

The Midland County Behavioral Risk Factor Survey, 2006:

Summary Report

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Acknowledgments

Projects of this magnitude are only possible through the cooperative efforts of many individuals. This most certainly includes the 510 Midland County residents who gave up some of their time and a degree of their privacy for the larger goal of helping assess the current state of health, access to care, and disease prevention in the county. It also includes Harry McGee at the Michigan Department of Community Health who made it possible for individual counties to piggy-back county-level supplemental samples onto the Michigan BRFSS and Ann Rafferty at MDCH who oversees the Michigan BRFSS and numerous staff members of the Behavioral Risk Factor Surveillance System at CDC who provided technical guidance on the study's design, implementation, and data processing. It also includes Jody Dougherty and the roughly one hundred telephone interviewer Ms. Dougherty hired, trained, and managed in order to collect the survey data represented in this report.

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The Midland County Behavioral Risk Factor Survey, 2006: Summary Report

OVERVIEW

Using a telephone survey surveillance methodology, this project collected prevalence data on risk factors and conditions associated with many of the leading causes of morbidity and mortality. The resulting data have been and will be used to assess progress at improving health in Midland County to identify segments of the population that are at greater risk, and to guide resource allocation and programming decision-making within the public health community with the goal of improving health. This is particularly important considering the human and economic costs of morbidity and premature death. Comparisons of the results of this survey to those for the state as a whole (where available) will be useful in assessing the relative status of Midland County residents. And, comparing the results of this survey to those of BRFs-type surveys of this county's residents in the past and in the future will enable county health officials to evaluate whether changes have occurred in the health, behaviors and access to care in the intervening years.

The data for this project were collected by the Office for Survey Research (OSR), a division of the Institute for Public Policy and Social Research (IPPSR) at Michigan State University in East Lansing, Michigan. OSR conducted the survey under contracts with the Midland County Health Department and with the Michigan Department of Community Health (MDCH). In mid-2001, OSR and MDCH agreed to offer the opportunity for individual counties interested in collecting county-level Behavioral Risk Factor Survey (BRFS) data to purchase over-samplings of their counties within the otherwise cross-sectional state BRFs. Under this arrangement, OSR agreed to absorb much of the management costs associated with the over-sampling and to limit the costs to counties to the incremental costs of the additional samples. MDCH agreed to supplement the samples purchased by the counties with the state's BRFs data from respondents in those counties that were otherwise collected as a part of the statewide survey. In practice, this means that counties taking advantage of the arrangement would be able to get the survey conducted at a discounted price and get larger samples than for which they actually would have to pay for. Midland County was one of the first to take advantage of this opportunity in 2002 and did so again in 2006. A very similar survey was conducted for Midland City and County in late 1997 and early 1998, which we will refer to as the 1998 survey. Comparisons of the results of the current survey to those of the 2002 and 1998 surveys – where they are possible – will be used to evaluate whether changes have occurred in the health, behaviors and access to care in the intervening years.

In subsequent sections of this report, we will detail the survey design and administration plans and procedures implemented by the Office for Survey Research to achieve this goal. This document will describe the survey's design, development, sample, implementation, quality control procedures, and many of the technical aspects of the data processing to produce the final statewide and Midland County BRFs data. Much of the methodological description in this document will focus on the statewide survey generally while still describing the particular unique features of the Midland County BRFs interview, sampling design, and outcomes.

THE SURVEY DESIGN

The BRFS Survey

The 2006 Michigan Behavioral Risk Factor Survey (MBRFS) is a participating member of the Behavioral Risk Factor Surveillance System (BRFSS) designed and coordinated by the U.S. Centers for Disease Control and Prevention (CDC). BRFSS is an annual telephone survey in each of the states intended to monitor the health and health risk behaviors of the nation's adults with respect to national health objectives. As a result, CDC has developed a standardized core interview to which each state may add some questions of particular interest to the state. CDC has developed a rigorous set of minimum standards regarding the sample design, respondent selection, informed consent, call scheduling, monitoring, and verification procedures that must be followed, although state's are at liberty to raise the standards further if they wish.

The Sample. MBRFS was designed to be a representative cross-sectional telephone survey of English-speaking, non-institutionalized adults in Michigan. These individuals were found using random digit dial sampling procedures to ensure that all residents had a chance to be included in the study. Across the whole of 2006, 5,662 randomly selected individuals 18 years of age or older were interviewed for the MBRFS. Given that the population of the Midland County makes up only 0.8% of the total population of the state, roughly 45 of the 5,662 interviews to be completed in the 2006 MBRFS would be expected to be with residents of Midland County. The total number of interviews completed for Midland County by MBRFS was actually 57 (1.0% of the total). Furthermore, OSR completed more than the 450 interviews requested (actually 453) and combined them with the additional 57 interviews from the MBRFS for a total of 510.

The overall sampling design for this survey was a disproportionate stratified, list-assisted random-digit dial sample. The sampling plan was specified by CDC following a modification of the strategy developed by Casady and Lepkowski (1993). For the original Casady and Lepkowski strategy, telephone numbers were divided into the blocks or banks of 100 based on area code, prefix and first two digits of the suffix for all possible active combinations in Michigan of type 00, 50, 51, 52, and 54 from the Bellcore tapes. These 100-banks were checked against phone directories (hence, "list-assisted"). All banks in which there were no (0) listed numbers were assigned to one stratum and all banks in which there was at least 1 listed number were assigned to the other stratum (i.e., 0-listed and 1+ listed banks). Previous experience with the productivity of the less dense stratum has indicated that almost no interviews are produced from phone numbers in the 0-listed banks of numbers. The stratum of 0 blocks was excluded from sampling (i.e., the frame was truncated). All phone numbers in the 1+ banks were subsequently divided into two strata, those for which there is a residential directory listing (listed numbers) and those for which there is no listing (1+ not listed). For 2006, BRFSS sampled listed numbers at a rate approximately 1.5 times that of the not-listed numbers.

OSR obtained samples for MBRFS from Genesys as a part of a contract between CDC and Genesys for BRFSS and it obtained the supplemental sample for the Midland County BRFS from Survey Sampling, Inc.(SSI), using the same general design specifications.

At OSR's request, SSI identified in its databases all phone numbers listed in telephone directories with addresses that fall within the county census tracts. OSR then directed SSI to identify all banks of 100 numbers in which there was at least one listed number that fell within the county tracts. From these, OSR directed SSI to exclude all listed numbers (all those already set

aside for the listed strata, and all listed numbers with addresses outside the county). What remained then was the set of all non-listed phone numbers in the banks associated with the county tracts. Random samples were then drawn from the set of county listed numbers and the set of county non-listed numbers.

To keep the calling as efficient as possible, both Genesys and SSI checked the selected sample of phone numbers for each stratum against their data base of business listings and government offices, and known non-working phone numbers. When identified, Genesys and SSI coded each phone number accordingly. As recommended by CDC, those phone numbers pre-screened by Genesys or SSI as business or non-working numbers were not called by OSR.

Sample files were delivered to OSR by Genesys or SSI. The files contained a variety of information, some of which needed to be retained in addition to the telephone number. Additionally, a case identification number had to be assigned to each telephone number and the file had to be written into a format appropriate for importing into the CATI program for the study. Therefore, OSR staff had to read the sample files received from Genesys and SSI, create variables needed, and then write the files out into a predetermine layout.

OSR arranged for Genesys and SSI to cross-check the RDD sample of phone numbers against residential directory listings and to provide OSR with the names and addresses associated with the phone numbers in each replicate. OSR mailed advance notice letters to the address listed roughly one week prior to releasing the replicate for calling.

Within Household Respondent Selection. The within household selection procedure OSR used for selecting respondents was a modified versions of the Trolldahl-Carter procedure. This procedure asks the adult household informant how many adults (individuals 18 years of age or older) there are living in the household, and, then, how many of these are men. A random number-based algorithm then determined whether the person selected would be the “oldest male,” the “youngest male,” the “oldest female,” the “youngest female,” etc. In its published form, the Trolldahl-Carter technique actually never chooses the middle aged males or females when there are three or more of either in the household. That is, as published, not all adults in the household would have a chance of selection. OSR modified this procedure so that all adult household members would in fact have a chance of being selected.

For generating county-wide estimates, the unequal rates of selection of households between the strata (i.e., the listed numbers, and the not listed numbers in 1+ blocks) have to be adjusted for via post-stratification weighting. The number of numbers drawn and the number of numbers that were on the sampling frame for each stratum at the time of sampling are recorded on the data files, along with the probability of selection used for constructing caseweights. The unequal probabilities of selection of respondents across households varying in the numbers of adult residents also must be adjusted for in the construction of final caseweights for analyses.

For those households in which at least one child under the age of 18 years old resided, the number of children in the household was used to randomly select one of the children for which additional questions would be asked. The child selection was done using a random number to determine which child to select based on the order of their births.

The Interview Instrument

Content. The MBRFS interview instrument consisted of two major components, the core set of questions specified by CDC and a second set of questions added by MDCH for the Michigan survey. Additionally, if counties elected to purchase over-sampling of their counties, MDCH offered the opportunities to counties to replace some state-added questions with county-specific questions or to include some additional questions if they wished. Midland County elected to drop some of the state-added questions in favor of other BRFSS questions otherwise not being included in the 2006 MBRFS interview and a number of other questions of particular interest to Midland County. Since these county-requested questions were not in the Michigan BRFSS interview, the numbers of respondents to the unique county-added items will be somewhat less than for the other survey questions.

The final interview instrument can be described briefly as being divided into 34 sections as follows. The source of the questions is listed in parentheses.

- Section 1: Health Status (CDC core)
- Section 2: Healthy Days (CDC core)
- Section 3: Health Care Access (CDC core)
- Section 4: Exercise (CDC core)
- Section 5: Diabetes (CDC core, CDC Module 5 and MDCH added questions)
- Section 6: Oral Health (CDC core)
- Section 30: Periodontal Disease
- Section 7: Cholesterol Awareness (CDC core)
- Section 8: Asthma (CDC core)
- Section 22: Emotional Support and Life Satisfaction (CDC core)
- Section 9: Disability (CDC core) (also some Quality of Life questions)
- Section 27: Anxiety and Depression (part of a CDC Module 14)
- Section 10: Tobacco Use (CDC core)
- Section 11: Demographics, including height and weight (CDC core)
- Section 12: Veteran's Status (CDC core)
- Section 13: Alcohol Consumption (CDC core)
- Section 14: Immunization (CDC core)
- Section 15: Falls (CDC core)
- Section 28: Osteoporosis
- Section 16: Seatbelt Use (CDC core)
- Section 17: Drinking and Driving (CDC core)
- Section 18: Women's Health (CDC core)
- Section 33: Breast Cancer Risk Assessment (MDCH added questions)
- Section 19: Prostate Cancer Screening (CDC core)
- Section 20: Colorectal Cancer Screening (CDC core)
- Section 21: HIV/AIDS (CDC core)
- Section M17: Fruits and Vegetables (2005 CDC core)
- Section 35: End of Life (2005 MDCH added questions)
- Section M18: Physical Activity (2005 CDC core)
- Section M36: Walking (2005 MDCH added questions)

- Section 23: Random Child Selection (CDC Module 1)
- Section 24: Childhood Asthma Prevalence (CDC Module 2)
- Section 25: Child Weight Status and Physical Activity (MDCH added questions)
- Section GP: General Preparedness (part of CDC Module 17 and Midland County added questions)

Unless otherwise stated, the CDC core, modules and MDCH questions were all from the 2006 MBRFS. Although this does not follow CDC protocol, the order of sections was changed to improve the flow of the interview.

