

By 2015, no more than 22.1% of 8th graders will have used alcohol in the last month according to the Illinois Youth Survey.

Early Drug Use

Goal

No more than 3.0% of 8th graders in the CMAP region will have used marijuana in the last month according to the Illinois Youth Survey.

The goal level is based upon incremental improvements of 15% every five years starting in 2015.

Objective

By 2015, no more than 6.8% of 8th graders in the CMAP region will have used marijuana in the last month according to the Illinois Youth Survey.

ASTHMA

Establishment of written action plans helps those with asthma to manage their condition. A combination of environmental and genetic factors, although the direct cause is unclear, is associated with asthma. Potential asthma triggers include infections, allergens, weather/temperature, air pollution, smoking, food, and certain medications.

Prevalence of asthma in the CMAP region: 12.6%.⁵⁹

Asthma is "a chronic condition characterized by hyperemia of the bronchial mucosa and the presence of a mucous exudate, or by a neurosis of reflex origin, with the changes peculiar to chronic bronchitis, including emphysema, hypertrophy, and dilatation of the right heart. Spasmodic constriction involving the mucous membrane of the bronchial tree may also be present. Asthma, according to certain writers, may be excited by arterial constriction."

In "Secondary Asthma," "periodic attacks of asthma often occur during the course of such chronic maladies as organic heart disease, nephritis,

rheumatism, gout, syphilis, and emphysema, as well as in lesions located in the medulla.”⁶⁰

Goal

No more than 4.8% of the CMAP population will have asthma according to the Behavioral Risk Factor Surveillance System.

The goal level is based upon incremental improvements of 15% every five years starting in 2015.

Objective

By 2015, no more than 10.7% of the CMAP population will have asthma according to the Behavioral Risk Factor Surveillance System.

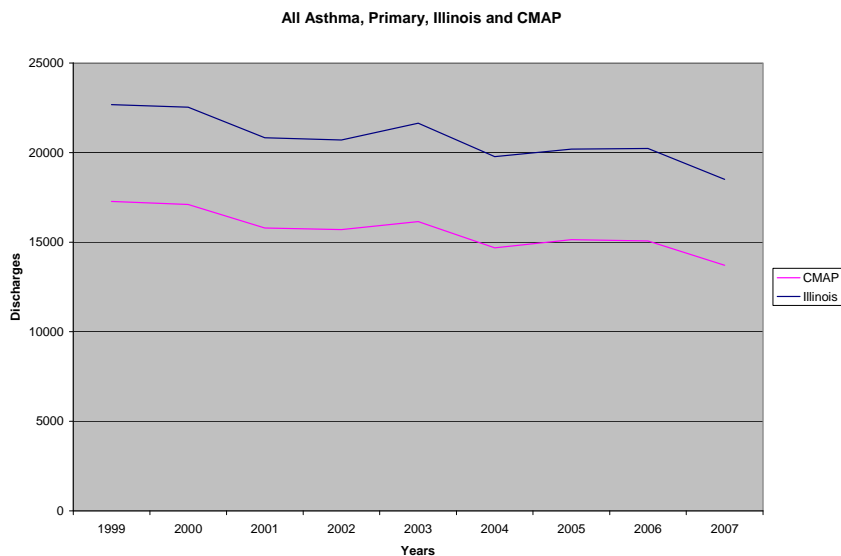
Goal

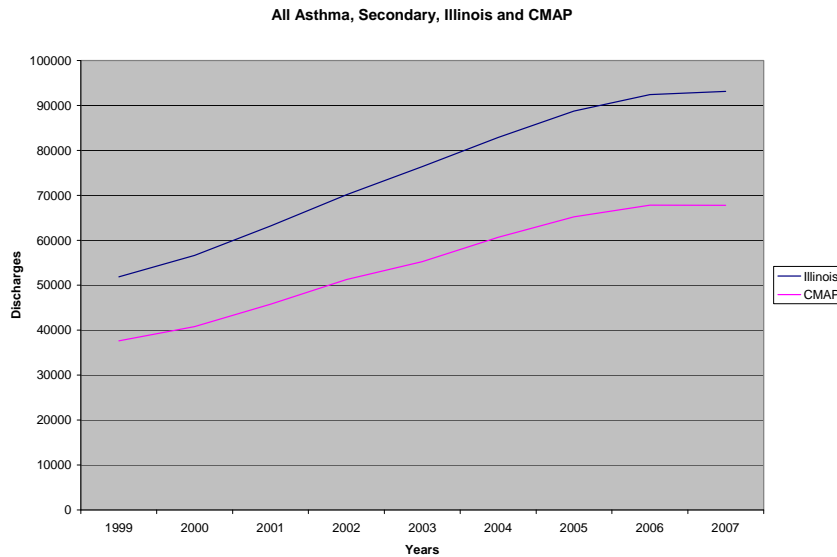
The downward trend for hospitalizations for primary asthma in the CMAP region will continue. The trend in hospitalizations for secondary asthma should be down for the CMAP region.

The goal levels reflect the downward trend for hospitalizations for primary asthma and a desire to reverse the uptrend for hospitalizations for secondary asthma from 1999 to 2007. Ambulatory sensitive hospitalizations may “indicate worsening in ambulatory care access or quality for those conditions.”⁶¹

Objective: By 2015, a regional mechanism will be established to monitor ambulatory sensitive hospitalizations for primary and secondary asthma.

Trends in ambulatory sensitive hospitalizations for primary and secondary asthma in the CMAP region





SENTINEL CANCER EVENTS

Sentinel events are proxy measures for how well the health system is functioning. The assumption is that unnecessary cases of breast cancer and late cervical cancer occur due to poor performance of health protection, environmental health, prevention, health promotion and treatment systems.

“Sentinel health events are those indicators that serve as a warning signal that the quality of care may need to be improved. They assume that unnecessary disease, unnecessary disability and unnecessary untimely death would have been prevented or managed if the health care system had functioned satisfactorily. The occurrence of any of these diseases, disabilities and untimely deaths should indicate that something is wrong in the health care system and can be used to determine the level of health of the general population and the effects of economic, political and other environmental effects upon it.” (Dever, 1984)⁶²

Table 15: Sentinel Cancer Events, 1998-2002

Places and Population in the CMAP Region Where <i>in situ</i> Breast Cancer and Late Cervical Cancer Rates are Higher than the Illinois Rate					
Place	Populations	<i>in situ</i> Breast Cancer	Illinois	Late Cervical Cancer	Illinois
Cook County	All Women			4.9	4.3
	White	30.3	29.7	4.0	3.7
DuPage County	All Women	35.9	28.9		
	Black	38.5	21.5		
	White	35.1	29.7		
Kane County	All Women	31.7	28.9		
	White	31.1	29.7		
Kendall County	All Women	43.1	28.9		
	White	39.3	29.7		
Lake County	All Women	36.6	28.9		
	White	37.9	29.7		
Will County	All Women	30.2	28.9		
	Black	26.0	21.5		

(5-year average age-adjusted rate and 5-year number) 1998-2002
 Note: Rates are per 100,000, age-adjusted to 2000 US standard.⁶³

Goal

There should be no counties or populations in the CMAP region with case rates for *in situ* breast cancer and late cervical cancer higher than Illinois rates.

