



2005

Macomb County Behavioral Risk Factor Survey

Macomb County Health Department

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Findings and Interpretation

The Southeastern Michigan Health Association (SEMHA), on behalf of the Macomb County Health Department (MCHD) contracted with Clearwater Research, Inc. (Clearwater) to design and administer the Macomb County Behavioral Risk Factor Survey (Macomb BRFS) based on the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS) standards and protocols. Clearwater consulted with SEMHA and MCHD on instrument design and data collection of 1,116 adult residents of Macomb County aged 18 and older, as well as a proxy survey of 214 children aged 5-15 years. Data collection was from June 6, 2005 through September 12, 2005 with interviews lasting an average of 12.03 minutes.

The survey results will be used to monitor trends or changes in baseline behavioral risk factors, measure community health improvement indicators and guide the health department toward establishment of activities that will advance the health status of Macomb County residents. Data were compared to BRFSS data collected for the state of Michigan and the US.

Methodology

Clearwater worked in partnership with the SEMHA and MCHD staff to conduct a county-specific survey utilizing the CDC's BRFSS standards and protocols. After assisting the SEMHA and the MCHD with final instrument design, Clearwater programmed the survey into a Computer-Assisted Telephone Interviewing (CATI) System using Sawtooth software's Ci3 WinCATI program designed specifically to implement this type of survey. Clearwater purchased a random sample of adult residents of Macomb County aged 18 and over from Marketing Systems Group/Genesys Sampling Systems (MSG/Genesys). The BRFSS random-digit-dialing (RDD) method was used to obtain a probability sample of the noninstitutionalized adult (18 years and older) population in Macomb County.

Experienced BRFSS-trained interviewers employed by Clearwater conducted the telephone interviews over a four-month period using the CATI system. They completed 1,116 adult interviews and 214 child proxy interviews. Clearwater analysts cleaned and weighted the survey data and performed descriptive analyses and tabulations to develop the study findings presented in this report.

Planning and Design

At the start of the project, Clearwater staff discussed with SEMHA the project's data, analysis and reporting needs. Throughout the research process, Clearwater engaged in periodic discussions with the SEMHA staff to finalize the survey, sampling strategies and reporting formats appropriate to accomplish the study goals.

Survey Instrument

The survey instrument was supplied to Clearwater by SEMHA. Clearwater reviewed all items on the questionnaire to ensure they did not violate the basic rules of wording and scale such as double-barreled questions, exhaustive and mutually exclusive response categories, etc. Special consideration was given to language due to the sensitive nature of the study and the questions asked of the respondents.

Instrument Design

SEMHA developed the questionnaire based on the current BRFSS survey core, modules and state-added sections. A separate child proxy section developed by SEMHA was included at the conclusion of the adult portion of the questionnaire. The study was run concurrently with a St. Clair County health behavior survey.

Questionnaire Specifications

The questionnaire was conducted in English. Those respondents who indicated they had a child aged 5-15 years in the household responded to the child proxy section of the questionnaire. Overall, interviews with respondents averaged 12.03 minutes.

The questionnaire included 15 BRFSS core sections, four modules and one child-added section:

- Section 1: Health Status
- Section 2: Healthy Days/ Health Related Quality of Life
- Section 3: Health Care Access
- Section 4: Diabetes
- Section 5: Hypertension
- Section 6: Cholesterol Awareness
- Section 7: Asthma
- Section 8: Immunization
- Section 9: Tobacco Use
- Section 10: Alcohol Consumption
- Section 11: Arthritis
- Section 12: Fruits and Vegetables
- Section 13: Physical Activity
- Section 14: HIV/AIDS
- Section 15: Adult Demographics
- Module 12: Women's Health
- Module 13: Prostate Cancer Screening
- Module 14: Colorectal Cancer Screening
- Module 15: Osteoporosis
- Child Proxy 5-15 Yrs of Age

Sampling

A probability sample of the noninstitutionalized civilian adult population, aged 18 years and older residing in Macomb County was obtained using a two-stage cluster sampling method. During the first stage, a set of households was selected through the current BRFSS disproportionate stratified sample (DSS) design. The BRFSS DSS RDD method uses a sample frame that includes all telephone numbers serving households in the geographic target area. This method divides the telephone numbers that ring in the geographic target area into listed and unlisted telephone numbers. The listed number stratum is sampled at a rate of approximately 1.5 times the rate for unlisted numbers. This ratio improves the sample efficiency (ratio of sample records to completed interviews) compared with an unstratified RDD approach. In the second stage, one adult was randomly selected to participate in the survey.

The randomly generated telephone numbers used for interviewing were obtained from MSG/Genesys Sampling Systems. Following the current CDC BRFSS protocol, Clearwater utilized Genesys' service that marks identifiable business, non-working, and cellular telephone numbers in the sampled telephone numbers. Records identified as business, non-working, or cell phones were sequestered during the data collection process and assigned appropriate final disposition codes at the end of the data collection field period. The remaining telephone records served as the operational base from records that were randomly dialed. Each sample record loaded into the CATI system was resolved by calling it until a final disposition code had been assigned or until a minimum of fifteen call attempts were made.

Following the BRFSS protocols and using the CDC programming specifically designed for the BRFSS survey, after a household was selected via RDD, the selection of the respondent within the household was designed to ensure a representative distribution of respondents in the final sample. After introducing the survey to the person who answered the telephone call, the

interviewer asked for an adult 18 years or older in the household. The interviewer then asked the adult about the total number of adults in the household. Based on the response, the number of males and females was enumerated. The questionnaire was programmed to select a respondent at random from that inventory of adults and the survey continued with the selected person at that time, if available. If the person was not available, the interviewer scheduled another call attempt at a time when the selected respondent was most likely to be home.