Preparation of The CATI Interview Instruments. OSR collected the telephone interviews for both surveys using its computer assisted telephone interviewing (CATI) facilities in East Lansing, Michigan. The particular CATI system OSR used was CASES 4.3.7 developed by the University of California at Berkeley and the U.S. Department of Agriculture.

To administer an interview via CATI, the entire interview script along with the introductory scripts and cover sheet must be programmed. The MBRFS interview as programmed in CASES was contained in 15 separate files, some of which were embedded in OSR's usual front-end portions of the CATI program. The table below identifies the various component parts of the MBRFS and Midland County interview and OSR's CATI program files which contain them.

Table 1. Midland County Health Department BRFS Household Interview Components and Their CATI Program File Locations

Module	CATI Program Module(s)
<i>Household and Eligibility Screening</i>	<i>auto0.q, auto1.q, auto2.q, auto3.q</i>
<i>Midland County Health Department BRFS</i>	
<i>-2006 Informed Consent and the Entire Interview</i>	<i>mid2006.q</i>
<i>CATI re-entry on callback</i>	<i>auto4.q</i>
<i>CATI callback calendars</i>	<i>auto5.q</i>
<i>CATI supervisor module</i>	<i>auto6.q</i>
<i>CATI end interview frontend</i>	<i>auto7.q</i>
<i>CATI case control, scheduling and CODE,</i>	
<i>FNL assignments (case disposition coding)</i>	<i>auto8.q, auto9.q</i>
<i>Supplemental Interviewer Instructions and</i>	
<i>Coding Categories</i>	<i>Referenc.q</i>
<i>Electronic help screens for Interviewers & Supervisors</i>	<i>Autohelp.q</i>
<i>Supervisor access to reassign next question</i>	<i>Oopsloq.q</i>
<i>Script to determine type of answering machine or electronics</i>	<i>MAD.q</i>

Interviewers and Interviewing

The OSR telephone interviewer training package was developed using "General Interviewing Techniques: A Self-Instructional Workbook for Telephone and Personal

Interviewer Training," authored by P.J. Guenzel, T.R. Berckmans, and C.F. Cannell (1983) of the Survey Research Center, Institute for Social Research, University of Michigan.

Study-Specific Training. Most of the interviewers who worked on this project were experienced interviewers. For the study-specific training on this project, the interviewers were provided the study background, question objectives, and sample management of this particular project. OSR prepared a study-specific "Survey Instruction Manual" for each. The study-specific training manuals included an explanation of the surveys and their purposes, descriptions and explanations of the respondent selection procedures to be implemented, paper copies of the question-by-question objectives, and lists of appropriate responses to most frequently asked questions. These were reviewed during the study specific training, uncommon terms or phrases were clarified, definitions were provided, and special probes identified. The final phase of the study-specific training involved round-robin simulated interviews on CATI of the project's interview instrument.

Interviewing Schedule. Data collection for the MBRFS occurred on a quarterly basis throughout the year, while the supplemental Midland County BRFS occurred largely during the fourth quarter of 2006. For MBRFS, the interviewing for each quarter was spread across all three months of the quarter. Some allowance for holidays and other significant events was taken into account as to the actual dates of the field period for each quarter. For the Midland County BRFS, interviewing began in early December 2006 and concluded by the end of January 2007.

For this project, the calling period during each day was set from 8:30 A.M. until 9:30 P.M. Monday through Thursday, 8:30 A.M. until 7 P.M. on Friday, 10 A.M. until 6 P.M. on Saturday, and 12 noon until 9:30 P.M. on Sunday. OSR attempted to schedule interviewers so that approximately 40% of the calling took place during the weekdays daytime and 60% during the weekday evenings and on the weekends. At various points throughout the year, the actual distribution of calls across time blocks was checked to determine if this schedule was being achieved.

Call Attempts. OSR's CATI system includes an "autoscheduling" component to the software. This portion of the system continually reads through fields of the data records for all cases in which callback appointment dates and times are stored. Then on a fixed schedule, usually every quarter hour, the autoscheduler re-writes a set of calling queues -- one of which represents cases with hard appointments scheduled in the next time interval, another of cases with soft appointments in the next time interval, another of cases that were busy or "no answers" when called at their last appointment time, another of appointments that may have been missed, another of cases that have had no contact and have not been called at the limit for the number of call attempts for the next time block, etc. The autoscheduler automatically delivers cases to the next available interviewer at the time of an appointment. OSR implemented the autoscheduler for the MBRFS-2006 and Midland County BRFS surveys.

OSR interviewers allow a telephone number dialed to ring a minimum of 5 times. OSR made a minimum of 15 call attempts to contact sample members, if necessary. Call attempts were spread across time blocks of the day and days of the week, at least three of which took place on weekends. If contact was made within the first 15 call attempts, interviewers tried to confirm that they had reached the intended phone number and that it was an eligible household at the

beginning of the contact. Once the household was enumerated and a respondent selected, OSR interviews made up to 15 additional call attempts to contact the respondent to complete the interview unless the respondent or informant for the respondent refused.

After a case had been called 15 times, it was reviewed by supervisors or the project manager. If there had been no contact with the phone subscriber or if the contact had been insufficient to establish eligibility or to select a respondent and if the case had been called across all appropriate time blocks, it was finalized out according to BRFSS guidelines. If the case had resulted in the selection of a respondent and had not been refused, it was returned to calling for up to 15 additional attempts beyond when contact was made that resulted in the selection of a respondent.

Numbers dialed which resulted in a “temporarily not in-service” or “circuit busy” were to be called 15 times before a final disposition code could be assigned. Numbers that resulted in a “fast busy” were to be called a minimum of 6 times with at least three of these being “fast busy” outcomes and the rest being either a “busy” or a ring-no answer outcome.

Refusals. In the case of refusals, the project manager or supervisors reviewed cases on a continual basis to evaluate interviewer notes and assess the probabilities of successful conversion attempts. Interviewers were instructed to enter call notes to indicate what the apparent concerns or reasons for refusal were on the part of the informant or respondent to guide subsequent conversion efforts. OSR attempted conversions with all except those where the initial refusal by the respondent or informant appeared to be absolute. All refusals (except absolute refusals) were called 15 times unless there was a second refusal before reaching the 15th call.

Supervision And Monitoring. Because of the extensive amount of monitoring and verification required to meet project specifications, OSR maintained an interviewer to supervisor ratio for this project of 8:1. OSR assigned at least two supervisors to each evening and weekend calling period and at least one supervisor to each daytime shift.

A supervisor’s workstation is located directly adjacent to interviewers' workstations to facilitate monitoring, workflow, and assistance. The Survey Operations Manager's office adjoins the interviewing room. Both are equipped with an unobtrusive telephone monitoring system and an electronic monitoring system which enables the manager or supervisor to monitor the interviewer’s interviewing method, adherence to protocol, and data entry during interviews.

A shift supervisor was assigned to monitor interviewers on a regular basis and provide feedback to the interviewers on their job performance. Monitoring focused on the overall conduct of the interview, correctness of question delivery, pace, naturalness, interviewer feedback and reinforcements to respondents, quality and quantity of probing, and accuracy of recording answers. The monitoring supervisor completed a monitoring evaluation form containing a set of standardized observations of the interviewer's performance. Feedback sessions were conducted for each interviewer following monitoring.

DATA AND PROCESSING

OSR built a CATI coding instrument which paralleled the interview instrument, but in which all coding categories for each question – including any that had been newly constructed – were contained. Every interview was then processed through the coding instrument and all open-

ended and “other: specify” responses were then coded.

When executed on an interview, the coding instrument advances from question to question following the path dictated by the last entered response given by the respondent to each item. Once the coding instrument has been followed to the end and all items coded, a separate program is executed by the project manager which re-writes the data file for each case, saving all last entered responses on the final execution path through the interview instrument and blanking out any now extraneous codes that do not lie on the execution path¹. This then constitutes the certified data set for each completed interview. Only completed interviews can be cleaned and certified in this manner.

Once all Midland County BRFS interviews were completed, coded, and certified, and all non-interview cases were reviewed and assigned final disposition codes, the data files for all cases were output for additional processing. The total data set could not be finalized until the interviews for the 2006 MBRFS were also completed, processed, cleaned, and the Midland County cases extracted and merged into the Midland County BRFS.

Over the course of the four quarters of 2006, OSR interviewers completed a total of 57 interviews with Midland County residents for the Michigan Behavioral Risk Factor Survey and 453 interviews in the Midland County BRFS for a combined total of 510. The typical completed interview lasted approximately 20.0 minutes (standard deviation = 3.8; median = 19). Completed interviews in the Midland BRFS required an average of 5.1 call attempts in order to produce the completed interview. A total of 1,785 randomly selected telephone numbers were used in the process of finding households and conducting the interviews in the Midland BRFS. Interviewers made a total of 10,275 call attempts to these phone numbers in order to determine the appropriate final disposition for each number or to conduct the interview, an average of 7.0 call attempts per phone number.

The Midland BRFS was conducted from December 7, 2006 through January 30, 2007. The MBRFS was conducted from January 27, 2006 and concluded January 30, 2007.

The list of disposition categories and the numbers of phone numbers that were assigned each of the final dispositions is presented in the table below, along with production rates. The overall BRFS CASRO Response Rate was 52.7%, the cooperation rate was 76.1% and the refusal rate was 11.2%.

¹ To avoid the possibility of unintentionally losing any data because of a programming error in a coding instrument, OSR staff routinely output a copy of the data files for interviews after coding but before their being certified. This provides an additional backup copy of the data for each respondent just in case a programming error results in the response to some item being blanked out inappropriately.