Objective

By 2015, a regional mechanism will be established to monitor Sentinel Events in each CMAP county using comparisons with Illinois rates and other targets.

HEALTH PROFESSIONS SHORTAGE AREAS

Some argue that the current designation tools are ineffective, thus federal money is not allocated based on the needs of underserved communities.⁶⁴ Among factors affecting shortages are retention and recruitment, working conditions, and professional and personal benefits.

Range of Health Professions Shortage Area scores in the CMAP Region

Table 16: HPSA Scores for Primary Care, Dental Health, and Mental Health, 2008

<u>Primary Care HPSA Scores (1 – 25)</u> Cook – 0 to 21 DuPage – 0 Kane – 0 to 17 Kendall – 0 Lake – 0 to 12 McHenry – 0 Will – 0 to 15
<u>Dental HPSA Scores (1 – 26)</u> Cook – 0 to 21 DuPage – 0 Kane – 0 to 10 Kendall – 0 Lake – 0 to 11 McHenry – 0 Will – 0 to 14
<u>Mental Health HPSA Scores (1 – 25)</u> Cook – 0 to 20 DuPage – 0 to 19 Kane – 0 to 16 Kendall – 0 Lake – 0 to 11 McHenry – 0 Will – 0 to 19 Source: http://hpsafind.hrsa.gov/HPSASearch.aspx/01/05/2009

HPSA Scores are developed for use by the National Health Service Corps in determining priorities for assignment of clinicians. Scores range from 1 to 25 for primary care and mental health, 1 to 26 for dental. The higher the score, the greater the priority.⁶⁵

Goal

The Health Professions Shortage Area scores should be 0 to 55% of the highest current scores for primary care, mental health, and dental health in each CMAP region county.

Objective

By 2015, public health authorities, regional planners and health leaders will have greater understanding of health workforce capacity and changing roles in the CMAP region.

RANGE OF UNINSURED INDIVIDUALS

National health reform may increase coverage. However, the numbers are drastic. In 2007, 47 million in the U.S. were without health insurance, including 8.7 million children.⁶⁶

Range of uninsured individuals in the CMAP region: 14.7% to 17.3%.

Table 17: Range of Uninsured Individuals by County, 2005⁶⁷

County	Range (Number)		Range (Percent)		Total Population
	Low	High	Low	High	
Cook	740,171	829,689	15.9%	17.9%	4,637,267
DuPage	93,655	118,375	11.3%	14.3%	828,299
Kane	65,908	85,304	14.6%	19.0%	450,546
Kendall	9,592	13,670	11.7%	16.7%	81,788
Lake	89,492	112,548	14.1%	17.7%	636,632
McHenry	34,326	45,738	12.2%	16.2%	283,874
Will	70,674	93,948	11.6%	15.4%	610,789
CMAP	1,103,818	1,299,272	14.7%	17.3%	7,529,195

Goal

No more than 0 to 1.5% of the population will be uninsured.

The goal level is based on the assumption that there will be a National solution to the uninsured problem in the next three decades. The target ranges up to 1.5% since some area residents may not desire coverage or may never take the necessary steps

Objective

By 2010, health and civic leaders in the CMAP region will have educated the U.S. Senators and House members from Illinois on the need for and the economic benefit of universal health coverage.

SEXUALLY TRANSMITTED DISEASE

Major stigma surrounds screening and testing for sexually transmitted disease (STD), especially among young people. Many infected individuals do not know they are infected (asymptomatic). Very few laws and regulations focus on prevention. There is significant ignorance concerning STD modes of transmission. The incidence is increasing.

Other factors:

- Lack of safe sex practices;
- Misinformed/lack of education;
- Don't know status (thus, potentially spread);

- Access to screening (Cost? Confidential?)

Incidence of selected sexually transmitted diseases (syphilis, gonorrhea and chlamydia) in the CMAP region: Syphilis, 5.9 cases per 100,000 population; gonorrhea, 162.0 cases per 100,000; Chlamydia, 419.2 cases per 100,000.

Table 18				
SYPHILIS INCIDENCE RATES				
Rates per 100,000: 2005				
Group Selection	Illinois		Illinois	
	Rate	Number	Rate	Number
Total	5.9	496	4.1	523
Asian/PI	**.	N/A	**.	N/A
Black	**.	198	**.	206
White	**.	246	2.6	265
Other/Unknown	**.	47	**.	47

Group Selection (7): COOK, DU PAGE, KANE, KENDALL, LAKE, MCHENRY, WILL⁶⁸

Table 19				
GONORRHEA INCIDENCE RATES				
Rates per 100,000: 2005				
Group Selection	Illinois		Illinois	
	Rate	Number	Rate	Number
Total	162.0	13,692	149.6	19,093
Asian/PI	**.	36	**.	39
Black	**.	9,694	**.	13,099
White	**.	1,167	26.3	2,680
Other/Unknown	**.	2,795	**.	3,275
Adolescents:				
Ages 15-19	**.	3,867	**.	5,750
Women:				
Ages 15-44	**.	7,037	**.	10,116

Group Selection (7): COOK, DU PAGE, KANE, KENDALL, LAKE, MCHENRY, WILL⁶⁹

Table 20				
CHLAMYDIA INCIDENCE RATES				
Rates per 100,000: 2005				
Group Selection	Illinois		Illinois	
	Rate	Number	Rate	Number
Total	419.2	35,425	382.4	48,811
Asian/PI	**.	248	**.	324
Black	**.	20,076	**.	25,925
White	**.	6,194	119.5	12,190
Other/Unknown	**.	8,907	**.	10,372

Group Selection (7): COOK, DU PAGE, KANE, KENDALL, LAKE, MCHENRY, WILL⁷⁰
If < 10 events or no population data, no rates calculated.

Goals

- There should be no more than 2.2 per 100,000 population cases of syphilis in the CMAP region.
- There should be no more than 68.1 per 100,000 population cases of gonorrhea in the CMAP region.
- There should be no more than 168.1 per 100,000 population cases of chlamydia in the CMAP region.

The goal level is based upon incremental improvements of 15% every five years starting in 2015.

Objectives

- By 2015, the incidence of syphilis will be no more than 5.0 cases per 100,000 population in the CMAP region.
- By 2015, the incidence of gonorrhea will be no more than 137.7 cases per 100,000 population in the CMAP region.
- By 2015, the incidence of chlamydia will be no more than 356.3 cases per 100,000 population in the CMAP region.