Telephone numbers for the Macomb County Survey were generated from all *working banks* within Macomb County. A *bank* is defined here as a series of 100 telephone numbers specified by a three-digit area code, a three-digit exchange, and the first two digits of a four-digit telephone line number, ranging from XXX-XXX-XX00 to XXX-XXX-XX99. A *working bank* is defined here as a series of 100 telephone numbers from XXX-XXX-XX00 to XXX-XXX-XX99, at least one of which is listed in an up-to-date telephone directory as reaching a household.

During the data collection field period, replicates of sample records were loaded into our CATI system and distributed to interviewers for calling. All replicates were loaded in the beginning of the field period to achieve the desired number of interviews. Our interviewers used established CDC protocols when making call attempts on each sampled telephone number.

Sample Production and Processing

Calling rules

Clearwater utilized the CDC BRFSS-specific calling rules to ensure accurate and uniform use of disposition codes and to minimize the number of refusals. Calls were made during defined calling periods in accordance with the BRFSS protocol – evenings, days, and weekends. The survey was programmed to ensure each phone record was called during a weekday evening shift, a weekday afternoon shift, and a weekend shift. Before each shift, data collection supervisors performed in-house sample management tasks as well as the CDC-recommended sample management tasks. CATI sample management ensured 80 percent of call attempts were made on weeknight and weekend calling occasions. A minimum of five rings was required before a “ring, no-answer” disposition was assigned.

Callbacks

Records were called a minimum of fifteen times over five different calling periods, including at least three weekday evening periods. A selected respondent who was not available was called back a minimum of three times. The CATI system allowed interviewers to designate a specific time to call back records that had previously been assigned *No Answer*, *Busy*, or *Answering Machine* disposition codes. This maximized the probability of reaching a respondent at home.

Treatment of Refusals

Any time respondents refused to participate in the survey, either initially or during an interview, we followed the BRFSS guidelines and re-contacted respondents in an attempt to gain their cooperation. When making these follow-up contacts, the interviewers used special Refusal Recovery and Mid-Terminated Interview Recovery scripts. The scripts are sensitive to respondents’ reluctance and provided more information about the survey, its origin, use, and content to assure the respondent of its legitimacy.

To combat initial respondent reluctance, Clearwater developed scripts to answer questions frequently asked by respondents. These scripts were provided to all interviewers with information addressing respondent confidentiality, use of data, sponsorship of survey, and other similar frequently asked questions. Interviewers could refer to these scripts at any point in the interview to reassure respondents. Respondents who were still reluctant after they were read

the scripts were encouraged by interviewers to speak to a data collection supervisor. A Clearwater data collection supervisor who is familiar with the BRFSS protocols was available during all interviewing shifts should a respondent wish to speak to someone other than an interviewer regarding study-related questions. Additionally, we provided respondents who wanted to verify the legitimacy of the survey with the name and contact telephone number of a SEMHA representative who could answer specific questions about the project or verify the legitimacy of the survey.

Disposition Coding

Because correct use of disposition codes is important for maximizing response rates and ensuring data quality, we carefully train interviewers on the proper use of dispositions and monitor disposition coding during the data collection process. This training is based on the current CDC BRFSS disposition coding system. Data collection supervisors monitored interviewers' assignment of disposition codes and provided continuous feedback to them throughout the data collection period.

Clearwater used Ci3 programming to assign the appropriate final disposition code to telephone records with fifteen attempts. Ci3 programming examines the history of all attempts made to a record and assigns the appropriate final disposition. The Production Manager ran queries at the end of the calling period, making certain every record was properly resolved in accordance with the BRFSS calling protocols.

Times for Interviewing

The Macomb County BRFS used the BRFSS specified calling occasions and interviewing shifts. Weekday interviewing shifts were from 1:00 to 5:00 PM. Weeknight interviewing shifts were from 5:00 to 9:00 PM. Saturday interviewing took place from 10:00 AM to 5:00 PM. Sunday interviewing shifts were from 1:00 to 5:00 PM and 5:00 to 9:00 PM. Interviewing occurred outside these periods when respondents requested a specific callback time.

To ensure the majority of data collection occurred during weekday evenings and on weekends, the Production Manager scheduled interviewing staff so no more than twenty percent of the study's interviewing hours occurred on weekdays. Additionally, production supervisors performed daily CATI sample management tasks to identify records with three daytime attempts and set these records to be released to interviewers only during weeknight and weekend interviewing shifts.

Data Collection

Clearwater collected data for the Macomb County BRFS during the fielding period from June 6, 2005 through September 12, 2005 using our in-house CATI system. The survey questionnaire was programmed for use with the CATI system. CATI allows interviewers to see and record responses to questions on a computer screen, leading to an easy, comfortable method of interviewing. The software managed the telephone calling, controlled distribution of sample records to interviewers, consolidated the collected data, and tracked interviewer activity and productivity. Experienced interviewers were thoroughly briefed prior to data collection and rehearsed the questionnaire before conducting actual interviews.