Table 2. Distribution of Final Outcome Dispositions in Midland BRFSS Sample

CDC-BRFSS Final Disposition Code and Category	Frequency
110 Completed INWV	450
120 Partial complete	4
210 Termination in interview	3
220 Refusal after R selected	111
230 R never reached or did not start interview	28
240 R away from residence	6
250 Language problem after R selected	-
260 R physically/mentally unable	35
270 Hang up or termination after # adults recorded but before R select	-
280 HH contact after # adults recorded but before R selected	-
305 Residents away for duration	-
310 HU or term, unknown elig	133
315 HH contact, elig not known	36
320 Language prob before R selected	1
325 Physical/mental problem before R selected	9
330 HU, term, unknown if residence	99
332 Contact, unknown if private residence	1
335 MAD, message indicates HH	10
340 Tele Tech barrier, message indicates HH	-
345 MAD, unsure if HH	93
350 Tele Tech barrier, unsure if HH	-
355 Phone num changed from HH to non-work during calling	22
360 No Answer	68
365 Busy	7
370 On Never Call List	-
405 Out of state	-
410 HH, no eligible respondent	18
420 Not Private residence	438
430 FAX, Data, Modem line, no contact	23
435 Cell Phone (started Quarter 2)	4
440 Fast Busy	-
450 Non-Working, Disconnected	191
Total	1,785

Weighting

OSR has weighted the final data set to correct for unequal probabilities of selection and to maximize the representativeness of the sample findings for the county's population of adults. Initially, the data set was weighted by the inverse of the probability of selection, taking into

account the two phone strata (listed numbers, not-listed numbers from 1+ listed banks), as well as the number of phone lines to the household and the number of adults living in the household to adjust for unequal probabilities of selection in the sample. This initial weight was then adjusted with a post-stratification factor to match as closely as possible the demographic profile of households and the adult population of the county with respect to gender, age, and race based on the bridged-race Vintage 2005 postcensal population estimates for calculating vital rates produced by the Population Estimates Program of the U.S. Census Bureau in collaboration with the National Center for Health Statistics (NCHS), released August, 2006. A further adjustment was made using education categories from the 2000 U. S. Census. The final caseweight that takes all of these adjustments into account and which should be used for doing countywide analyses is named CNTYWT and is saved in the data file.

The total adult population of the county in 2006 is estimated to be 63,336. For making projections to the numbers of individuals at-risk in the whole adult population of the county, we have included another weight variable, EXPANDWT, which is an expansion weight that projects the 510 cases in the data file to the 63,336 in the 2006 Midland County adult population.

The final working sample size was 510. In general, the overall margin of sampling error for a sample of 510 is $\pm 4.3\%$ or less.

Table 3 provides a demographic profile of the weighted sample for the county. The weighted data file closely matches the population profile.

Data Analysis

IPPSR used SPSS to manage, transform, and analyze the data. All results presented in this report are based on the weighted sample. Throughout the analysis and the reporting, IPPSR has endeavored to code, categorize, and report results consistently with the procedures adopted by the Michigan Department of Community Health in its reporting of the Michigan Behavioral Risk Factor Survey. This is intended to enable direct comparison of the prevalence rates and findings of the Midland BRFSS to those for the state as a whole and to the 2002 and 1998 Midland BRFSS surveys. Specifically, this means that in calculating the percentages of individuals "at risk" because of a particular health behavior or condition, individuals who refused to answer a question or who responded that they did not know the answer were excluded from the computation of the percentage. This was also done for the responses to the demographic questions. That is, the percentages reported are based on the valid responses to the questions where "don't know" and "refused" are treated as invalid responses. Exceptions to this will be noted in the text and the tables.

The percentages of respondents giving each of the answers or who fall into various response or risk categories are reported by categories of respondents based on sex, age, education, and income. The income categories represent that of the respondents' entire households, whereas each of the other variables refer to the characteristics of the respondents. We have not bothered to represent the breakdowns of results by race since there are so few non-white residents in the county that a random sample of this size of all residents produces too few non-white respondents to generate stable, reliable statistics for non-white portions of the population. Consequently, all racial groups are included together. To facilitate comparisons to the statewide rates, we have grouped individuals within categories of these demographic variables and report them in the same way as is done in the Michigan Behavioral Risk Factor Survey reports, other than race.

Decisions as to differences among categories of respondents are based on the test statistic

Table 3. Demographic Characteristics of Unweighted and Weighted Samples Compared to 2005 Vintage Post-census Figures for Midland

CHARACTERISTIC	2005 Vintage Post-census Data	Sample % Distribution	
		Unweighted	Weighted
TOTAL HOUSEHOLDS	*	510	510
TOTAL NUMBER OF ADULTS	63,336	510	510
GENDER (adults)			
Male	30,675 or 48.4%	46.5%	46.5%
Female	32,661 or 51.6%	53.5%	53.5%
RACE (all persons)			
White	61,184 or 96.6%	97.2%	98.4%
African American	801 or 1.3%	0.2%	0.1%
Other	1,351 or 2.1%	1.8	0.7%
Multi-race	*	0.8%	1.0%
AGE (all adults)			
18-24	8,145 or 12.9%	2.8%	9.5%
25-34	9,054 or 14.3%	8.1%	17.7%
35-44	12,672 or 20.0%	20.0%	19.8%
45-54	13,349 or 21.1%	23.4%	20.6%
55-64	9,091 or 14.4%	19.6%	13.7%
65-74	5,397 or 8.5%	14.1%	10.4%
75 or Older	5,628 or 8.9%	12.1%	8.2%

*Not available in the 2005 Vintage Postcensus Data

P (Chi-square) or *F* (for continuous variables). For the most part, the categories will be judged to be different from each other in terms of their respective prevalence rates or frequencies if the chance of observing the amount of difference found by sampling error alone is less than one in twenty (i.e., if the probability of observing a **P** or *F* value as large as that found would be expected to occur in less than five percent of all samples as a result of sampling error alone when the categories did not really differ in fact). This will be noted as being a "statistically significant difference."

In the tables throughout this report, results that differ significantly across categories of demographic variables, such as gender or age, will be noted by an asterisk. When the columns in a table represent categories of a single variable such as perceived health status (i.e., excellent, good, fair, poor), the asterisk will be located behind the name of any demographic variables

where differences are statistically significant. When the columns in a table represent results for two or more variables, asterisks indicating significant differences among categories of a demographic variable will be located by the upper most percentage in the column on which the groups differ. We will differentiate three different levels of statistical significance -- * $p < .05$ (i.e., probability is less than 5 chance in 100 of occurring by sampling error alone), ** $p < .01$ (i.e., probability is less than 1 chance in 100 of occurring by sampling error alone), and *** $p < .001$ (i.e., probability is less than 1 chance in 1,000 of occurring by sampling error alone).

Statistical significance is partly a reflection of sample size. That is, with very large samples, almost all differences in the rates of various categories of respondents will be statistically significant even if the differences in the actual percentages are rather small. The same magnitude of difference in the rates would probably not be statistically significant if the sample sizes are relatively small. With relatively small samples, substantial differences in the rates among various categories of respondents will typically be required before they can be judged to be anything more than just sampling error. Thus, when the sample sizes are smaller, there is a greater chance of failing to note a substantively important difference among categories because the magnitude of the difference is not great enough to be statistically significant. Furthermore, in this report a large number of comparisons will be made, thus increasing the possibility that some of the statistically significant differences noted may in fact be the result of simply sampling error.

In some portions of the report, we project the actual numbers of individuals or households in the population of the county who do some particular behavior or have a particular condition. These projections are extrapolations from the sample findings to the estimated county population according to the bridged-race Vintage 2005 postcensal population estimates. These estimates indicated that there were 63,336 adults (i.e., individuals 18 years of age or older) in Midland County.

RESULTS

Health Status

When asked to describe their current health, 55.4% of Midland adults said their health was either excellent (18.5%) or very good (36.9%), while 12.0% said it was either fair (8.8%) or poor (3.2%) (Table 4). The percent claiming their health was only fair or poor was greater than the 2001 Behavioral Risk Survey of Midland County found (7.8%), but less than reported in 1998 Midland BRFs (14.3%). In 2005, the Michigan BRFs found that, statewide, 15.2% of Michigan adults judged their health to be only fair or poor – also higher than the 2006 finding for Midland adults though still within the margin of error.

Table 4 shows the distribution of these health status ratings broken down by gender, age, education, and income. Significant differences were found by age, education, and income. The table indicates that

Respondents younger than 65 were more likely to describe their overall health as "excellent" or "very good" than were respondents in the older age categories. Those older than 65 were much more likely than others to describe their health as only "fair" or "poor." This was also the case in 2002.

The higher the respondents' level of education, the more likely they were to describe their health as excellent or very good. Those with less than a high school degree had a much higher percent of "fair" and "poor" responses (52.2%), than did the other three groups. Though the same pattern was found in 2002, the difference between those with less than a high school degree is appreciably larger in 2006.

Those with higher incomes were more likely than those with lesser incomes (particularly those with incomes below \$35,000 per year) to describe their health as excellent or very good. While, those with lesser incomes were more likely than their counterparts to describe their health as only fair or poor. Again, this is a very similar pattern to that observed in 2002 and 1998.

Health Conditions

The interview included a number of questions regarding whether or not the respondent had ever been told he or she had various health conditions or problems. These included diabetes, asthma, a heart attack, angina or coronary heart disease, stroke, and prostate cancer. Detailed follow-up questions were asked of those who reported having been told they have diabetes. The results for these will be summarized in this section of the report.

Asthma. Among all those interviewed, 14.1% reported ever being told by a doctor, nurse or other health professional that they had asthma. This is a slightly higher percentage, but not statistically different from the 13.8% found statewide in the 2005 Michigan BRFs. Of the 14.1%,

Table 4. Percentage Distribution of Perceived Health Status by Demographic Characteristics

CHARACTERISTIC	Perceived Health Status					n
	Excellent	Very Good	Good	Fair	Poor	
Overall	18.5%	36.9%	32.5%	8.8%	3.2%	510
Gender						
Male	20.7%	32.9%	35.0%	7.6%	3.8%	237
Female	16.9%	40.4%	30.1%	9.9%	2.6%	272
Age ***						
18 thru 24	10.2%	49.0%	40.8%	0.0%	0.0%	49
25 thru 34	24.7%	29.2%	44.9%	1.1%	0.0%	89
35 thru 44	24.0%	37.0%	25.0%	6.0%	8.0%	100
45 thru 54	18.3%	40.4%	30.8%	8.7%	1.9%	104
55 thru 64	20.3%	40.6%	23.2%	14.5%	1.4%	69
65 thru 74	15.4%	34.6%	30.8%	11.5%	7.7%	52
75 or Older	7.3%	26.8%	39.0%	24.4%	2.4%	41
Education ***						
Less than H.S. High School	17.4%	13.0%	17.4%	41.3%	10.9%	46
Graduate	13.4%	34.5%	41.4%	5.7%	5.1%	157
Some College	14.6%	39.6%	39.0%	5.5%	1.2%	164
College Graduate	29.3%	44.3%	20.0%	5.0%	1.4%	140
Income ***						
Less Than \$20,000	14.5%	21.7%	30.4%	23.2%	10.1%	69
\$20,000 - 34,999	5.8%	31.4%	50.0%	7.0%	5.8%	86
\$35,000 - 49,999	8.2%	34.4%	45.9%	9.8%	1.6%	61
\$50,000 - 74,999	18.9%	60.8%	16.2%	4.1%	0.0%	74
\$75,000 +	29.1%	47.5%	19.9%	3.5%	0.0%	141

* p < .05; ** p < .01; *** p < .001

65.8% claimed they still have asthma. This is approximately the same percentage found in the 2005 Michigan BRFSS. Projected to the total adult population of the county, this corresponds to 5,780 adults with asthma ($\pm 1,587$). Though there were no significant differences by sex, age, education or income for those ever told they had asthma, there were significant differences among

these for those who still had asthma. Males were significantly ($p > .001$) more likely to report still having asthma than females. Those in the youngest group (18-24 years of age) were much less likely to still have asthma compared to the other age groups ($p > .001$). Although there is a significant difference by income ($p > .01$), there is no specific pattern to the differences.