CHILDHOOD LEAD SCREENING

Infants and children are most affected, primarily those who reside in older houses or buildings (from the lead-based paint era, built before 1978). Lead screening for different age groups occurs only when recommended by the Center for Disease Control. Other drivers include:

- Intake and exposure to lead-based paint;
- Dust and soil;
- Drinking water;
- Type of job/working conditions;
- Foods and containers;
- Older housing.

19.31% of children under 6 were tested for lead in the CMAP region.

Goal

All children under six living in high risk zip codes as determined by the Illinois Department of Healthcare and Family Services should be screened for elevated blood lead levels.

It is conceivable that public health authorities may determine that the risk of lead poisoning to children from ingesting paint chips is significantly reduced and that other means of exposing young children to lead are no longer significant problems. The requirement to test children could then be eliminated. However, the goal level is set to cover "poor" and "near poor" children who are more likely to live in substandard housing.

Objective

By 2015, lead abatement of existing residential housing and enforcement of new housing construction standards will meet the highest standards throughout the CMAP region.

Table 21: Children Under 6 Tested for Lead by County, 2006⁷¹				
County	Tested in 00	Children ≤ 6	Children ≤ 6	Percent Tested in 06
Sub. Cook		34,358	241,425	4.23%
Chicago		102,847	308,416	33.35%
DuPage		5,096	89,349	5.70%
Kane		10,211	56,926	17.94%
Kendall		411	8,217	5.00%
Lake		8,669	73,888	11.73%
McHenry		2,294	29,768	7.71%
Will		5,186	67,427	7.69%
CMAP		169,072	875,416	19.31%

AIDS

Challenges

- Obtaining the most reliable data;
- The need for increased HIV/AIDS screening;
- Lack of focus on modes transportation, specific groups or prevention;
- Decline in funding;
- The determinants relate back to modes of transmission (unprotected sex, mother to child, etc.), education/awareness, access and availability of contraceptives, age at first sexual encounter and gender disparities (who has power in the situation).

Incidence of AIDS in the CMAP region: 13.7 cases per 100,000 population.

Table 22: AIDS Incidence Rates, CMAP Region, 1999⁷²				
Rates per 100,000				
	<u>Group Selection</u>		<u>Illinois</u>	
	<u>Rate</u>	<u>Number</u>	<u>Rate</u>	<u>Number</u>
AIDS Cases	13.7	1,082	10.6	1,289
By Mode of Transmission:				
Total Cases		1,082		1,289
Men Who Have Sex				
With Men (MWHWSM)		418		500
Injection Drug Use (IDU)		263		312
MWHWSM/IDU		53		63
Hemophilia		N/A		
Heterosexual Contact	174		205	
Blood Transfusion	14		16	
Prenatal		N/A		6
Other/Not Reported		153		185

If < 10 events or no population data, no rates calculated.

Goal

The incidence of AIDS should be no more than 3.7 cases per 100,000 population in the CMAP region.

The data on AIDS incidence is from 1999. The goal level is based upon incremental improvements of 15% every five years starting in 2005.

Objective

By 2015, the incidence of AIDS should be no more than 11.6 cases per 100,000 population in the CMAP region.

PRIORITY INDICATORS

Priority indicators were developed to facilitate the integration of health improvement with the regional planning agenda. These indicators should be improved and maintained and the health status of the regional population and the performance of health services in the regional should be monitored.

Finally, the three strategies presented in the plan are for an integrated prevention and health promotion strategy that will integrate the regional planning agenda with health policy issues and integrate the participants in the process. The second strategy is to move toward an all data-real time concept that builds on the current emphasis on electronic medical records. The third strategy is to strengthen the public health infrastructure in response to early signs of deterioration and to intervene in the unsustainable trends associated with chronic disease.

Two categories of priority health indicators should be the focus of attention from regional planners and health leaders over the next three decades. They are:

- Indicators of health status, especially chronic diseases, that reflect an underlying broader socioeconomic condition;
- Indicators that more directly measure the efforts of non-health sectors to contribute to health. It should be noted that most Other Sector indicators will require refinement and periodic data collection. The region's local health departments will be looked to for this given their epidemiological expertise and experience in this area.

All of these indicators should be maintained and monitored by regional planners and public health agencies.

**Table 23: Priority Indicators to be Refined,
Monitored, and Maintained**

Health Indicators	Other Sector Indicators
Differences in the infant mortality rate by race, ethnicity, and residency in the CMAP region	
Age-adjusted death rates for the leading causes of death AND/OR Years of potential life lost and mortality rates by disease	<ul style="list-style-type: none"> • % of brownfield acres in tracts with low-income or minority populations • % of employer health plans that cover preventive services
Prevalence of “obese” and “overweight” children in the CMAP region	<ul style="list-style-type: none"> • Pedestrian level of service (PLOS)/bicycle level of service (BLOS) (transportation)
Prevalence of smoking in the CMAP region by age	<ul style="list-style-type: none"> • Proportion of grades with health education programs
Asthma prevalence AND/OR Trends in ambulatory sensitive hospitalizations for primary and secondary asthma in the CMAP region	<ul style="list-style-type: none"> • Annual air emissions • Good air quality days per year
Proportion of adults reporting that their general health is good to excellent	<ul style="list-style-type: none"> • % of persons participating in community health forums • Number of community health forums • Number of health fairs • Degree to which health is a topic in non-health sector decision meetings
Prevalence of diabetes among adults in the CMAP region	<ul style="list-style-type: none"> • Trend in ambulatory sensitive hospitalizations for type 1 and type 2 diabetes mellitus
Places and Populations in the CMAP Region Where <i>in situ</i> Breast Cancer and Late Cervical Cancer Rates (IDPH Sentinel Events) are Higher than the Illinois Rate	<ul style="list-style-type: none"> • Degree of participation in breast cancer awareness events
Range of Health Professions Shortage Area scores in the CMAP Region	<ul style="list-style-type: none"> • Trends in ambulatory sensitive hospitalizations
Range of uninsured individuals in the CMAP region	<ul style="list-style-type: none"> • Percent of population covered by employer sponsored insurance by industry and size
Incidence of selected sexually transmitted diseases (HIV/AIDS, syphilis, gonorrhea, & Chlamydia) in the CMAP Region	<ul style="list-style-type: none"> • Reported to expected communicable diseases

Percent of children under 6 with elevated blood-lead levels in the region	<ul style="list-style-type: none"> • %housing units inspected in high-lead areas • % of lead hazard remediations
Percent of population that are hungry OR that are food insecure	<ul style="list-style-type: none"> • Ration of population receiving services (for food and hunger) to need
	<ul style="list-style-type: none"> • Percent of population receiving food stamps
Emergency response preparedness index	<ul style="list-style-type: none"> • Individuals certified in CPR/First Aid per 100,000 population
	<ul style="list-style-type: none"> • % of households with disaster emergency kits/plans
	<ul style="list-style-type: none"> • Risk-related emergency shelter bed capacity/mass feeding capacity/registered active volunteer capacity