Processing an RDD sample to preserve its probabilistic nature and allow credible statements to be made about the target populations involved rigorous interviewer training utilizing experienced BRFSS trained interviewers and careful adherence to calling protocols. These efforts addressed the problem of non-response bias, which is a threat to the accuracy of the survey results. Non-response bias was mitigated through extensive, evenly applied efforts to make voice contact with sampled households, and once contacted, through the interviewers' politely persistent persuasion techniques to elicit participation in the study.

Response Rates

The response rate is an indicator of sample quality. It measures the relative success with which households sampled for the survey participated. The higher the response rate, the lower the potential for non-response bias in the data. For RDD samples, this is typically calculated as the percentage of households assumed to be reachable via the sampled telephone numbers that completed interviews during the field period. The higher the response rate, the lower the potential will be for non-response bias in the data and the results of the analysis.

For this study the response rate was derived using the Council of American Survey Research Organizations (CASRO) equation taking into account the number of completes, partial completes, eligible households, ineligible households, and unknown records. The CASRO rate for the 2005 Macomb County BRFs was 36.9 percent.

The Cooperation Rate is an outcome rate derived by including the number of completes in the numerator and the number of eligible respondents who are capable of completing the survey in the denominator. The Cooperation Rate for the 2005 Macomb BRFs was 59.0 percent.

Tab 1 presents a summary of final call dispositions for the Macomb County BRFs. The final call dispositions were derived from the sequence of interim attempt dispositions in each sample record's call history. Tab 2 presents a more detailed version of the final disposition breakdown.

Tab 1: 2005 Macomb BRFs disposition summary

2005 Macomb County BRFs				
Final Disposition Summary				
	Disposition Definition	Disposition Code	Frequency	Percentage
Summary	Initial Refusals	505	2662	40.93%
	Final Refusals	210,220,310,330	2429	37.35%
	Conversions to completes	110	233	3.58%
	Conversions to partials	120	0	0.0%
	Total conversions	110,120	233	3.58%
	Completes	110	1115	17.14%
	Partial completes	120	1	0.02%
	Total of partials and completes	110,120	1116	17.16%
	Completes without a refusal		883	13.58%
	Partial completes without a refusal		1	0.02%
	Attempts		6504	100.0%

Tab 2: Final disposition summary for the 2005 Macomb County BRFS

2005 Macomb County BRFS				
Final Dispositions Detail				
	Disposition Definition	Dispositon Code	Frequency	Percentage
Completed Interviews	Complete	110	1115	17.14%
	Partial complete	120	1	0.02%
	Completed Interviews		1116	17.16%
HH, Eligible Incomplete	Termination within questionnaire	210	89	1.37%
	Refusal prior to resp selection	220	375	5.77%
	Resp did not start interview	230	35	0.54%
	Resp unavail during period	240	250	3.84%
	Language barrier - resp selected	250	21	0.32%
	Unable to complete - after selection	260	37	0.57%
	Hang up or term prior to selection	270	18	0.28%
	HH Contact prior to selection	280	0	0.0%
		HH, Eligible Incomplete	825	12.68%
HH, Eligible Unknown	HH Away during interview period	305	165	2.54%
	Hang-up or term, eligible Unknown	310	143	2.2%
	HH Contact, eligibility undetermined	315	8	0.12%
	Language barrier prior to selection	320	51	0.78%
	Unable to complete prior to selection	325	29	0.45%
	Hang-up or term, unk if residence	330	1591	24.46%
	Contact, unk if private residence	332	76	1.17%
	Answering machine residential	335	339	5.21%
	Telecomm barrier residential	340	1	0.02%
	Answering machine unknown	345	147	2.26%
	Telecomm barrier unknown	350	4	0.06%
	Number no longer in service	355	116	1.78%
	No answer	360	297	4.57%
	Busy	365	36	0.55%
	On never call list	370	0	0.0%
		HH, Eligible Unknown	3003	46.17%
HH, Eligible None	Out of state	405	85	1.31%
	Household, no eligible resp	410	6	0.09%
	Not a private residence	420	411	6.32%
	FAX / Modem	430	394	6.06%
	Cell Phone	435	6	0.09%
	Fast busy	440	60	0.92%
	Non-working/disconnected number	450	598	9.19%
		HH, Eligible None	1560	23.99%
			6504	100.0%

Child Proxy Respondents

Summary of child proxy interviews

Household Characteristics	Number
Total Households Interviewed	1,116
Total Households with Children aged less than 18	338
Total Households with Children aged 5-15	239
Total Households Answering Child Proxy Section*	214

*Adult provided child's birth date to verify eligibility and child was between five and 15.

Data Preparation

At the conclusion of the data collection period, Clearwater analysts followed a comprehensive routine of data preparation before analysis.

Cleaning and Labeling

First, interviewer errors documented on data change forms were corrected in the dataset using Ci3 data-editing capabilities. The resulting data file was then imported into an Access database and verified using a series of in-house developed processes to check accuracy of the data. Subsequent to the data verification in Access, the data were converted and formatted for review in SPSS (a statistical software package). The survey variables (i.e., questions) and response categories were labeled and additional variables were created for the analysis as needed. Open-ended responses were examined and edited to ensure correctness, consistency in spelling, capitalization and punctuation. Finally, frequency tables of every question were produced and inspected for missing data or skip pattern errors.

Case Weighting

Adults

The data for Macomb adults were weighted to account for the sample design and to reduce the effect of unit non-response. RDD sample design yields a complex probability sample. Probabilities vary by the number of phone lines that serve the household and by the number of adults that live in the household. Case weights were calculated using the number of adults in each household, but could not account for the number of phone lines because the total number of working residential lines in each household was unavailable. Clearwater used a post-stratification factor in the case weighting to help minimize bias due to non-response patterns (refusals and non-contacts). The population estimates used for post-stratification were county-level estimates by age and gender for 2000, published by the US Census Bureau.