For those households with at least one child resident, a child was randomly selected about whom additional questions were asked. Of those randomly selected children, 10.4 % of those children were ever diagnosed with asthma and of those, 89.8% still have asthma. This number cannot be compared directly to the findings of the 2002 Midland County BRFS when information was collected on all children in the household and not just a randomly selected child.

Diabetes. Among all 510 respondents, 9.5% said they have been told by a doctor that they have diabetes. This excludes those women who were only told they have pregnancy-induced diabetes. This prevalence rate is higher than the 8.1% found in the 2005 Michigan BRFS and would correspond to a projected 5,970 adults with diabetes ($\pm 1,610$) in the whole county. An additional 5.9% of respondents in the 2006 Midland County BRFS reported that they had been told they were pre-diabetic or borderline diabetic when specifically asked. Only 0.9% stated that they were pre-diabetic or borderline diabetic when simply asked if they were diabetic.

Of those who stated that they had not been diagnosed with diabetes (not pre-diabetes), only 37.5% had a blood sugar test in the past 12 months.

Among those with diabetes, the average age at which they were first told they have the disease was 51.0 years old, but some were as young as 7 and as old as 83 when first told. Roughly a quarter were told by the time they were 41, but another quarter were not diagnosed until they were 53 or older.

Two out of ten (20.1%) of those with diabetes are now taking insulin. Nearly two-thirds (71.0%) indicated they are now taking diabetes pills. While 10.4% reported taking both, 60.4% said they were taking diabetes pills but not insulin, 10.4% said they were taking insulin but not diabetes pills, but only 18.8% of those with diabetes claimed they were taking neither.

Over seven out of ten (72.0%) of those with diabetes reported that they check their blood sugar at least once a day, with 44% of these checking their blood two or more times a day. Almost eight out of 10 (77.8%) of those with diabetes said they check their feet for sores or irritations at least once a week, with almost three-quarters (74.0%) reporting they check their feet at least daily. About one in 13 (7.9%) reported ever having sores or irritations on their feet that took more than four weeks to heal.

Only 15.2% of respondents who had been diagnosed with diabetes reported not seeing a doctor, nurse, or other health professional in the previous twelve months for their diabetes. Among the others, the average number of times they reported seeing a health care provider for their diabetes in the previous year was 3.63 times (standard deviation = 2.4), but this ranged from only once to as many as 12 times.

Over eight out of ten (82.6%) of those with diabetes reported that a doctor, nurse, or other health professional checked them for hemoglobin A-1C at least once in the previous 12 months, but 9.0% said they had never heard of this test that measures the average level of blood sugar over the past three months. Among those who had been tested, 13.4% had been tested only once, 47.8% twice, 9.3% three times, and 12.0% four or more times

Almost three of 10 (29.5%) of those with diabetes reported that no health care provider had checked their feet for sores or irritations in the previous 12 months. Among those who had

been checked, 41.2% had been checked only once, 38.2% had been checked twice and 23.5% four or more times. The average was 2.6 times.

Among those who had been examined by a health care provider, 90.0% indicated that they had had an eye exam in which the pupils were dilated in the past year (35.0% in the previous month). Of the remaining respondents, 2.5% had had an eye exam in the previous two years, but 8.3% stated that they had never had their eyes checked. Among those who had been examined, 18.4% said a doctor had told them that diabetes had affected their eyes or that they had retinopathy.

Almost 7 out of ten respondents (67.7%) who had diabetes said they had taken a course or class on how to manage their diabetes themselves. Those who had taken such a course appeared to be somewhat less likely to have had sores or irritations on their feet that took more than four weeks to heal than those who had not taken such a course.

Heart or Other Circulatory Problems. In 2006, all respondents were asked whether they had ever been told by a doctor that they had a heart attack or myocardial infarction, angina or coronary heart disease, or a stroke. This is different from 2002 and to make the numbers comparable, only those who were 35 years of age or older will be included in this analysis. Among these respondents 35 years of age or older, 8.4% reported having been told they had had a heart attack (compared to 7.1% in 2002), 6.7% said they had angina or coronary heart disease (compared to 7.1% in 2002), and 4.0% said they had had a stroke (compared to 3.9% in 2002). These were not mutually exclusive events. Some of those who had had a heart attack also had angina. Altogether, 13.6% of those 35 or older had been told they had had at least one of these heart or circulatory system related problems. The number was slightly lower in 2002 with only 12.7% with at least one. This is roughly 9.9% of all adults in Midland County, or roughly 6,288 ($\pm 1,648$) adults.

Cancer. Men 40 years of age or older were also asked if they had ever been told they had prostate cancer. Of these men, 5.7% said they had been told they have prostate cancer. This is an increase from the 1.9% found in 2002, but still within the confidence interval. This corresponds to roughly 1,088 men county wide (± 711).

Both female and male respondents, regardless of age, were asked if they had ever been diagnosed with breast cancer. Only 2.8% stated that they had and all of those were females. This means that 5.1% of the females stated that they had been diagnosed with breast cancer. This corresponds to approximately 1,644 women county-wide (± 843).

Healthy Days. Respondents were asked a series of questions about their mental and physical health over the previous 30 days. Respondents were asked to report the number of days that their physical health and mental health had not been good. Those who reported at least one day of either poor physical health or mental health were also asked how many days their physical/mental health had impacted their daily living. Table 5 shows the percentage of individuals who reported 14 or more days for each of these questions. This collapsing of categories was used to allow for comparisons with the 2005 Michigan BRFSS findings.

Overall, 7.8% of the respondents stated that they had 14 or more days of poor physical health and 9.3% reported having 14 or more days of poor mental health. Both of these estimates

are within the margin of sampling error for the state's estimates (11.1% and 10.8%, respectively). The mean number of days of poor physical health was 3.10 days and the mean number of poor mental health days was 3.19. Of those with at least one day of poor mental or physical health, 7.0% stated that they had 14 or more days in which their health affected their ability to do daily activities. The mean number of days poor health impacted their daily lives was 2.33 days.

Table 5 shows the percentage distribution regarding days of poor health across various demographic categories. The table indicates that:

There were no statistically significant differences in the percentages of individuals who had 14 or more days of poor physical or mental health between males and females. This held true as well for the percentage of those whose poor health impacted their daily lives for 14 or more days.

Individuals between the ages of 65 and 74 were more likely to have 14 or more days of poor physical health than the other age groups. Those between the ages of 25 and 34 and between 45 and 54 years of age were much more likely to have 14 or more days of poor mental health. There was no statistical differences between age categories for the percentage of those whose daily lives were impacted by poor health.

Those with less education were more likely to have 14 or more days of either poor mental or physical health. There was no statistical differences between levels of education categories for the percentage of those whose daily lives were impacted by poor health.

Those with the lowest income were much more likely than their counterparts to have 14 or more days of poor mental health and those with the highest income were the least likely. Those with the lowest income were much more likely than other income groups to have poor health impact their lives for 14 or more days. There was no statistical differences between income groups for the percentage of those whose daily lives were impacted by poor health.

Anxiety/Depressive Disorders. Respondents were asked if they had ever been diagnosed with an anxiety disorder and also if they had been diagnosed with a depressive disorder. Approximately one in six of the respondents (16.6%) stated that they had been diagnosed with at least one of these. Women were statistically much more likely to report having been be diagnosed than men. There were no significant differences across age groups, levels of education, or income.

A relationship exists between whether or not the respondent has been diagnosed with an anxiety or depressive disorder and the average number of days of poor physical and mental health as well as the number of days that the respondent's daily life was impacted by his/her poor health. Those with an anxiety or depressive disorder had almost twice as many days of physical illness than their counterparts (5.72 days vs. 2.43 days). The number of poor mental health days was

Table 5. Percentage Distribution of 14 or more Days in Past Month Respondents had Poor Physical or Mental Health or Poor Health Impacted Daily Life, Mental Disorder

CHARACTERISTIC	% 14+ Days Poor Physical Health	% 14+ Days Poor Mental Health	% 14+ Days Poor Health Impacted Life	% Anxiety/ Depressive
Overall	7.8%	9.3%	7.0%	16.6%
Gender				
Male	7.2%	8.1%	6.1%	10.5%***
Female	8.6%	10.5%	7.6%	21.9%
Age				
18 thru 24	0.0%*	6.3%***	0.0%	12.2%
25 thru 34	2.2%	19.1%	8.0%	17.0%
35 thru 44	7.1%	9.1%	9.8%	19.0%
45 thru 54	12.5%	13.7%	5.2%	20.2%
55 thru 64	7.2%	1.4%	11.1%	15.9%
65 thru 74	15.7%	3.8%	7.4%	15.4%
75 or Older	5.6%	2.6%	5.9%	12.2%
Education				
Less than H.S.	21.4%**	27.3%***	6.7%	14.9%
High School	7.6%	8.3%	11.3%	19.4%
Some College	5.5%	10.4%	4.1%	13.4%
College Graduate	6.4%	3.6%	6.4%	17.9%
Income				
Less Than \$20,000	13.6%	19.7%***	27.5%***	24.6%
\$20,000 - 34,999	5.8%	10.6%	4.5%	17.2%
\$35,000 - 49,999	10.0%	10.0%	2.3%	10.0%
\$50,000 - 74,999	8.0%	13.5%	8.5%	15.1%
\$75,000 or more	4.3%	1.4%	2.7%	16.3%

* p < .05; ** p < .01; *** p < .001

almost triple for those with some disorder (7.97 days vs. 2.17 days). The number of days in which their daily lives were impacted was almost three and a half times those without either an anxiety or depressive disorder (4.81 days vs. 1.40 days). Of those who had 14 or more days of poor mental health, 57.8% had never been diagnosed with an anxiety or depressive disorder.

Social/Emotional Support. Respondents were also asked how often they felt that they had enough social and emotional support. Only 4.4% of the respondents stated that they rarely or never had the support they felt they needed. Though this percentage is below the 7.3% found in the 2005 Michigan BRFS and is statistically different. Those who were 75 years of age or older were statistically more likely to feel that they were not getting enough support, as well as those with less than a high school diploma or with less than \$20,000/year for household income. The reported level of social and emotional support was not found to be statistically related to the number of poor physical or mental health days or the number of days impacted by poor health.