The indicators in this plan are linked to the determinants of health, the vision of health in 2040, the regional planning agenda, and the plan strategies through the following logic chain:

Table 24
Logic Chain Between Health Indicators and Regional Planning Indicators

Health Indicator	Determinant(s): Broad	Determinant(s): Specific	Related Domain	Strategy
Childhood Obesity	-Education -Activity -Nutrition	-School Health Ed. Programs -PLOS, BLOS, Community Programs, -School Nutrition/Food, Access/Availability fresh fruits/veggies	-Education -Land Use, Transportation, Civic Involvement -Education, Food/Hunger, Transportation	Integrated Strategy
Age-adjusted death rates for selected diseases	-Health Promoting Behaviors (diet, exercise, etc) -Substance Abuse (tobacco, alcohol, drugs) -Access to Primary Care	-Access, availability to healthy food, physical activity	-Transportation, Land Use	Public Health Infrastructure
Diabetes	-Lifestyle Factors -Co-morbidity (high blood pressure, high cholesterol)			Integrated Strategy
Infant Mortality	-Pre-term births, LBW	-Mother nutrition, mother education, mother SES/standard of living, mother healthcare access, mother resources	-Economy, Civic Involvement	Integrated Strategy

Health Indicator	Determinant(s): Broad	Determinant(s): Specific	Related Domain	Strategy
Ambulatory Sensitive Hospitalizations	-Primary Care			Data
Smoking (youth, adult)	-Social Networks (parents, peers, adult role-models) -SES	-School programs, -Community.		Public Health Infrastructure
Alcohol (youth)	-Other risk behavior (sex behavior, delinquency) -Social Networks -Media Exposure			Public Health Infrastructure
Marijuana (youth)	-Risk Behaviors, Psych Disorders, "escape mechanism" -Peer Pressure, Access/Avail.			Public Health Infrastructure
Asthma	-Environmental Factors -Occupation -Food, Smoke, Meds	-Air Quality, Temperature -	-Environment -Economy, Civic Involvement	Data
Uninsured	-Policy (national, state) -Employment -SES -Perceived Need		-Economy, Civic Involvement, Human Relations	Integrated Strategy

Health Indicator	Determinant(s): Broad	Determinant(s): Specific	Related Domain	Strategy
Sentinel Events	-Health Promoting Behaviors (diet, exercise, etc.) -Substance Abuse (tobacco, alcohol, drugs) -Access to Primary Care	-Access, availability to healthy food, physical activity -	-Transportation, Land Use, -	Data
HPSA's	-Location, Environment -Benefit (personal, professional)	-Retention, recruitment, -Connection to area, location -Other factors: safety, schools, transportation, pay	-Workforce, Economy -	Integrated Strategy
STD's	-Sex Activity, Practices -Knowing Status	-Misinformed, Access/Avail. of physical barrier and/or oral contraceptives -Testing, counseling	-Education, -Civic Involvement	Public Health Infrastructure
Lead	-Environment -Conditions, Job	-Housing (esp. Pre-1976) -Work, school exposure	-Education -Workforce, Education	Integrated Strategy
HIV	-Sex Activity, Practices -Other modes of transmission	-Access/avail. to condoms -Male to Male, IV Drug Use, Mother to Child		Public Health Infrastructure

APPENDIX I: HEALTH PLANNING PROCESS

The plan was developed using the following steps and methods:

- I. Creation of an advisory council
 - A. Discuss membership of the council and seek agreement with Community Trust and CMAP representatives
 - B. Solicit potential council members
 - C. Convene council (The first meeting was in October, 2008)
- II. Scope of the report on the issues covered and recommendations on indicators used for the plan.
 - A. Propose indicators that define the scope of the effort
 - B. Discuss scope with Community Trust and CMAP representatives
 - C. Establish a set of no more than 15 indicators that define the scope of the effort
 - D. Finalize indicators
 - E. For each indicator, assemble data for the indicator level that reflects the most recent data available in order to state the present condition of the problem or asset in the CMAP region
 - F. Assemble data (or develop alternative indicator)
 - G. Write a general description of the regional health system
 - H. Design Advisory Committee Vision Exercise
 1. Send to Advisory Committee
 2. Analyze and report on the results
 - I. Write "Health in the CMAP region in 2040"
 - J. For each indicator, set targets for 2040 based upon trends, forecasts, and the advisory council's vision of a desired state of health and a desired health system in the CMAP region.
 - K. Based upon gaps between the present condition and the 2040 target, identify challenges and opportunities.
 - L. Determine the underlying drivers of the challenges and opportunities.
 - M. Identify strategies designed to eliminate or reduce problem drivers and enhance regional assets and assess the regional impact.
 - N. Identify federal, state and local policies and resources relevant to the strategies and critical to the success of the region.
 - O. Develop an inventory of organizations working on or relevant to the strategy.
- III. Seek comments on draft report.
- IV. Write final report and seek advisory council approval.
- V. Deliver final report.

APPENDIX II: CMAP POPULATION DATA

Population Estimates for NE Illinois Counties, April 1, 2000 and July 1, 2005 (Hispanic; Race; Non-Hispanic by Race; Age; Sex) By County

Subject Characteristic	Cook County		DuPage County		Kane County	
	2005	2000	2005	2000	2005	2000
Total Population	5,303,683	5,376,822	929,113	904,152	482,113	404,120
Hispanic						
Non-Hispanic	4,124,087	4,305,079	823,660	822,786	349,609	308,196
Hispanic or Latino	1,179,596	1,071,743	105,453	81,366	132,504	95,924
Race						
White alone	3,530,638	3,608,943	787,790	792,652	433,297	366,557
Black alone	1,401,611	1,423,609	37,791	28,217	26,845	24,201
American Indian & Alaskan Native alone	20,395	19,358	1,891	1,773	2,040	1,553
Asian alone	289,223	268,116	90,254	72,628	13,430	7,686
Native Hawaiian & Other Pac Islander alone	4,965	4,800	245	284	604	263
Two or more races	56,851	51,996	11,142	8,598	5,897	3,860
Non-Hispanic by Race						
White alone	2,408,617	2,592,850	686,234	714,645	305,900	274,295
Black alone	1,374,522	1,396,583	36,300	27,206	24,883	22,602
American Indian & Alaskan Native alone	7,602	7,050	976	936	712	547
Asian alone	284,215	263,235	89,688	72,034	13,058	7,364
Native Hawaiian & Other Pac Islander alone	2,278	1,656	179	187	219	60
Two or more races	46,853	43,705	10,283	7,778	4,837	3,328
Sex						
Male	2,576,512	2,603,581	459,907	445,725	243,882	203,248
Female	2,727,171	2,773,241	469,206	458,427	238,231	200,872