Clearwater calculated two weights for adults. The first was an expansion weight (WTEXP) for projecting population counts and for correct variance estimation using specialized statistical analysis software for complex samples such as SUDAAN and SAS 9.1. The second was a relative weight (WTREL), which can be used for approximating correct variance estimates using standard statistical analysis software with simple random sample assumptions such as SPSS.

Child Proxies

The Macomb child proxy data was also weighted to account for sample design and to reduce the effect of unit non-response. For children, case weights were calculated using the design weight of the survey as well as the number of households with children and the number of children in households aged 5-15. The population estimates used for post-stratification estimates were county-level by the age group 5-15, published by the US Census Bureau. For analysis purposes, one child weight was created "wtchild."

Data Limitations

Ideally, all adult residents of Macomb County aged 18 and older would be potential respondents for the survey. However, in order to be cost effective, the sample was limited to adults aged 18 and older who are non-institutionalized, live in a household with a telephone and can communicate in English. These constraints subject the statistics derived from the survey to errors. The errors are a result of the survey results not exactly reflecting the characteristics of the population being surveyed. Below is a description of the types of error that the Macomb County Survey is subject to and which could result in bias.

Coverage Error

Coverage error occurs because not all residents of Macomb County have a non-zero chance of being included in the sample. The RDD sample for Macomb County excludes respondents who were residents of institutions such as nursing homes, hospitals, prisons, and military bases. Additionally, only households with telephones were included in the sample. Cellular telephones were also excluded, so persons who could only be reached by a cellular phone were not included in the sampling frame.

Sampling Error

Sampling error occurs because estimates are based on only a sample of the population and not on the whole population. A sample that is randomly selected from a population is likely to produce results that are not exactly reflective of the population characteristics they estimate. Likewise, a set of random samples from the same population would likely not produce exactly the same results. Sampling error is the difference between the actual population results and the results from the random sample.

Non-response Error

Non-response error occurs when a respondent cannot be reached during the interviewing period (unit non-response) or when a valid response was not collected for an item on the questionnaire (item non-response). Both types of non-response can contribute to bias (error) in the survey results if the patterns of non-response are correlated with a particular type or types of respondent. The response rate of 33.5 percent for the Macomb County Study indicates there is a likelihood of some degree of non-response bias in the survey results.

Measurement Error

Measurement error is present when the data collected are not good indicators of the phenomena of interest to the survey. It can occur as a result of any of the following: ambiguous or complex question wording, question order, response-code precision, interview length, recall error, coding error, interviewer clarifications (either improper or the lack thereof), and interviewers' adherence to the question wording. The source of the error can be the questionnaire, the respondent, the interviewer, or in the processing of data.

One explanation for measurement errors in the Macomb County results is due to the type of data collected. BRFSS-like data are self-reported and certain behaviors may possibly be underreported (Centers for Disease Control and Prevention, 2003).

Data Analysis

Clearwater used SPSS, SAS and SUDDAN software to analyze the data. The initial phase of the analyses involved frequency tables and descriptive statistics (e.g., mean, median, standard deviation) to examine and characterize the distribution of responses for each variable. Several variables were recoded to account for scale differences and all variables were recoded to exclude “not sure” and “refused” responses from prevalence calculations.

The second phase of the analyses examined the patterns of relations between key demographic variables and all other survey variables to identify meaningful similarities and differences. These analyses employed stub and banner tables based on demographic breakouts including: gender, age, income, employment and education. Some breakouts produced small sample sizes ($n < 50$) limiting interpretation of outcome measures due to relatively large confidence intervals.

In the final phase of the analyses some of the categorical survey questions were recoded to produce the BRFSS risk factor prevalence variables. These calculations were repeated using the 2004 BRFSS dataset available on the CDC website. Additional analyses were conducted using both national- and state-level data in order to produce confidence intervals for risk factors and perform tests of significance. Any notable differences between Macomb County and either the Michigan or national calculated health risk factor prevalence estimates are reported in the *Findings* section below.

In many instances throughout the *Findings* section, statistically significant differences were found between subgroups at the state and national level, but not at the county level. For a majority of these prevalence estimates, the reason statistical significance could not be determined at the county level was due to sample size and the relatively large standard errors resulting from the smaller n sizes. A footnote has been included on each table to ensure the audience understands the function of power relative to point estimates for each geographic category.

Data Reporting

Categorical tables present the point estimates for response category, confidence intervals associated with the estimate and sample size by demographic breakouts. Means, confidence intervals and sample size are presented for quantitative questions. Several of the breakouts for both question types resulted in sample sizes smaller than thirty.

A summary of findings for every question is presented in the following *Findings* section. Adult data results are presented first, followed by child proxy data findings.