Life Satisfaction. Respondents also rated their level of life satisfaction. Only 2.3% reported that they were dissatisfied or very dissatisfied with their life. This is statistically different than the 6.3% reported from the 2005 Michigan BRFS. As would be expected, the level life satisfaction is statistically related to the number of days of poor mental health and the number of days that poor health impacted their daily life. It was not related to the number of days of poor physical health, age categories, educational attainment, income levels or whether or not the respondent was male or female.

Physical Impairments. Almost one in five respondents (19.4%) said they were limited in some way because of physical, mental, or emotional problems. Also, 6.1% said they have a health problem that requires that they use special equipment, such as a cane, wheel chair, special bed, or a special telephone – 4.7% of the respondents had both limitations and problems that require special equipment. Altogether, 20.8% of respondents had one or the other of these limitations or impairments. This is within the estimated confidence intervals reported in for the 2005 Michigan BRFS. This is projected to equal 13,211 adults in Midland County (\pm 2,240). This is probably under estimates because only those whose limitations still allowed them to live at home and to be able to communicate on the phone were included. Those who were institutionalized, unable to stay on the phone for the length of the interview, or unable to communicate on the phone due to physical or mental limitations were excluded.

Males and females did not differ significantly regarding the likelihood of having a limitation due to a physical, mental or emotional problem, nor was there a difference among levels of education. Older adults and those with less income were somewhat more likely to have a limitation because of health problems than were their counterparts. There were no significant differences in the percentages requiring special equipment to cope with a health problem between males and females or across levels of education. Elderly adults (75 or older) were more likely than younger adults to require such special equipment, as were those in the lowest income group (less than \$20,000) compared to other levels of household incomes.

For 13.3% of those with a limitation or health problem, the problem was fractures or bone or joint injuries, for 13.0% it was arthritis or rheumatism, for 13.0% it was a walking problem, for 11.2% it was back or neck problems, for 11.4% lung or breathing problems, for 9.2% it was heart problems, for 1.7% eye or vision problems, for 3.1% depression or emotional problems, for 4.3% cancer, for 1.3% it was a stroke problem, for 0.7% hearing problems, and the 17.9% it was miscellaneous other problems.

Of those with some impairment, 6.8% reported that they needed help from others with

their personal care needs (e.g., eating, bathing, dressing, or getting around the house). Close to a quarter of those with some impairment (23.5%) said they need help from others to handle their routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes. Older adults with impairments were more likely than their counterparts to be impaired to the point of requiring assistance with personal care needs. Those in the lowest income group (less than \$20,000) were more likely than their counterparts to need assistance with routine care needs.

Those with some form of impairment were also asked about how many days in the past 30 days they were in pain and how many days they felt energetic. Overall, 34.8% said that they had been in pain for at least eight of the past 30 days and 66.4% said that they had felt energetic for at least eight of the past 30 days (Table 6).

Women with impairments were twice as likely to report experiencing pain for eight or more days in the past 30 days than men with impairments. Those with less than a high school education, as well as those with less than \$20,000 household income, were more likely to report eight days or more of pain than the other educational or income groups. There were no statistical difference across age groups.

Those with impairments that had less than \$20,000 annual household income were less likely to report eight or more days of being energetic than other income groups. There was no statistical differences across gender, age, or education in terms of number of days of being energetic from those who had some form of impairment.

Osteoporosis. Respondents were asked if they had ever been diagnosed with osteoporosis. Slightly over 1 in 20 people (5.8%) stated that they had been. Females were slightly more likely to report having been diagnosed than men. A diagnosis of osteoporosis was much more likely older respondents and among those who had less than a high school education.

Access to Care and Utilization

Health Care Coverage. The 2006 MBRFS interview included only a single question regarding insurance coverage. This question asked respondents to indicate whether or not they had any kind of health care coverage, including health insurance, prepaid plan such as HMO's, or government plans such as Medicare.

The 2006 Midland BRFS found that 89.8% of the respondents indicated they have some type of health care coverage while 10.2% said they did not. This is an increase in noncoverage rate of 3.3% from that found in 2002 and matches the rate found in 1998. Those without coverage would be projected to equal 6,478 adults ($\pm 1,670$) uninsured adults countywide. This is still lower than the 14.5% uninsured found statewide by the 2005 Michigan BRFS.

Table 7 shows the percentage distribution regarding health care coverage across various demographic categories. The table indicates that:

There was a statistically significant difference in the percentages of individuals who were without insurance between males and females, with women being more likely to have insurance.

Table 6. Percentage Distribution of Respondents Who Had Various Emotional or Physical Difficulties 8-30 Days in Past Month, by Demographic Characteristics

CHARACTERISTIC	% Who Experienced.... 8-30 Days in Past Month			
	Pain	N	Energetic	N
Overall	34.8%	90	66.4%	82
Gender				
Male	21.1%*	38	68.4%	38
Female	44.2%	52	64.4%	45
Age				
18 - 24	0.0%	2	100.0%	2
25 - 34	38.5%	13	63.6%	11
35 - 44	42.9%	14	42.9%	14
45 - 54	33.3%	18	76.5%	17
55 - 64	30.8%	13	84.6%	13
65 - 74	28.6%	14	71.4%	14
75 or older	37.5%	16	58.3%	12
Education				
< H.S	69.2%***	13	100.0%	7
H.S. Grad	52.2%	23	50.0%	22
Some College	16.7%	20	65.2%	23
College Grad	20.0%	24	72.4%	29
Income				
< \$20,000	77.3%***	22	31.3%*	16
\$20 - 34,999	18.2%	11	80.0%	10
\$35- 49,999	35.7%	14	57.1%	14
\$50- 74,999	16.7%	12	81.8%	11
\$75 or More	11.1%	18	77.8%	18

* p < .05; ** p < .01; *** p < .001

Table 7. Percentage Distribution of Insurance Coverage, Have Personal Doctor, Medical Care in Past Year by Demographic Variables

CHARACTERISTIC	Insured	Have a personal Doctor or Health Provider			Had Medical Check up Past Year
		Yes, 1	Yes, >1	No	
Overall	89.8%	80.1%	6.9%	13.0%	70.2%
Gender					
Male	85.3%**	75.8%	5.1%	19.1%**	63.9%***
Female	93.8%	83.3%	8.5%	7.7%	75.7%
Age					
18 - 24 yrs. old	79.2%**	42.9%	6.1%	51.0%***	75.0%***
25 - 34 yrs. old	88.8%	80.7%	2.3%	17.0%	60.9%
35 - 44 yrs. old	88.0%	87.9%	2.0%	10.1%	66.7%
45 - 54 yrs. old	87.5%	84.6%	7.7%	7.7%	63.1%
55 - 64 yrs. old	92.8%	72.9%	17.1%	10.0%	79.4%
65 - 74 yrs. old	100.0%	88.7%	11.3%	0.0%	82.7%
75 + yrs. old	100.0%	88.1%	7.1%	4.8%	82.1%
Education					
Less than H.S.	78.7%***	76.6%	17.0%	6.4%***	78.3%*
High School	87.2%	78.8%	1.3%	19.9%	66.7%
Some College	89.0%	79.9%	8.5%	11.6%	71.8%
College Graduate	97.2%	82.7%	7.9%	9.4%	69.1%
Income					
Less Than \$20,000	82.6%*	80.0%	8.6%	11.4%	71.6%
\$20,000 - 34,999	87.2%	83.5%	5.9%	10.6%	73.3%
\$35,000 - 49,999	88.5%	86.7%	0.0%	13.3%	59.3%
\$50,000 - 74,999	93.3%	90.7%	2.7%	6.7%	68.1%
\$75,000 or More	96.4%	75.0%	10.7%	14.3%	69.8%

* p < .05; ** p < .01; *** p < .001

Older individuals were more likely to be insured than those in the younger groups, especially the 18-24 age group.

Those with less education were more likely to be uninsured than their more educated counterparts.

Those with less income were much more likely to be uninsured than those with greater incomes.

Table 7 also shows the results regarding the percentages of respondents who indicated that they have a particular person they think of as their personal doctor(s) or health care provider(s). Overall, eight out of ten respondents (79.5%) said they did have a regular provider or providers, while 20.5% said they did not. The table indicates that:

Males (19.1%) were more likely than females (7.7%) to say they did not have a particular person they thought of as their personal health care provider.

Younger respondents were much more likely than their older counterparts to say they did not have a personal health care provider. For example, nearly a third of those under age 34 claimed not to have a personal provider compared to less than one in ten among those 55 or older.

Those with less than a high school education were more likely to have a personal doctor than those with a higher level of education. This does not match the 2005 Michigan BRFSS or the 2002 Midland BRFSS and should be interpreted with caution unless a logical reason (i.e. new health program) might explain it.

The percentage of respondents who reported that there had been at least one occasion in the past 12 months when they needed medical care but could not get it rose from 4.7% in 2002 to 7.9% in 2006. This is still lower than the 12.7% found in the 2005 Michigan BRFSS. Those with no medical insurance (30.2%) were much more likely to have at least one occasion where they could not afford health care compared to those who had health insurance (5.5%). Younger individuals were more likely to have an occasion where they could not afford need health care than older respondents. Those with less than a high school degree, as well as those with less than \$35,000 of annual household income were more likely than those with higher education or higher income.

Medical and Dental Check Ups. Getting regular check ups is key to the early detection of health problems when they are most treatable. But whether or not individuals get regular check ups is partly a function of whether or not they have insurance or can otherwise afford it, whether or not they recognize the importance, whether or not they have the discipline and motivation, or whether or not there are other barriers that interfere with their access to such regular care. Interviewers asked respondents how long it has been since they last saw a doctor for a routine exam. Overall, 70.2% of respondents reported having had a routine exam within the past year, 12.3% said it had been within the past two years, 8.8% within the past five years, 6.9% said it had been five or more years and 1.8% said they had never had a routine exam. The 70.2% who had an exam in the past year is almost identical to the 70.4% found in the 2002 Midland survey.

Table 7 shows the percentage of respondents who had a routine medical exam within the past year among the categories of sex, age, education, and income. The table indicates that:

Males were much less likely (about 22% less) than females to report having had a routine exam in the past year. In fact, 11.6% of the males reported they had either never had a routine exam (3.9%) or had not had one for five or more years (7.7%), while an additional 13.7% had last had a routine exam two to five years earlier. That is, over a quarter of the men (25.3%) had not had a routine checkup in the past two years – almost two times as many as among women (13.1%).

There was a significant difference found across age groups in terms of having a physical in the past 12 months. Those between 25 and 54 were less like to have had a physical in the past year than their younger and older counterparts.

Those with less than a high school education were more likely than those with more education to have had a physical in the last year.

There were no significant differences across levels of income.