Subject Characteristic	Kendall County		Lake County		McHenry County	
	2005	2000	2005	2000	2005	2000
Total Population	79,514	54,520	702,682	644,620	303,990	260,062
Hispanic						
Non-Hispanic	69,361	50,436	575,140	551,859	273,248	240,460
Hispanic or Latino	10,153	4,084	127,542	92,761	30,742	19,602
Race						
White alone	74,422	52,736	603,506	562,767	290,213	252,256
Black alone	2,458	723	47,726	46,253	2,823	1,636
American Indian & Alaskan Native alone	185	112	2,450	2,160	601	491
Asian alone	1,467	519	38,368	25,723	7,372	3,878
Native Hawaiian & Other Pac Islander alone	20	12	591	438	178	84
Two or more races	962	418	10,041	7,279	2,803	1,717
Non-Hispanic by Race						
White alone	64,666	48,761	482,269	474,774	260,523	233,328
Black alone	2,275	693	44,877	44,126	2,427	1,398
American Indian & Alaskan Native alone	111	84	1,086	1,071	374	361
Asian alone	1,453	512	37,862	25,280	7,266	3,800
Native Hawaiian & Other Pac Islander alone	0	11	322	240	108	44
Two or more races	856	375	8,724	6,368	2,550	1,529
Sex						
Male	39,808	27,079	353,549	324,164	152,485	130,466
Female	39,706	27,441	349,133	320,456	151,505	129,596

Subject Characteristic	Will County	
	2005	2000
Total Population	642,813	502,267
Hispanic		
Non-Hispanic	560,504	458,497
Hispanic or Latino	82,309	43,770
Race		
White alone	541,468	431,248
Black alone	68,668	53,183
American Indian & Alaskan Native alone	1,756	1,205
Asian alone	22,165	11,473
Native Hawaiian & Other Pac Islndr alone	378	197
Two or more races	8,378	4,961
Non-Hispanic by Race		
White alone	463,022	389,629
Black alone	66,890	52,283
American Indian & Alaskan Native alone	957	688
Asian alone	21,818	11,230
Native Hawaiian & Other Pac Islndr alone	196	122
Two or more races	7,621	4,545
Sex		
Male	321,585	250,831
Female	321,228	251,436

Source: Population Estimates Program, Population Division, U.S. Bureau of the Census. Internet Release date: August 4, 2006

APPENDIX III: BIBLIOGRAPHY

Acton, R.T., Go, R.C., Roseman, J.M. (2004). *Genetics and Cardiovascular disease*. *Ethn Dis*, 14(4), S2 8-16.

Almahroos, M., Kurban, A.K. (2004). Ultraviolet carcinogenesis in nonmelanoma skin cancer part II: review and update on epidemic correlations. *SKINmed*, 3 (3),132-9.

Anders, James Meschter and Napoleon, Leonard. *A Text-book of Medical Diagnosis*. Boston. W. B. Saunders company, 1911. Original from Harvard 31University. Digitized Dec 1, 2007. 1195 pages.
<http://books.google.com/books?id=3iYSAAAAYAAJ&output=text> 03/04/2009

Bernstein, J.L., Langholz, B., Haile, R.W. , et al. (2004). Study design: evaluating gene–environment interactions in the etiology of breast cancer – the WECARE study. *Breast Cancer Res*, 6(3), R199- 214.

Bray, F., Tyczynski, J. E., Parkin, D.M. (2004). Going up or coming down? The changing phases of the lung cancer epidemic from 1967 to 1999 in the 15 European Union countries. *Eur J Cancer*, 40(1), 96-125.

Browne, M.L., Varadarajulu, D., Lewis-Michl, E.L., Fitzgerald, E.F. (2005) Cancer incidence and asbestos in drinking water, Town of Woodstock, New York, 1980-1998. *Environ Res*, 98(2):224-32.

Calle, E.E., Miracle-McMahill, H. L., Thun, M.J. (1994). Cigarette Smoking and Risk of Fatal Breast Cancer. *Am J Epidemiol*, 139 (10),1001-1007.

Chicago Metropolitan Agency for Planning. *Regional Vision for Metropolitan Chicago*.

Colditz, G.A., Rosner, B.A, Chen, W.Y. (2004) Risk Factors for Breast Cancer According to Estrogen and Progesterone Receptor Status. *J Natl Cancer Inst*, 96 (3), 218-228.

Community Health Status Indicators Report, U.S. Department of Health and Human Services, 2008.

Corella, D., Ordovas, J.M. (2004) *Single nucleotide polymorphisms that influence lipid metabolism: Interaction with Dietary Factors*. *Ann Rev Nutr*, May 21.

Czene, K., Tiikkaja, S., Hemminki, K. (2003). Cancer risks in hairdressers: Assessment of carcinogenicity of hair dyes and gels. *Intl J Cancer*, 105 (1), 108-12.

Devroey, D., De Swaef, N., Coigniez, P., Vandevoorde, J., Kartounian, J., Betz, W. (2004). *Correlations Between Lipid Levels and Age, Gender, Glycemia, Obesity, Diabetes, and Smoking*. *Endocr Res*, 30(1), 83-93.

Gaillard, T.R., Schuster, D.P., Bossetti, B.M. (1997). *The impact of socioeconomic status on cardiovascular risk factors in African-Americans at high risk for type II diabetes. Implications for syndrome X*. *Diabetes Care*, 20, (5), 745-752.

Giovannuci, E. (2003). Diet, body weight, and colorectal cancer: a summary of the epidemiologic evidence. *J Women's Health*, 12(2), 173-82.

Grant, P.J. (2005). *Inflammatory, artherothrombotic aspects of type 2 diabetes*. *Curr Med Res Opin*, 21 (Suppl 1), 5-12.

"Healthy Smiles, Healthy Growth Illinois: Linking Oral Health to Obesity through Data Collection," by Julie Ann Janssen and Sangeeta Wadhawan from 2003-2004.

<http://app.idph.state.il.us/02/27/2009>

<http://app.idph.state.il.us/data/CountyLevel.asp?menu=1> 03/03/2009

http://app.idph.state.il.us/data/IndicatorDetails.asp?Ind_No=7.02&Show_Ind_Description=Yes&Show_Ind_Profile=Yes&Show_Data_Years=Yes&FirstPost=No 03/04/2009.

<http://bhpr.hrsa.gov/shortage/hpsadictionary.htm> 03/04/2009.

<http://children.webmd.com/news/20050519/child-obesity-8-red-flags-watch> 01/06/2009

<http://diabetes.about.com/od/symptomsdiagnosis/tp/riskfactors.htm> 01/06/2009.

<http://healthinformation.advanceweb.com/Editorial/Content/Editorial.aspx?CC=115604> 03/04/2009.