Demographic Profile

Table 1: Percent distribution of Macomb County population and 2005 Macomb County BRFs weighted and un-weighted sample

Demographic Characteristic	Macomb County Census (2000)	Macomb County Weighted BRFs (2005)	Macomb County Un-weighted BRFs (2005)
Age			
18-24	10.5	10.9	4.0
25-34	19.3	19.1	11.0
35-44	22.1	22.3	18.7
45-54	18.1	17.5	19.6
55-64	12.0	12.1	18.0
65+	18.0	18.1	28.7
Gender			
Male	48.2	48.2	37.3
Female	51.8	51.8	62.7
Education*			
< High School	17.0	4.7	5.8
High School / GED	32.8	33.8	36.0
Some College	24.8	29.8	30.2
College Graduate	25.4	31.7	28.0
Income**			
<\$15,000	10.0	5.5	8.3
\$15,000-\$24,999	10.2	12.4	16.3
\$25,000-\$34,999	11.3	10.0	11.2
\$35,000-\$49,999	15.7	15.3	16.5
\$50,000+	52.7	56.8	47.7

* For Macomb County, educational attainment only includes adults over the age of 25.

** For Macomb County, distribution of income is based on reported household income.

Table 2: Percentage of respondents reporting general health as fair or poor

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2004)	95% CI	National (2004)	95% CI
Total	12.9	10.7-15.0	14.4	13.4-15.5	16.4	16.2-16.7
Age						
18-24*	9.4	0.5-18.3	6.4	4.1-10.0	9.2	8.2-10.1
25-34	4.0	0.8-7.3	8.4	6.2-11.4	9.1	8.5-9.7
35-44	6.1	2.6-9.5	9.8	8.0-12.2	12.3	11.8-12.9
45-54	11.1	6.9-15.4	15.6	13.2-18.3	17.3	16.6-17.9
55-64	15.7	10.0-21.3	18.3	15.6-21.3	22.7	21.9-23.4
65+	31.1	25.4-36.9	27.9	25.0-30.7	29.8	29.1-30.5
Gender						
Male	10.1	7.0-13.1	13.0	11.4-14.7	15.2	14.7-15.6
Female	15.5	12.5-18.4	15.7	14.3-17.3	17.7	17.3-18.0
Education						
< High School	39.9	24.8-55.0	28.7	23.7-34.2	39.0	37.8-40.2
High School / GED	16.5	12.5-20.4	18.5	16.5-20.8	19.2	18.7-19.7
Some College	11.7	8.1-15.3	14.0	12.1-16.1	13.5	13.0-13.9
College Graduate	5.5	3.0-8.0	6.2	5.1-7.6	7.3	7.0-7.6
Income						
<\$15,000	39.9	25.6-54.3	36.1	30.7-41.5	39.3	38.1-40.6
\$15,000-\$24,999	22.5	14.7-30.2	23.1	19.6-26.6	26.1	25.3-27.0
\$25,000-\$34,999	17.7	10.4-25.1	20.2	16.5-23.8	16.5	15.8-17.3
\$35,000-\$49,999	14.6	8.0-21.1	11.0	8.5-13.5	11.5	11.0-12.1
\$50,000+	6.2	3.8-8.6	5.4	4.3-6.5	5.9	5.7-6.2

A smaller percentage of Macomb County residents reported their health status as “fair” or “poor” (12.9 percent) in 2005 when compared with residents of the State of Michigan in 2004 (14.4 percent), however differences were not statistically significant. The percentage of the population reporting less than “good” general health was statistically smaller among residents of the state of Michigan as well as among residents of Macomb County than the 2004 national prevalence of 16.4 percent.

Percentages represent the proportion of respondents who responded their general health was “fair” or “poor” when asked, “Would you say that in general your health is excellent, very good, good, fair, or poor?”

- Sample sizes smaller than 50 in Macomb County.

Table 3: Percentage of respondents reporting poor physical health on at least 15 days in the past month

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2004)	95% CI	National (2004)	95% CI
Total	7.9	6.3-9.5	9.6	8.7-10.6	9.9	9.7-10.1
Age						
18-24*	2.4	0.0-7.1	2.9	1.4-5.7	4.0	3.5-4.6
25-34	5.0	1.0-9.1	4.4	2.8-6.8	4.6	4.2-5.0
35-44	3.8	1.3-6.3	8.2	6.5-10.4	7.8	7.4-8.2
45-54	9.6	5.9-13.3	11.2	9.1-13.6	11.4	10.9-11.9
55-64	11.3	6.3-16.4	13.0	10.6-15.9	14.9	14.3-15.6
65+	16.5	12.1-20.9	17.9	15.4-20.3	17.6	17.0-18.1
Gender						
Male	5.9	3.6-8.2	7.8	6.6-9.3	8.6	8.3-8.9
Female	9.7	7.4-12.0	11.3	10.1-12.6	11.1	10.9-11.4
Education						
< High School	17.0	7.8-26.3	17.9	14.0-22.7	18.5	17.6-19.4
High School / GED	9.8	6.8-12.9	11.6	9.9-13.6	11.4	11.0-11.7
Some College	8.0	4.9-11.1	9.7	8.1-11.5	9.5	9.1-9.9
College Graduate	4.1	2.0-6.3	5.1	4.1-6.3	5.5	5.2-5.8
Income						
<\$15,000	19.3	9.0-29.6	23.5	18.9-28.1	23.0	22.0-24.1
\$15,000-\$24,999	16.2	9.4-22.9	15.1	12.1-18.0	13.9	13.3-14.5
\$25,000-\$34,999	11.3	5.1-17.4	9.7	7.2-12.3	9.7	9.1-10.3
\$35,000-\$49,999	8.0	3.5-12.6	7.0	4.8-9.2	7.4	7.0-7.9
\$50,000+	5.2	2.9-7.4	4.6	3.5-5.7	5.0	4.7-5.2

Among Macomb County adults, 7.9 percent experienced at least fifteen days out of the past thirty when their physical health was not good. This percentage was slightly lower than the percentage of all Michigan residents with fifteen or more days of poor physical health in the past thirty days (9.6 percent) reported in 2004, but the difference was not statistically significant. Nationally, a significantly larger percentage of adults (9.9 percent) reported fifteen or more days of poor physical health out of the last thirty in 2004 when compared with Macomb County

Percentages represent the proportion of respondents who reported they experienced fifteen or more days during the past thirty when their physical health was not good.