The table suggests that finding a way to get more men to have routine annual medical check ups could be a cost effective way to reduce morbidity and mortality in the Midland County population. It is the case, however, that males who are uninsured are much less likely to get routine check ups. While 79.3% of those with insurance reported having had a check up in the past two years (and only 6.6% had not had one for five or more years), only 67.7% of those who have no health care coverage reported having a check up in the past two years (and 17.6% had not had one for five or more years). This difference among men in getting annual medical check ups based on insurance coverage has decreased since the 2002 Midland BRFS study where the difference between the those with insurance and those without was 18.6% compared to 11.6% found in 2006. This same disparity of having annual medical check ups for women has actually almost doubled from 12.9% (81.3% without insurance vs. 94.2% with) in 2002 to 24.9% (63.2% without vs. 88.1% with) in 2006.

Routine oral exams are also important in the early detection and prevention of dental and other health problems. Interviewers asked all respondents how long it had been since they last visited a dentist or a dental clinic for any reason. Overall, 76.4% reported they had made such a visit within the past year – slightly higher than had seen a physician for a routine exam. Another 8.6% last visited the dentist within the past two years, 6.6% within the past five years, while 1.5% said they last visited a dentist five or more years earlier and 1.5% said they had never been to a dentist for any reason.

Table 8 shows the percentages of respondents who reported seeing a dentist within the past year across categories of sex, age, education, and income. The table indicates that:

There was no significant difference in the percentage of males and females who had visited the dentist in the past year. This was also true across age groups.

Generally, those with more education and those with higher incomes were more likely to have visited a dentist in the past year than were those with less education and those with lower incomes.

Table 8. Percentage Distribution of Respondents Who Had Dental Care in Past Year, Ever Told Had Gum Disease by Demographic Characteristics

CHARACTERISTIC	Saw Dentist in Past Year (any reason)	Got Teeth ^a Cleaned in Past Year	Ever Told Had Gum Disease
Overall	76.4%	76.7%	10.3%
Gender			
Male	76.7%	76.2%	14.5% **
Female	76.1%	77.2%	6.6%
Age			
18 - 24 yrs. old	79.2%	90.5% *	0.0% *
25 - 34 yrs. old	71.9%	67.8%	13.2%
35 - 44 yrs. old	71.0%	70.1%	17.2%
45 - 54 yrs. old	80.8%	77.9%	12.6%
55 - 64 yrs. old	82.6%	81.2%	8.7%
65 - 74 yrs. old	86.5%	89.4%	3.9%
75 + yrs. old	63.4%	77.4%	4.9%
Education			
Less than H.S.	58.7% ***	54.8% ***	13.0% **
High School Graduate	66.2%	70.7%	16.7%
Some College	77.9%	74.7%	4.9%
College Graduate	92.2%	92.2%	7.9%
Income			
Less Than \$20,000	44.8% ***	39.3% ***	10.1% **
\$20,000 - 34,999	68.6%	66.7%	19.8%
\$35,000 - 49,999	78.3%	71.9%	15.0%
\$50,000 - 74,999	89.2%	90.5%	6.7%
\$75,000 or More	92.9%	92.9%	4.3%

^a Of those who have ever seen a dentist and who still have some or all of their teeth.

* p < .05; ** p < .01; *** p < .001

Respondents were asked how many of their permanent teeth have been removed because of tooth decay or gum disease – excluding teeth lost for other reasons such as an injury or orthodontics. Over half of the respondents (56.0%) said that none of their teeth had been removed for these reasons, while 32.9% said between one and five teeth had been removed, 8.1% said six or more but not all, and 3.0% said all their teeth had been removed. Those who reported last seeing a dentist less recently were also more likely to report more of their teeth have been removed. While 58.0% of those who said they saw a dentist within the past year said none of their teeth have been removed, only 38.9% of those who last saw a dentist more than five years ago said none of their teeth have been removed. In fact, only 1.3% of those who last saw a dentist within the past year said that all of their teeth had been removed compared to 22.2% of those who saw a dentist five or more years ago.

It may be reasonable for those who no longer have teeth to visit a dentist less often than those who still have teeth. It is also the case that some of the visits to the dentist may have been because of dental problems resulting from a lack of routine dental care in the home rather than representing being conscientious about regular preventive care. A better indicator, then, as to how conscientious individuals are about their oral health may be how recently they have gone to a dentist to have their teeth cleaned, since this is primarily for prevention and diagnosis.

Interviewers asked all respondents who reported ever having seen a dentist and who reported still having at least some of their own teeth how long it had been since they last had their teeth cleaned by a dentist or dental hygienist. Of these respondents, 76.7% reported having had their teeth cleaned in the past year, 7.8% within the past two years, and 7.0% within the past five years. For 7.5%, it had been five or more years since they last had their teeth cleaned and 0.9% said they had never had them cleaned. Table 8 also shows the percentages of these respondents who had their teeth cleaned in the past year across sex, age, education, and income categories.

The table indicates that:

There were no significant differences in the percentages of males and females who reported having their teeth cleaned in the past year.

Those with more education and those with higher incomes were more likely to have had their teeth cleaned within the past year than were their counterparts.

And, there were statistically significant differences across the age groups, but the pattern of the differences was not consistent, making the finding difficult to interpret.

For the 2006 Midland BRFSS, respondents were also asked if they had ever been told they had any form of gum disease and 10.3% stated that they had. Of those who stated that they had gum disease, 54.7% said that they had gingivitis and 42.6% stating that they had periodontal disease. The remaining respondents were unsure of what type they had. Table 8 also shows that:

Males were more likely than females to have been diagnosed.

Those between 25 and 54 years of age were more likely than others to have or had some form of gum disease.

Those with at least some college were less likely than their less educated counterparts to have been told they had gum disease.

Those whose household incomes were between \$20,000 and \$49,999 were more likely to have been told that they had gum disease than those in other income groups.

Influenza and Pneumonia Vaccinations. Another important type of preventive care is getting vaccinated against common diseases that can be debilitating or deadly. Most of the immunization strategy in public health is directed at vaccinating young children against diseases to which they are particularly vulnerable, such as measles, mumps, and diphtheria. But, there are other segments of the population, such as the elderly, that are highly vulnerable to other common diseases and against which effective vaccines have more recently been developed. Two of these help prevent influenza and pneumonia. A part of the BRFSS interview was designed to determine what proportion of the most at-risk population had been successfully persuaded to be vaccinated against these.

Interviewers asked all respondents if they had a flu shot and/or the flu spray in the past twelve months. Overall, 35.3% of respondents said they had at least one of them. Table 9 shows the results for this question broken down by demographic groups. The table indicates that:

There was no significant difference between the percentages of males and females who had been vaccinated against influenza. Nor, was there across income groups.

There were significant differences across levels of education with college graduates being much more likely to have been vaccinated.

There were substantial differences among age categories. In general, the percentage of those vaccinated against influenza increased as the population ages. The exception is that those who are between the ages of 18 and 24 have a higher rate of vaccination than those between 25 and 54 years old.

Interviewers also asked all respondents if they had ever had a pneumonia shot. This shot is usually given only once or twice in a person's lifetime. Overall, 7.9% of respondents said they did not know whether or not they had ever had the shot. Of those who did claim to know, 26.4% of respondents said they had had a pneumonia shot. Table 9 also shows the percentage who reported having ever had a pneumonia shot for the various categories of sex, age, education and income. The table indicates that:

There were no significant differences based on gender, level of education, or level of income on whether or not individuals had ever had a pneumonia shot.

Table 9. Percentage Distribution of Respondents Who Had Flu Vaccination (Shot or Spray) in Past Year, Ever Had Pneumonia Shot, Had Hepatitis B Series by Demographic Characteristics

CHARACTERISTIC	Had Flu Vacc. in Past Year	Ever Had Pneumonia Shots	Had Hepatitis B Series
Overall	35.3%	26.4%	41.3%
Gender			
Male	30.4%	24.1%	35.1%*
Female	39.7%	28.4%	46.4%
Age			
18 - 24 yrs. old	27.1%***	0.0%***	87.5%***
25 - 34 yrs. old	13.5%	2.6%	59.4%
35 - 44 yrs. old	19.0%	14.4%	46.3%
45 - 54 yrs. old	26.9%	14.3%	34.8%
55 - 64 yrs. old	46.4%	35.3%	19.3%
65 - 74 yrs. old	75.0%	69.2%	21.3%
75 + yrs. old	82.9%	87.5%	6.3%
Education			
Less than H.S.	27.7%***	34.1%	34.4%*
High School Graduate	29.3%	27.0%	31.5%
Some College	28.7%	22.2%	48.9%
College Graduate	51.8%	26.8%	45.8%
Income			
Less Than \$20,000	31.4%	31.9%	49.2%***
\$20,000 - 34,999	38.4%	30.1%	15.4%
\$35,000 - 49,999	23.3%	20.3%	33.3%
\$50,000 - 74,999	33.3%	23.2%	46.9%
\$75,000 or More	41.1%	21.2%	52.4%

* p < .05; ** p < .01; *** p < .001

Significant differences were found across age groups with those in the older age groups being more likely to have had a pneumonia shot.

Beginning in 2006, CDC included a question on Hepatitis B in its immunization section.

For the 2006 Midland BRFs, 41.3% stated that they had completed the three shot Hepatitis B vaccination series. Statistical differences were found across demographic groups, as can be seen in Table 9.

Women were more likely than men to have had the series.

The likelihood of having had the series decreased with age.

Those with at least some college were more likely to have had the Hepatitis B series.

Those with income between \$20,000 and \$34,999 were the least likely to have had the series.

Breast Cancer Screening. Breast cancer is a very common and serious form of cancer affecting women. Advances in treatment have improved the prognosis for women who develop breast cancer, but the survival rates are considerably better among women in whom the cancer is detected early than among those where metastasis or spread has already begun. Early detection is key. There are three screening activities that are useful in detecting possible cancer of the breast: mammograms, clinical breast exams, and breast self-examinations. The 2006 Midland BRFs included questions about both mammograms and about clinical breast exams. The results for these will be discussed here.

Although there was some debate over the past five years as to the most appropriate schedule for mammograms, the American Cancer Society (ACS) currently recommends that women 40 or older (earlier if there is a family history of breast cancer) have annual mammograms and annual clinical breast exams (www.cancer.org). ACS recommends that women ages 20 to 39 have clinical breast examinations every three years and that all women 20 or older perform breast self-examinations at least monthly.

The 2006 Midland BRFs included two questions for female respondents about mammograms. Interviewers asked female respondents if they had ever had a mammogram. If they indicated they had, they were asked how long it had been since their last mammogram.

Overall, 90.9% of the female respondents 40 years old or older in the Midland BRFs indicated that they had had at least one mammogram. This is statistically about the same (i.e., the difference is less than the margin of sampling error for the survey result) as the 88.9% found among women 40 or older in the 2002 survey and almost identical to the 90.7% found in the 1998 survey.