<http://hpsafind.hrsa.gov/HPSASearch.aspx> 01/05/2009

<http://www.commonwealthfund.org/Content/Performance-Snapshots/Overuse-of-Health-Care-Services/Hospitalizations-for-Ambulatory-Care--8211-Sensitive-Conditions.aspx> 03/05/2009.

<http://www.communityhealth.hhs.gov/MeasuresOfBirthAndDeath.aspx?GeogCD=17197&PeerStrat=10&state=Illinois&county=Will> 03/12/2009

<http://www.healthypeople.gov/>

<http://www.ihatoday.com/about/facts/popweb.htm> 02/27/2009

<http://www.iom.edu/Object.File/Master/60/828/SUSA%20report%20brief%20for%20web.pdf> 04/23/2009

<http://www.illinoisyouthsurvey.org/results/countyreports.html> 02/22/2009.

<http://www.nibidc.com/chsr/cook.pdf> 03/04/2009).

<http://www.who.int/hia/evidence/doh/en/08/31/2008>

IDPH Discharge Data, 1999 – 2007.

Illinois BRFSS, County, Round 3 (2004-2006), Topic: Asthma

Illinois BRFSS, County, Round 3 (2004-2006), Topic: Diabetes)

Illinois BRFSS, County, Round 3 (2004-2006), Topic: Tobacco Use)

Illinois Lead Program Surveillance Report-2006 (IDHCFS)

IPLAN-individual counties, IMR, Aggregate years 2003, 2004, 2005, race and ethnicity.

Laufer, E.M., Hartman, T.J., Baer, D.J. (2004). Effects of moderate alcohol consumption on folate and vitamin B(12) status in postmenopausal women. *Eur J Clin Nutr.*, 58(11), 1518-24.

Mannisto, S., Smith-Warner, S.A., Spiegelman, D. (2004). Dietary carotenoids and risk of lung cancer in a pooled analysis of seven cohort studies. *Cancer Epidemiol Biomarkers Prev*, 13(1), 40-8.

Mantzoros, C., Petridou, E., Dessypris, N. (2004). Adiponectin and breast cancer risk. *J Clin Endocrinol Metab*, 89(3), 1102-7.

Mao, Y., Pan, S., Wen, S.W. (2003). Physical activity and the risk of lung cancer in Canada. *Am J Epidemiol.*, 158(6), 564-75.

Mattison, I., Wirfalt, E., Wallstrom, P. (2004). High fat and alcohol intakes are risk factors of postmenopausal breast cancer: A prospective study from the Malmo diet and cancer cohort. *Int J Cancer*, 110(4), 589 – 597.

Miller, A.B., Altenberg, H.P., Bueno-de-Mesquita, B. (2004). Fruits and vegetables and lung cancer: Findings from the European Prospective Investigation into Cancer and Nutrition. *Int J Cancer*, 108(2):269-76.

NCHS, 2000 in <http://www.cdc.gov/omhd/AMH/factsheets/infant.htm> 01/06/2009.

NCHS. Vital Statistics Reporting System, 2001-2003.

Northeastern Illinois Planning Commission 2030 Forecasts by County and Municipality of Population, Households and Employment, September 27, 2006

Onal, A. E., Erbil, S., Ozel, S. (2004). *The prevalence of and risk factors for hypertension in adults living in Istanbul*. *Blood Press*, 13 (1), 31-6.

Patel, J.D., Bach, P.B., Kris, M.G. (2004). Lung cancer in US women: a contemporary epidemic. *JAMA*, 291(14):1763-8.

Pennello, G., Devesa, S., Gail, M. (2000). Association of surface ultraviolet B radiation levels with melanoma and nonmelanoma skin cancer in United States blacks. *Cancer Epidemiol Biomarkers Prev*, 9(3), 291-7.

Presentation by Jack Zwanziger titled, "The Costs of Chronic Disease" at the Chicago Chronic Disease Summit on 12/14/2006.

Reynolds, P., Cone, J., Layefsky, M. (2002). *Cancer incidence in California flight attendants*. *Cancer Causes and Control*. 13:4. 317-324.

Ritcher, E.D., Friedman, L.S., Tamir, Y. (2003). Cancer risks in naval divers with multiple exposures to carcinogens. *Environ Health Perspect*, 111 (4), 609-17

Satia-Abouta, J., Galanko, J.A., Potter, J.D. (2003). Associations of total energy and macronutrients with colon cancer risk in African Americans and Whites: results from the North Carolina colon cancer study. *Am J Epidemiol*, 158(10), 951-62.

Sewell, Richard H. and Tawk, Rima H. *THE CHICAGO DEPARTMENT of PUBLIC HEALTH STRATEGY and PROGRAM FOCUS on CHRONIC DISEASE. Prepared under contract 2006-02827-00-00 between the City of Chicago and the University of Illinois at Chicago. February 2008.*

Shrubsole, M.J., Gao, Y.T., Dai, Q. (2004). Passive smoking and breast cancer risk among non-smoking Chinese women. *Int J Cancer*;110(4), 605-9.

Slattery, M.L., Levin, T.R., Ma, K. (2003). Family history and colorectal cancer: predictors of risk. *Cancer Causes Control*, 14(9), 879-87.

Strom, S.S., Yamamura, Y. (1997). Epidemiology of nonmelanoma skin cancer. *Clin Past Surg*, 24(4), 627-36.

Teixeira, E., Conde, S., Alves, P. (2003). Lung cancer and women. *Rev Port Pneumol*, 9(3):225-47.

US Census Bureau (2005), Small Area Health Insurance Estimates*

*http://smpbff1.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?reportid=cdb3576ac444b07f7cc84f0e92cc68c0&emailname=saeb@census.gov&filename=SAHIE-County07.hrml 02/09/2009

Walker, A.R., Adam, F.I., Walker, B.F. (2004). Breast cancer in black African women: a changing situation. *J R Soc Health*, 124(2), 81-5.

Wei, E.K., Ma, J., Pollak, M.N. (2005). A prospective study of C-peptide, insulin-like growth factor-I, insulin-like growth factor binding protein-1, and the risk of colorectal cancer in women. *Cancer Epidemiol Biomarkers Prev*, 14(4), 850-5.

Whitrow, M.J., Smith, B.J., Pilotto, L.S. (2003). Environmental exposure to carcinogens causing lung cancer: epidemiological evidence from the medical literature. *Respirology*, 8(4), 513-21.

www.mass.gov/dph/bsas/prevention/masscall/rp.htm

Zheng, W., Gao, Y.T., Shu, X.O. (2004). Population-based case-control study of CYP11A gene polymorphism and breast cancer risk. *Cancer Epidemiol Biomarkers Prev*, 13(5), 709-14.

ENDNOTES

¹See the section on Technical Notes.