* Sample sizes smaller than 50 in Macomb County.

Table 4: Percentage of respondents reporting poor mental health on at least 15 days in the past month

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2004)	95% CI	National (2004)	95% CI
Total	7.4	5.6-9.2	10.1	9.1-11.1	9.8	9.6-10.0
Age						
18-24*	4.5	0.0-10.3	12.4	9.0-17.0	11.3	10.4-12.2
25-34	9.9	4.5-15.4	11.0	8.5-14.0	10.2	9.6-10.7
35-44	6.0	2.6-9.4	12.0	9.9-14.4	10.2	9.8-10.7
45-54	11.1	6.6-15.7	9.5	7.7-11.6	11.0	10.5-11.4
55-64	5.7	2.0-9.5	9.6	7.6-12.1	9.6	9.1-10.1
65+	3.8	1.7-6.0	6.1	4.6-7.7	6.4	6.0-6.8
Gender						
Male	5.4	2.9-7.9	8.4	7.1-10.0	8.1	7.8-8.4
Female	9.3	6.7-11.9	11.6	10.3-13.0	11.4	11.1-11.7
Education						
< High School	19.1	4.5-33.8	17.1	12.8-22.4	14.6	13.8-15.4
High School / GED	7.3	4.4-10.2	10.8	9.1-12.7	11.2	10.8-11.6
Some College	9.5	5.8-13.2	11.5	9.7-13.6	10.6	10.1-11.0
College Graduate	3.6	1.5-5.7	6.0	4.8-7.5	5.9	5.7-6.2
Income						
<\$15,000	15.2	5.9-24.4	23.8	18.7-28.9	19.5	18.5-20.4
\$15,000-\$24,999	11.3	4.9-17.8	15.0	11.7-18.2	13.0	12.4-13.7
\$25,000-\$34,999	12.2	4.6-19.8	11.4	8.2-14.5	10.3	9.6-11.0
\$35,000-\$49,999	10.7	4.0-17.3	8.3	6.0-10.7	8.8	8.3-9.4
\$50,000+	4.2	2.1-6.3	6.1	4.9-7.3	6.0	5.8-6.3

The percentage of Macomb County adults reporting fifteen or more days of poor mental health (7.4 percent) was significantly lower than the overall US rate of 9.8 percent in 2004. The Macomb County rate was lower than Michigan's 2004 rate of 10.1 percent, but the difference was not significant.

Percentages represent the proportion of respondents who reported they experienced fifteen or more days during the past thirty when their mental health was not good.

* Sample sizes less than 50 in Macomb County.

Table 5: Percentage of respondents who reported no health care coverage (among 18-64 year olds)

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2004)	95% CI	National (2004)	95% CI
Total	13.1	10.0-15.9	14.2	12.8-15.7	18.7	18.3-19.0
Age						
18-24*	21.7	8.8-34.5	28.6	23.2-34.6	30.8	29.5-32.1
25-34	18.0	10.2-25.1	16.1	12.9-20.0	22.4	21.6-23.2
35-44	7.7	3.4-11.6	11.2	9.0-13.8	16.8	16.1-17.4
45-54	12.4	7.4-17.8	9.9	8.1-12.0	14.0	13.4-14.6
55-64	9.2	4.9-14.0	8.8	6.7-11.4	11.3	10.8-11.9
65+	---	---	---	---	---	---
Gender						
Male	13.2	8.7-17.6	15.6	13.4-18.0	20.2	19.7-20.8
Female	13.0	9.0-16.6	12.8	11.2-14.6	17.2	16.7-17.6
Education						
< High School*	31.3	8.2-54.3	35.4	27.8-43.8	43.6	42.1-45.1
High School / GED	16.7	10.9-22.5	17.9	15.3-20.9	23.5	22.8-24.2
Some College	9.8	5.7-14.1	13.0	10.7-15.6	15.8	15.2-16.4
College Graduate	10.0	5.2-14.6	6.2	4.8-8.1	8.1	7.7-8.5
Income						
<\$15,000*	35.6	15.1-56.1	26.9	20.4-33.4	42.0	40.4-43.6
\$15,000-\$24,999	28.0	14.5-39.1	31.9	26.1-37.8	37.3	36.2-38.4
\$25,000-\$34,999	31.3	15.3-47.3	23.5	18.3-28.7	24.2	23.1-25.3
\$35,000-\$49,999	10.1	3.2-18.0	11.6	8.2-14.9	13.1	12.4-13.8
\$50,000+	5.7	2.8-8.4	4.7	3.2-6.2	5.2	4.8-5.5

The percentage of Macomb County residents between the ages of 18 and 64 without some form of health care coverage was 13.1 percent in 2005. The Macomb County rate was not significantly different than the percentage of Michigan residents in the same age group who had no health care coverage (14.2 percent) in 2004. Compared with the percentage of adults less than 65 in the US in 2004 (18.7 percent), Macomb County's percentage of uninsured 18-64 year olds was significantly lower.