Among the women in this age group who reported ever having had a mammogram, really eight out of ten (77.4%) indicated they had had a mammogram within the past year, 12.3% within the past two years, 3.3% within the past three years, 1.8% within the past five years, and 4.9% had not had a mammogram for five or more years.

Table 10 shows the percentages of women in various age groups, levels of education, and levels of income who reported ever having had a mammogram and, among those who had, the percentages that claimed to have had the mammogram within the past year.

Table 10. Percentage Distribution of Females Age 40 Yrs. or Older Who Have Ever Had Mammogram, Had Mammogram in Past Year by Demographic Characteristics

CHARACTERISTIC	Ever Had Mammogram	Had Mammogram In Past Year ^a
Overall	90.9%	77.4%
Age		
40 - 44 yrs. old	85.2%**	73.9%
45 - 54 yrs. old	90.4%	73.9%
55 - 64 yrs. old	97.4%	78.9%
65 - 74 yrs. old	88.2%	77.4%
75 + yrs. old	87.0%	84.2%
Education		
Less than H.S.	68.8%	100.0%
High School Graduate	92.3%	71.7%
Some College	91.5%	81.4%
College Graduate	95.5%	78.0%
Income		
Less Than \$20,000	88.5%	69.6%
\$20,000 - 34,999	96.0%	68.0%
\$35,000 - 49,999	94.4%	88.2%
\$50,000 - 74,999	79.3%	81.8%
\$75,000 or More	93.0%	81.6%

^a Of those who reported ever having had a mammogram

* p < .05; ** p < .01; *** p < .001

The table indicates that:

Those between 55 and 64 years of age were the mostly likely to have reported ever having a mammogram.

There were no significant differences across levels of education or levels of income.

Among those who had ever had a mammogram, there were no significant differences across age groups, levels of education, or levels of income regarding the percentage who had had a mammogram within the past year.

Among the women 20 to 39 years of age, 24.9% had at least one mammogram. There was no statistically significant difference between those who reported a member of their family had been diagnosed with breast cancer and those who did report a family history of cancer among women 20 to 39 years of age. Among these younger women, 49.9% said they had a mammogram within the past year and an additional 27.0% reported having one within the past two years.

Interviewers also briefly described a clinical breast exam and then asked all women whether or not they had ever had such an exam. Among all women 20 years of age or older, 96.0% said they had had at least one clinical breast exam. Of these, 72.3% claimed to have had their most recent exam within the past year, 14.3% within the past two years, 3.7% within the past three, 5.5% within the past five, and for 4.2% it had been five or more years.

Table 11 shows the percentages of women 20 or older who reported ever having had a clinical breast exam and, if so, the percent who had it within the past year among the various age groups, levels of education, and levels of household income. The table indicates that:

Women in the oldest age group were less likely than others to report ever having had a clinical breast exam.

Women with less than a high school degree were much less likely to report having ever had a clinical breast exam than were women with more education.

Women with household incomes of \$20,000 or less were the least likely to report ever having had a clinical breast exam.

Among those who ever had a clinical breast exam, there were no significant differences across age groups, level of education or levels of income regarding the percentage who had the exam within the past year.

Altogether, women 40 or older would be regarded as following the early detection recommendations for breast cancer screening if they had both a mammogram and a clinical breast exam within the past year. Among all women 40 or older in the Midland BRFS sample, 45.9% reported having done both within the past year, 38.2% reported having had one or the other, while 15.9% had neither. This means that 84.1% of women 40 years of age or older in the study had at least one breast cancer screenings.

Cervical Cancer Screening. Another common cancer in women is cancer of the cervix. The test most commonly used to detect cervical cancer is a Pap smear or Pap test. The American Cancer Society recommends that all women begin getting annual Pap tests about three years after they begin having vaginal intercourse or by age 21, whichever comes first. If the newer liquid-based Pap test is used instead of the regular Pap test, ACS suggests the test needs only be done every other year. However, beginning at age 30, if a woman has had three normal Pap tests in a row, ACS suggests that the woman only needs to be screened every two to three years unless she

Table 11. Percentage Distribution of Females Who Ever Had Clinical Breast Exam, Pap Test, and as Recommended by Demographic Characteristics

CHARACTERISTIC	Clinical Breast Exam		Pap Test	
	Percent Ever Had	% w/in ^a Past year	% Ever Had	% w/in Past ^b Two Years
Overall	96.0%	72.3%	92.7%	61.4%
Age				
20 - 24 yrs. old	100.0%***	85.0%	100.0%	80.0%***
25 - 34 yrs. old	93.8%	73.3%	93.80%	82.6%
35 - 44 yrs. old	98.0%	63.8%	98.0%	70.8%
45 - 54 yrs. old	100.0%	74.5%	100.0%	68.1%
55 - 64 yrs. old	97.4%	76.3%	100.0%	39.5%
65 - 74 yrs. old	100.0%	66.7%	100.0%	41.2%
75 + yrs. old	73.9%	75.0%	91.3%	26.3%
Education				
Less than H.S.	77.8%***	76.2%	85.7%***	54.2%
High School Graduate	97.7%	75.6%	98.9%	60.0%
Some College	100.0%	67.1%	100.0%	56.0%
College Graduate	97.1%	74.2%	98.5%	72.7%
Income				
Less Than \$20,000	85.7%***	63.4%	91.7%*	50.0%
\$20,000 - 34,999	100.0%	71.4%	100.0%	58.3%
\$35,000 - 49,999	100.0%	82.1%	100.0%	67.9%
\$50,000 - 74,999	95.7%	75.0%	97.8%	59.1%
\$75,000 or More	100.0%	79.7%	100.0%	75.4%

^a Of those who ever had a clinical breast exam.

^b Of those who ever had a Pap test.

* p < .05; ** p < .01; *** p < .001

has other risk factors. Additionally, ACS suggests that women 70 or older who have had three or more normal Pap tests in a row and no abnormal tests for at least ten years could reasonably choose to discontinue cervical cancer screening altogether. Also, ACS suggests that women who have had a total hysterectomy (i.e., removal of both the uterus and the cervix) may choose to forego further screening for cervical cancer unless the hysterectomy was performed because of

cancer or a precancerous condition.

The 2006 Midland BRFs included three questions related to cervical cancer screening. In the first, interviewers asked all female respondents if they had ever had a Pap smear? Among all women 20 years of age or older 92.7% reported that they had. Table 11 shows the results for this question across age groups, levels of education, and levels of income. The table indicates that:

There was no statistical significant difference among age groups.

Women with less than a high school education were much less likely than others to have ever had a Pap test.

Women in households with less than \$20,000 annual income were less likely to have ever had a Pap smear than were those in households within the other income groups.

Among those women who said they had ever had a Pap test, 77.9% claimed to have had the test within the past two years (61.4% in the past year alone). Another 6.8% claimed to have had the test two to three years ago, 3.1% three to five year ago, while 12.2% said it had been five or more years since they last had a Pap test.

Table 11 shows the percentage of women who ever had a Pap smear who said they had one within the past two years. The table shows that:

The likelihood of having a pap test in the past two years decreases with age.

There were no statistically significant differences among women of differing levels of education or income in terms of having had a pap smear in the past two years.

Interviewers did ask all female respondents whether or not they had ever had a hysterectomy. Overall, 23.4% of women 20 or older claimed to have had a hysterectomy. However, none of the women under age 35 reported having had a hysterectomy, while 14.9% of those 35 to 44 said they had, compared to 30.7% of those 45 to 64 and 42.1% of those 65 or older.

Among the women who reported having had a Pap smear within the past two years, 16.1% said they have had a hysterectomy. Among those who said they had not had a Pap smear for two to three years, 33.3% said they have had a hysterectomy, 50.0% have had a hysterectomy among those who said they had not had a Pap smear for three to five years, while 58.1% of those who said they have not had a Pap smear for five or more years said they have had a hysterectomy.

Prostate Cancer Screening. Prostate cancer is one of the most common forms of cancer affecting men. It is most common among older men and tends to be a very slow growing cancer. The two procedures used to screen for possible prostate cancer are a digital rectal exam and the Prostate Specific Antigen test or PSA test. The PSA test is based on a blood test in which the level of a particular substance (Prostate-specific antigen) secreted by the prostate gland is measured. If the levels are higher than expected, it may indicate the presence of cancer in the prostate gland. A digital rectal exam involves a physician feeling the area near the prostate gland by inserting a gloved finger inside the patient's rectum for enlargement of the prostate or any nodules that might be growing in the area. The PSA test is probably a better indicator of the

possible presence of cancer, but neither is definitive. Together, they are effective screening tests.

The American Cancer Society recommends that all men begin having annual PSA tests and digital rectal exams at age 50. Men with other high risk factors, such as a family history of prostate cancer or being African American, should begin testing at age 45. If there are multiple high risk factors in a man's family, testing should begin at age 40.

In the 2006 Midland BRFS, interviewers asked all men 40 or older if they have ever had a PSA test. Overall, 61.4% of men in this age group reported to have ever had a PSA test. Of those who have, only 61.5% claimed to have had it within the past year, 22.9% within the past two years, 4.9% within the past three, 5.3% within the past five, and 5.4% said they had not had one for five or more years. This is, of course, related to how recently men had their most recent visit to a doctor for a check up. Of those who claimed to have had a check up within the past year, 73.9% said they had a PSA test within the past year.

Table 12 shows the percentages of men age 40 or older who said they ever had a PSA test and then the percentage of these who reported having had the test within the past year, both overall and within categories of age, education, and income. The table indicates that:

The likelihood of ever having a PSA test increased significantly with age except for those 75 years of age or older. Among those ever tested, there was no significant difference across age groups.

Those with no high school degree were the least likely to have had a PSA test in the past year. There were no significant differences among respondents in the likelihood of ever having had a PSA test based on respondents' levels of education.

There were no significant differences across levels of income in either the percentage who reported ever having a PSA test or those stating that they had a PSA test in the past year.

Interviewers asked the men 40 or older if they had ever been told that they have prostate cancer. Only 1.9% of the men in this age group said that they had. The men who said they had been diagnosed with prostate cancer were about equally likely as other men to report having had a PSA test in the past year.

After briefly describing the procedure, interviewers also asked men 40 or older if they had ever had a digital rectal exam. Overall, 82.6% of the men in this age group said they had. Of these, 46.7% claimed to have had a digital rectal exam within the past year, 17.9% within the past two years, 15.1% within the past three, 9.9% within the past five, and 10.4% said it had been five or more years.

Table 12 shows the percentages of men who reported ever having had a digital rectal exam and having had one in the past year broken down by age groups, levels of education, and levels of income. The table indicates that:

The likelihood of the respondent ever having a digital rectal exam significantly increased with age. The likelihood of having a digital rectal exam in the past year increased with age up through 55 to 64 years old age category, but then decreased.