² Assuming an 8% growth in healthcare costs (based on 25 years historic experience) and relative expenditures by age groups remaining the same, Illinois average costs would increase by more than 700%. During the same period the overall economy would be expected to increase by 300-400%. The implications are:

- The rates of increases are unsustainable;
- Aging of the population will accelerate health care cost increases;
- Illinois, with relatively low population growth and a rapidly aging population, will face an even greater challenge over the long term;
- Cost savings must be generated from reductions in chronic disease costs.

Source: Presentation by Jack Zwanziger titled, "The Costs of Chronic Disease" at the Chicago Chronic Disease Summit on 12/14/2006.

³ Source: NCHS, 2000 in <http://www.cdc.gov/omhd/AMH/factsheets/infant.htm> 01/06/2009.

⁴ Source: Forsdahl, Anders. *Are poor living conditions in childhood and adolescence an important risk factor for atherosclerotic heart disease?* British Journal of Preventive and Social Medicine. 1977. **31**. 91-95.

⁵ <http://www.nibdc.com/chsr/cook.pdf> 03/04/2009

⁶ From: Sewell, Richard H. and Tawk, Rima H. *THE CHICAGO DEPARTMENT Of PUBLIC HEALTH STRATEGY And PROGRAM FOCUS On CHRONIC DISEASE. Prepared under contract 2006-02827-00-00 between the City of Chicago and the University of Illinois at Chicago. February 2008.*

⁷ Gaillard, T.R., Schuster, D.P., Bossetti, B.M. (1997). *The impact of socioeconomic status on cardiovascular risk factors in African-Americans at high risk for type II diabetes. Implications for syndrome X. Diabetes Care*, 20,(5), 745-752.

⁸ Corella, D., Ordovas, J.M. (2004) *Single nucleotide polymorphisms that influence lipid metabolism: Interaction with Dietary Factors. Ann Rev Nutr*, May 21.

⁹ Acton, R.T., Go, R.C., Roseman, J.M. (2004). *Genetics and Cardiovascular disease. Ethn Dis*, 14(4), S2 8-16.

¹⁰ Onal, A. E., Erbil, S., Ozel, S. (2004). *The prevalence of and risk factors for hypertension in adults living in Istanbul. Blood Press*, 13 (1), 31-6.

¹¹ Devroey, D., De Swaef, N., Coigniez, P., Vandevoorde, J., Kartounian, J., Betz, W. (2004). *Correlations Between Lipid Levels and Age, Gender, Glycemia, Obesity, Diabetes, and Smoking. Endocr Res*, 30(1), 83-93.

¹² Grant, P.J. (2005). *Inflammatory, artherothrombotic aspects of type 2 diabetes. Curr Med Res Opin*, 21 (Suppl 1), 5-12.

¹³ Teixeira, E., Conde, S., Alves, P. (2003). *Lung cancer and women. Rev Port Pneumol*, 9(3):225-47.

¹⁴ *Ibid.*

Bray, F., Tyczynski, J. E., Parkin, D.M. (2004). Going up or coming down? The changing phases of the lung cancer epidemic from 1967 to 1999 in the 15 European Union countries. *Eur J Cancer*, 40(1), 96-125.

Patel, J.D., Bach, P.B., Kris, M.G. (2004). Lung cancer in US women: a contemporary epidemic. *JAMA*, 291(14):1763-8.

¹⁵ Whitrow, M.J., Smith, B.J., Pilotto, L.S. (2003). Environmental exposure to carcinogens causing lung cancer: epidemiological evidence from the medical literature. *Respirology*, 8(4), 513-21.

¹⁶ Browne, M.L., Varadarajulu, D., Lewis-Michl, E.L., Fitzgerald, E.F. (2005) Cancer incidence and asbestos in drinking water, Town of Woodstock, New York, 1980-1998. *Environ Res*, 98(2):224-32.

¹⁷ Mao, Y., Pan, S., Wen, S.W. (2003). Physical activity and the risk of lung cancer in Canada. *Am J Epidemiol*, 158(6), 564-75.

¹⁸ Miller, A.B., Altenberg, H.P., Bueno-de-Mesquita, B. (2004). Fruits and vegetables and lung cancer: Findings from the European Prospective Investigation into Cancer and Nutrition. *Int J Cancer*, 108(2):269-76.

Mannisto, S., Smith-Warner, S.A., Spiegelman, D. (2004). Dietary carotenoids and risk of lung cancer in a pooled analysis of seven cohort studies. *Cancer Epidemiol Biomarkers Prev*, 13(1), 40-8.

¹⁹ Tyrer, J., Duffy, S. W., Cuzick, J. (2004). A breast cancer prediction model incorporating familial and personal risk factors. *Stat Med*, 23(7), 1111-30.

²⁰ *Ibid.*

²¹ Walker, A.R., Adam, F.I., Walker, B.F. (2004). Breast cancer in black African women: a changing situation. *J R Soc Health*, 124(2), 81-5.

Colditz, G.A., Rosner, B.A, Chen, W.Y. (2004) Risk Factors for Breast Cancer According to Estrogen and Progesterone Receptor Status. *J Natl Cancer Inst*, 96 (3), 218-228.

Zheng, W., Gao, Y.T., Shu, X.O. (2004). Population-based case-control study of CYP11A gene polymorphism and breast cancer risk. *Cancer Epidemiol Biomarkers Prev*, 13(5), 709-14.

²² Mantzoros, C., Petridou, E., Dessypris, N. (2004). Adiponectin and breast cancer risk. *J Clin Endocrinol Metab*, 89(3), 1102-7.

²³ Mattison, I., Wirfalt, E., Wallstrom, P. (2004). High fat and alcohol intakes are risk factors of postmenopausal breast cancer: A prospective study from the Malmo diet and cancer cohort. *Int J Cancer*, 110(4), 589 – 597.

²⁴ Laufer, E.M., Hartman, T.J., Baer, D.J. (2004). Effects of moderate alcohol consumption on folate and vitamin B(12) status in postmenopausal women. *Eur J Clin Nutr.*, 58(11), 1518-24. Mattison, *et.al*.pp. 589-597.

²⁵ Walker, *et.al.*

²⁶ Calle, E.E., Miracle-McMahill, H. L., Thun, M.J. (1994). Cigarette Smoking and Risk of Fatal Breast Cancer. *Am J Epidemiol*, 139 (10),1001-1007.

²⁷ Shrubsole, M.J., Gao, Y.T., Dai, Q. (2004). Passive smoking and breast cancer risk among non-smoking Chinese women. *Int J Cancer*;110(4), 605-9.