Percentages represent the proportion of respondents who reported they had no health care coverage of any kind and excludes residents aged 65 and older from analysis.

* Sample sizes less than 50 in Macomb County.

Table 6: Percentage of respondents ever told they have diabetes

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2004)	95% CI	National (2004)	95% CI
Total	5.9	4.6-7.2	7.6	6.9-8.5	7.2	7.1-7.4
Age						
18-24*	0.0	---	0.9	0.3-2.5	0.8	0.6-1.0
25-34	3.0	0.1-5.9	0.9	0.4-2.2	1.5	1.2-1.7
35-44	2.1	0.2-4.0	4.6	3.3-6.5	3.9	3.6-4.3
45-54	4.2	1.8-6.6	8.6	6.8-10.8	7.7	7.3-8.2
55-64	11.6	7.0-16.1	15.7	13.1-18.6	14.1	13.5-14.7
65+	15.2	11.1-19.3	16.2	13.8-18.6	16.9	16.3-17.5
Gender						
Male	4.0	2.4-5.7	7.3	6.2-8.6	7.5	7.2-7.8
Female	7.6	5.6-9.5	7.9	7.0-9.0	7.0	6.7-7.2
Education						
< High School	14.9	5.9-23.8	12.9	9.8-16.8	11.9	11.2-12.6
High School / GED	6.1	4.1-8.2	9.2	7.8-10.8	7.8	7.5-8.1
Some College	6.1	3.8-8.5	7.0	5.7-8.6	6.9	6.5-7.2
College Graduate	3.7	1.5-5.9	5.1	4.1-6.5	5.1	4.9-5.4
Income						
<\$15,000	17.1	7.8-26.3	15.6	11.9-19.3	12.9	12.1-13.7
\$15,000-\$24,999	6.3	2.8-9.8	12.6	9.8-15.4	9.3	8.8-9.8
\$25,000-\$34,999	5.7	1.6-9.8	10.1	7.5-12.7	7.7	7.2-8.2
\$35,000-\$49,999	7.0	3.2-10.8	6.3	4.5-8.1	6.6	6.1-7.0
\$50,000+	4.3	2.5-6.2	3.8	2.9-4.7	4.4	4.2-4.7

In Macomb County, 5.9 percent of adults had been told by a doctor that they have diabetes. The prevalence of diabetes in Macomb County was not statistically different than the prevalence in Michigan (7.6 percent) or the US (7.2 percent) in 2004.

Residents who reported having been told by a doctor or other health care professional that they had diabetes were more likely to be 65 or older (15.2 percent), be Female (7.6 percent), have less than a high school education (14.9 percent), have an income less than \$15,000 per year (17.1 percent).

Percentages represent the proportion of respondents who reported they had been told by a doctor that they have diabetes.

* Sample sizes less than 50 in Macomb County.

Table 7: Percentage of respondents ever told they have high blood pressure

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2003)	95% CI	National (2004)	95% CI
Total	25.8	22.9-28.7	26.8	25.2-28.5	27.8	27.2-28.5
Age						
18-24*	2.6	0.0-6.7	4.6	1.7-7.5	6.5	5.1-8.0
25-34	8.5	0.0-6.7	10.5	7.1-13.9	9.9	8.8-10.9
35-44	18.8	12.5-25.1	16.6	13.4-19.8	16.2	14.9-17.4
45-54	27.2	20.4-34.0	28.2	24.6-31.8	30.7	29.2-32.2
55-64	42.8	35.1-50.5	48.6	44.1-53.1	47.0	45.2-48.8
65+	53.7	47.6-59.8	54.6	50.9-58.4	58.6	57.1-60.1
Gender						
Male	27.9	23.2-32.7	27.5	24.9-30.1	28.0	26.9-29.0
Female	23.8	20.3-27.2	26.1	24.1-28.1	27.7	26.9-28.5
Education						
< High School	36.9	23.5-50.2	34.8	29.1-40.5	38.8	36.5-41.0
High School / GED	27.9	22.9-32.8	29.7	26.7-32.7	31.2	29.9-32.5
Some College	26.6	21.0-32.1	25.7	22.8-28.6	26.5	25.3-27.8
College Graduate	20.4	15.6-25.2	21.3	18.6-24.0	22.2	21.2-23.2
Income						
<\$15,000	44.4	29.4-59.3	41.3	34.7-47.9	39.5	37.0-42.0
\$15,000-\$24,999	31.2	23.0-39.5	34.0	29.3-38.7	33.4	31.5-35.2
\$25,000-\$34,999	24.5	15.8-33.2	28.3	23.5-33.1	31.0	28.9-33.0
\$35,000-\$49,999	28.6	20.4-36.8	24.7	20.9-28.5	25.5	23.8-27.1
\$50,000+	19.7	15.5-23.9	21.1	18.7-23.6	21.8	20.8-22.7

Over one-fourth (25.8 percent) of the Macomb County adult population had been told at some time in their life they had high blood pressure. Results were very similar to the percentage of the 2003 Michigan population (26.8 percent) and 2004 US population who reported they had been told they had high blood pressure (27.8 percent).

Residents who were more likely to report they had been told they had hypertension were over 55 (49.3 percent), male (27.9 percent), not educated beyond high school (36.9 percent), living with incomes less than \$15,000 per year (44.4 percent).

Percentages represent the proportion of respondents who responded a doctor, nurse or other health care professional had told them they have high blood pressure.

* Sample sizes less than 50 in Macomb County.

Table 8: Percentage of respondents who have ever been told they have high blood cholesterol

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2003)	95% CI	National (2004)	95% CI
Total	31.3	28.2-34.4	37.6	35.6-39.6	35.2	34.2-36.2
Age						
18-24*	2.4	0.0-7.1	5.0	0.6-9.4	8.6	5.9-11.3
25-34	14.6	8.4-20.8	19.9	14.7-25.1	19.8	17.4-22.1
35-44	26.1	19.2-32.9	30.3	26.0-34.6	26.3	24.1-28.5
45-54	36.2	28.8-43.7	41.4	37.2-45.6	37.9	35.7-40.1
55-64	50.0	42.2-57.7	53.2	48.5-57.9	48.6	46.2-50.9
65+	56.1	50.0-62.1	53.4	49.4-57.3	49.8	47.7-51.8
Gender						
Male	30.5	25.7-35.4	41.3	38.1-44.5	36.5	34.9-38.1
Female	32.0	28.1-36.0	34.5	32.1-36.9	34.1	32.8-35.3
Education						
< High School	50.6	35.4-65.9	39.7	33.0-46.4	43.2	40.0-46.4
High School / GED	29.6	24.6-34.5	44.0	40.2-47.8	38.2	36.4-40.1
Some College	30.8	25.0-36.5	36.5	32.9-40.1	33.4	31.6-35.3
College Graduate	30.7	24.8-36.6	32.2	28.9-35.5	31.7	30.1-33.4
Income						
<\$15,000	49.7	33.7-65.6	46.0	38.1-53.8	44.5	40.8-48.1
\$15,000-\$24,999	38.4	29.4-47.5	41.6	36.2-47.1	35.3	32.7-37.8
\$25,000-\$34,999	41.9	30.6-53.3	39.4	33.4-45.3	37.0	34.1-39.9
\$35,000-\$49,999	27.2	19.8-34.6	36.8	31.9-41.6	34.4	31.9-36.9
\$50,000+	26.9	22.2-31.6	34.8	31.7-37.9	32.6	30.9-34.2

Nearly one-third (31.3 percent) of Macomb County residents reported they had been told they have high blood cholesterol by a doctor, nurse or other health professional. The prevalence in Macomb County was lower than the US in 2004 (35.2 percent), but the difference was not statistically significant. Compared with Michigan in 2003 (37.6 percent), the difference was statistically significant.

Percentages represent the proportion of respondents who responded that a doctor, nurse, or other health care professional had told them they have high blood cholesterol.

* Sample sizes less than 50 in Macomb County.

Table 9: Percentage of respondents who have ever been told they have asthma

Demographic Characteristic	Macomb County (2005)	95% CI	State of Michigan (2004)	95% CI	National (2004)	95% CI
Total	11.5	9.2-13.8	13.5	12.4-14.7	13.4	13.1-13.6
Age						
18-24*	14.4	3.7-25.1	17.3	13.2-22.3	17.5	16.5-18.5
25-34	14.0	7.4-20.5	16.1	13.0-19.8	13.8	13.2-14.4
35-44	13.9	8.6-19.2	10.9	9.0-13.2	12.5	12.0-13.0
45-54	7.7	4.0-11.4	13.2	11.1-15.6	13.2	12.6-13.7
55-64	8.9	4.7-13.2	14.0	11.5-16.8	13.7	13.1-14.3
65+	9.8	5.9-13.6	11.1	9.2-13.0	11.0	10.5-11.5
Gender						
Male	9.1	5.7-12.4	12.1	10.5-14.0	11.6	11.3-12.0
Female	13.7	10.5-17.0	14.7	13.3-16.2	15.0	14.7-15.3
Education						
< High School	22.0	8.5-35.5	17.0	13.0-22.0	14.3	13.5-15.1
High School / GED	7.5	4.2-10.9	11.4	9.6-13.3	12.5	12.1-13.0
Some College	13.7	8.9-18.5	15.6	13.4-18.0	14.7	14.2-15.3
College Graduate	12.3	8.1-16.5	12.5	10.7-14.6	12.8	12.4-13.2
Income						
<\$15,000	14.6	5.7-23.4	18.2	13.8-22.6	16.4	15.5-17.2
\$15,000-\$24,999	17.9	10.5-25.4	17.7	14.1-21.2	14.3	13.6-14.9
\$25,000-\$34,999	11.1	2.5-19.7	11.2	8.5-13.9	12.8	12.1-13.5
\$35,000-\$49,999	8.6	1.9-15.3	11.7	8.8-14.5	13.0	12.4-13.7
\$50,000+	11.6	8.1-15.1	12.1	10.4-13.8	12.5	12.1-12.9

In Macomb County, 11.5 percent of adults had been diagnosed with asthma some time during their lifetime. While reported prevalence was slightly lower than in Michigan (13.5 percent) and the US (13.4 percent) in 2004, the differences were not statistically significant. Asthma prevalence was higher in younger and older age groups. In Macomb County, the prevalence of asthma was as high as 14.4 percent among those between the ages of 18 and 24, dropping to 7.7 percent between the ages of 45 and 54, then rose again to 9.8 percent among those 65 and older.

Asthma prevalence does not appear to have a definitive relationship with socioeconomic factors such as education and income. While there were some variations in prevalence in Macomb County between education levels and income, there were no statistically significant differences.

Percentages represent the proportion of respondents who responded that a doctor, nurse, or other health care professional had told them they have asthma.