-
- ²⁸ Bernstein, J.L., Langholz, B., Haile, R.W. , et al. (2004). Study design: evaluating gene–environment interactions in the etiology of breast cancer – the WECARE study. *Breast Cancer Res*, 6(3), R199- 214.
- ²⁹ Walker, *et.al*.
- ³⁰ Satia-Abouta, J., Galanko, J.A., Potter, J.D. (2003). Associations of total energy and macronutrients with colon cancer risk in African Americans and Whites: results from the North Carolina colon cancer study. *Am J Epidemiol*, 158(10), 951-62.
- ³¹ Slattery, M.L., Levin, T.R., Ma, K. (2003). Family history and colorectal cancer: predictors of risk. *Cancer Causes Control*, 14(9), 879-87.
- ³² Mao, *et.al*.
- ³³ Giovannuci, E. (2003). Diet, body weight, and colorectal cancer: a summary of the epidemiologic evidence. *J Women's Health* , 12(2), 173-82.
- ³⁴ *Ibid*.
- ³⁵ Wei, E.K., Ma, J., Pollak, M.N. (2005). A prospective study of C-peptide, insulin-like growth factor-I, insulin-like growth factor binding protein-1, and the risk of colorectal cancer in women. *Cancer Epidemiol Biomarkers Prev*, 14(4),850-5.
- ³⁶ Almahroos, M., Kurban, A.K. (2004). Ultraviolet carcinogenesis in nonmelanoma skin cancer part II: review and update on epidemic correlations. *SKINmed*, 3 (3),132-9.
- ³⁷ Reynolds, P., Cone, J., Layefsky, M. (2002). Cancer incidence in California flight attendants (United States). *Cancer Causes Control*, 13(4), 317-24.
- ³⁸ Pennello, G., Devesa, S., Gail, M. (2000). Association of surface ultraviolet B radiation levels with melanoma and nonmelanoma skin cancer in United States blacks. *Cancer Epidemiol Biomarkers Prev*, 9(3), 291-7.
- ³⁹ *Ibid*.
- ⁴⁰ Strom, S.S., Yamamura, Y. (1997). Epidemiology of nonmelanoma skin cancer. *Clin Past Surg*, 24(4), 627-36.
- ⁴¹ Czene, K., Tiikkaja, S., Hemminki, K. (2003). Cancer risks in hairdressers: Assessment of carcinogenicity of hair dyes and gels. *Intl J Cancer*, 105 (1), 108-12.
- Ritcher, E.D., Friedman, L.S., Tamir, Y. (2003). Cancer risks in naval divers with multiple exposures to carcinogens. *Environ Health Perspect*, 111 (4), 609-17
- ⁴² NCHS. Vital Statistics Reporting System, 2001-2003.
- ⁴³ Rates are age-adjusted to the year 2000 standard; per 100,000 population .
- ⁴⁴ Source: http://diabetes.about.com/od/symptomsdiagnosis/tp/riskfactors.htm_01/06/2009.
Source:http://healthinformation.advanceweb.com/Editorial/Content/Editorial.aspx?CC=115604_03/04/2009.
- ⁴⁵ Source: http://healthinformation.advanceweb.com/Editorial/Content/Editorial.aspx?CC=115604_03/04/2009.
- ⁴⁶ Data source: Illinois BRFSS, County, Round 3 (2004-2006), Topic: Diabetes)
As in actual questionnaire (Section 7): *Have you been told by a doctor that you have diabetes?*

-
- ⁴⁷ IDPH Discharge Data, 1999 – 2007.
- ⁴⁸ <http://www.commonwealthfund.org/Content/Performance-Snapshots/Overuse-of-Health-Care-Services/Hospitalizations-for-Ambulatory-Care--8211-Sensitive-Conditions.aspx> 03/05/2009.
- ⁴⁹ Source: <http://children.webmd.com/news/20050519/child-obesity-8-red-flags-watch> 01/06/2009
- ⁵⁰ Data source: "Healthy Smiles, Healthy Growth Illinois: Linking Oral Health to Obesity through Data Collection," by Julie Ann Janssen and Sangeeta Wadhawan from 2003-2004.
- ⁵¹ CDC Report, November 2008.
- ⁵² American Cancer Society Report, October 2008.
- ⁵³ CDC, Smoking and Tobacco Use, 2006.
- ⁵⁴ Data source: Illinois BRFSS, County, Round 3 (2004-2006), Topic: Tobacco Use) Section 11 in questionnaire, reported as "smoking status" → smoker, former smoker, non-smoker.
- ⁵⁵ Source: <http://www.illinoisyouthsurvey.org/results/countyreports.html> 02/22/2009.
- ⁵⁶ www.mass.gov/dph/bsas/prevention/masscall/rp.htm
- ⁵⁷ Source: <http://www.illinoisyouthsurvey.org/results/countyreports.html> 02/23/2009
- ⁵⁸ Source: <http://www.illinoisyouthsurvey.org/results/countyreports.html> 02/23/2009
- ⁵⁹ Data source: Illinois BRFSS, County, Round 3 (2004-2006), Topic: Asthma. As in actual questionnaire (Section 6): *Have you been told by a doctor, nurse, or other health professional that you had asthma?*
- ⁶⁰ Source: Anders, James Meschter and Napoleon, Leonard. A Text-book of Medical Diagnosis. Boston. W. B. Saunders company, 1911. Original from Harvard University. Digitized Dec 1, 2007. 1195 pages. <http://books.google.com/books?id=3iYSAAYAAJ&output=text> 03/04/2009
- ⁶¹ <http://www.commonwealthfund.org/Content/Performance-Snapshots/Overuse-of-Health-Care-Services/Hospitalizations-for-Ambulatory-Care--8211-Sensitive-Conditions.aspx> 03/05/2009.
- ⁶² http://app.idph.state.il.us/data/IndicatorDetails.asp?Ind_No=7.02&Show_Ind_Description=Yes&How_Ind_Profile=Yes&Show_Data_Years=Yes&FirstPost=No 03/04/2009.
- ⁶³ <http://app.idph.state.il.us/data/CountyLevel.asp?menu=1> 03/03/2009
- ⁶⁴ Health Resources and Services Administration Report, 2008.
- ⁶⁵ <http://bhpr.hrsa.gov/shortage/hpsadictionary.htm> 03/04/2009.
- ⁶⁶ Census Report, 2007 data
- ⁶⁷ Uninsured Data: From US Census Bureau (2005). Small Area Health Insurance Estimates: *http://smpbff1.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?reportid=cdb3576ac444b07f7cc84f0e92cc68c0&emailname=saeb@census.gov&filename=SAHIE-County07.html 02/09/2009

⁶⁸ IPLAN Data System Report 03/04/09 08:06:07 AM

⁶⁹ IPLAN Data System Report 03/04/09 08:08:38 AM

⁷⁰ IPLAN Data System Report 03/04/09 08:09:56 AM

⁷¹ From: Illinois Lead Program Surveillance Report-2006 (IDHCFS)

⁷² Group Selection (7): COOK, DU PAGE, KANE, KENDALL, LAKE, MCHENRY, WILL