Table 12. Percentage Distribution of Males (40 or older) Who Ever Had PSA Test, Digital Rectal Exam, as Recommended, by Demographic Group

	PSA TEST		Digital Rectal Exam	
	% Ever Had	% Had in ^a Last 1 Year	% Ever Had	% Had in ^b Last Year
Overall	61.4%	61.5%	82.6%	46.7%
Age				
40-44	30.0%***	66.7%	61.3%***	10.5%***
45-54	40.8%	50.0%	79.6%	43.6%
55-64	90.0%	63.0%	93.3%	70.4%
65-74	100.0%	76.5%	94.7%	61.1%
75+	88.2%	46.7%	100.0%	38.9%
Education				
< H.S.	36.4%	0.0%*	72.7%	50.0%
High School	60.5%	60.9%	76.3%	31.0%
Some College	58.5%	75.0%	81.0%	44.1%
College Grad	70.4%	57.9%	90.7%	55.1%
Income				
< \$20,000	61.5%	100.0%	84.6%	36.4%
\$20-34,999	59.3%	56.3%	82.1%	47.8%
\$35-49,999	57.9%	63.6%	65.0%	53.8%
\$50-74,999	62.5%	54.5%	75.0%	33.3%
>\$75,000	58.5%	56.3%	88.7%	46.8%

^a Of those who ever had a PSA test.

^b Of those who ever had a digital rectal exam.

* p < .05; ** p < .01; *** p < .001

There were no significant differences among men regarding either the percent who said they ever had a digital rectal exam or those who had a digital rectal exam in the past year across levels of education or household income.

Colorectal Cancer Screening. Cancer of the lower intestine, colon and rectum is fairly common in both men and women. There are several different procedures that can be used to screen for early signs of this cancer. The American Cancer Society recommends that, beginning at age 50, both men and women should do one of the following:

Have an annual fecal occult blood stool test, or

Have a flexible sigmoidoscopy every five years, or
Have both a and b above, or
Have a double-contrast barium enema every five years, or
Have a colonoscopy every ten years.

The 2006 Midland BRFS asked questions about fecal occult blood stool tests and sigmoidoscopies and colonoscopies.

After briefly describing it, interviewers asked both males and females 50 years of age or older if they had ever had a blood stool test using a home kit. Two thirds of the respondents (65.9%) in this age group said they had. Of the men in this age group, 57.3% said they had had the test as did 72.1% of the women. The difference between men and women was statistically significant. Those between 50 and 54 years old were the least likely to have ever had test.

Those who said they had ever had a blood stool test were asked how long it had been since their last test. Only four out of ten (40.8%) of these respondents said they had one within the past year, 21.4% said it was within the past two years, and another 20.9% said it had been within the past five years. But, for 16.3% it had been five or more years since their last blood stool test.

Table 13 shows the percentages of respondents 50 or older who reported ever having had a blood stool test and, of these, the percentages who had one less than two years ago among the categories of sex, age, level of education, and level of income. The table indicates that:

Females were more likely than men and those between the ages of 50 and 54 years of age were also more likely than the other age groups to have ever had a blood stool test.

There was no statistically significant difference found across levels of education or income.

Among respondents 50 years of age or older, there was no significant differences regarding either the percent of those who said they had a blood stool test in the past year across sex, age groups, or levels of education or household income.

Interviewers also briefly described the procedures for a sigmoidoscopy and colonoscopy (i.e., “exams in which a tube is inserted in the rectum to view the bowel for signs of cancer or other health problems”) and then asked respondents if they had ever had one of these exams. This was only asked of respondents 50 years of age or older.

Among all 50+ year old respondents, 67.5% said they had had at least one of these exams. Interviewers asked those who had ever had the exam how long it had been since their last exam. Among these, 23.8% said it was within the past year, 21.4% within the past two years, 43.8% within the past five, 5.2% within the past 10 years, and 5.8% said it had been ten or more years.

Whether or not a person has been appropriately screened for colorectal cancer cannot be determined by simply whether they had an annual blood stool test or whether or not they had a sigmoidoscopy within the past five years. ACS recommends only one or the other. Furthermore ACS recommends that a colonoscopy only need be administered every ten years. And the ACS indicates it is preferable to have both an annual blood stool test and a sigmoidoscopy every five years. The question in the 2006 Midland BRFS did not differentiate whether an exam was a sigmoidoscopy or a colonoscopy which may make it difficult to determine exactly what proportion of respondents were actually appropriately screened for colorectal cancer. Nevertheless, for analysis purposes, we could consider a person as having had the **minimum**

Table 13. Percentage of Respondents (50 or older) Who Ever Had Blood Stool Test, Sigmoidoscopy/Colonoscopy, as Recommended, by Demographic Group

	Blood Stool Test		Sigmoidoscopy/Colonoscopy	
	% Ever Had	% Had w/in ^a Past 2 Yrs.	% Ever Had	% Had w/in ^b Past 5 Yrs.
Overall	65.9%	40.8%	67.5%	44.1%
Gender				
Male	57.3%*	41.2%	66.3%	46.7%
Female	72.1%	40.9%	68.0%	42.2%
Age				
50 - 54	44.9%**	54.5%	46.0%**	54.5%
55 - 64	75.0%	41.2%	72.1%	46.9%
65 - 74	76.9%	40.0%	76.9%	47.5%
75+	63.4%	30.8%	75.0%	26.7%
Education				
< H.S.	57.9%	40.0%	55.6%*	0.0%**
HS Grad	56.7%	38.5%	55.2%	37.8%
>HS	73.7%	41.9%	72.4%	57.1%
Coll>	70.8%	43.5%	78.8%	47.2%
Income				
< \$20,000	60.0%	44.4%	43.3%**	38.5%
\$20- 35	62.8%	42.3%	59.5%	30.8%
\$35-50	54.5%	61.5%	59.1%	53.8%
\$50-75	61.5%	25.0%	65.4%	47.1%
\$75,000>	71.9%	41.5%	81.0%	52.1%

^a Of those who ever had blood stool test.

^b Of those who ever had sigmoidoscopy or colonoscopy.

* p < .05; ** p < .01; *** p < .001

recommended colorectal cancer screening if they had either had a blood stool test less than two years ago **or** had a sigmoidoscopy/colonoscopy less than five years ago. We could consider a person as having the **preferred** colorectal cancer screening if they had had a blood stool test less than two years ago **and** had a sigmoidoscopy/colonoscopy less than five years ago.

Among all respondents 50 years of age or older, 80.4% reported having had the minimum

colorectal cancer screening, while only 23.0% reported having the preferred screening. Males were much more likely than females (90.1% vs. 73.8%) to get at least the minimum recommended screening. The likelihood of having the minimum screening also increased with level of education and incomes, but did not differ significantly across age groups. There were no significant differences in terms of having the preferred screening based on sex, age, level of education, or level of income.

HIV/AIDS. The 2006 Midland BRFSS also included questions related to being tested for HIV/AIDS. These questions were only asked of respondents who were younger than 65 years old. The HIV risk factor question was modified to include Hepatitis B factors and is now asked of all respondents.

When asked if they had ever been tested for HIV, only 32.6% of all respondents under age 65 said they had themselves ever been tested (excluding any testing as a part of a blood donation). Respondents 44 years of age or younger were more likely than others to be tested, as were those with a less than a high school degree. Also, the more children in a household, the more likely the respondent had been tested. There were no statistically significant differences based on sex, marital status, or income.

In 2006, an additional question on the new HIV rapid test was added for those who had a HIV test in the past year. Of those who had a HIV test in the past year, 12.8% of them had the rapid test. Those between the ages of 35 and 54 years old were more likely to have the rapid test than respondents in the other age groups. Those with less than a high school degree were also more likely than their counterparts to have the rapid test.

Over three out of 10 (31.6%) who said they had ever been tested could not remember when they were last tested, but, of those who could remember, 54.4% said they were last tested within the past five years.

Of those ever tested, 38.6% said they were most recently tested at a private doctor or HMO office, 23.3% said they were tested at a clinic, 17.7% said they were tested at a hospital, and 4.3% were tested at a drug treatment facility, 2.6% were tested in jail or prison, 2.1% were tested at counseling and testing site, 1.6% were tested at home, and 9.7% said they were tested somewhere else.

The question that had been previously asked in the HIV section about whether they had either used intravenous drugs, been treated for a sexually transmitted or venereal disease, given or received money or drugs in exchange for sex, or had anal sex without a condom within the past year was changed in 2006 and moved to the vaccination section. It is now used to evaluate both HIV and Hepatitis B risk factors and is asked of all respondents, regardless of age. The question now includes participation in other risk behaviors as well, including having multiple sex partners, testing positive for HIV or having sex with anyone that could answer yes to the question.

Only 1.6% of all these respondents indicated that they had done at least one of these in the past year. The percentage increases to 2.0% when those 65 years of age or older are removed. This is the same percent as 2002 even though additional risk factors have been added to the question. Three-quarters (75.0%) of the 8 people who said they had done at least one of these high risk activities in the past year and were under 65 years old said they have ever been tested for HIV. Projected to the total population of adults in the county, this suggests that there may be 254 (\pm 348) adults in Midland County who have engaged in at least one of these very high risk activities in the last year alone who have never been tested for HIV.

Health Behaviors

Another portion of the overall 2006 Midland BRFSS concerned respondents' activities that have fairly direct links to their risk of developing major cardiovascular diseases, cancers, other diseases, or of sustaining significant injuries. These are collectively referred to as health risk behaviors and include tobacco use, alcohol consumption, seatbelt use, weight status, level of physical activity, dietary habits, and falls that may have resulted in injury. The findings of the 2006 survey on these topics will be summarized and discussed in this section of the report.

Cigarette Smoking. The links between cigarette smoking and cancer (especially lung cancer), heart disease, and various respiratory problems have been well established for many years now. But just as continued smoking increases individuals' risks of experiencing one or more of these health problems, quitting smoking reduces the risks.

Interviewers asked all respondents whether or not they had smoked at least 100 cigarettes (roughly five packs of cigarettes) in their entire life. If they said they had, then interviewers asked respondents whether they now smoke cigarettes every day, some days, or not at all. Those who currently smoke at least some days are counted as current smokers. Those who have smoked 100 cigarettes in their lifetime but claim not to smoke at all now are counted as former smokers. And, those who said they have not smoked at least 100 cigarettes in their lifetime are counted as having never smoked.

Overall, 20.8% of Midland County adults were current smokers, 27.0% were former smokers, and 52.2% have never smoked. That means that 56.4% of those who have ever been smokers [$27.0\% \div (20.8\% + 27.0\%) = .564$: the Quit Ratio] have quit. The 20.8% current smoking rate is slightly lower than the 21.9% reported by the Michigan BRFSS for 2005 statewide and slightly lower, but not significantly so, than the 25.1% found in 2002. Projecting to the whole adult population of the county, we would estimate that there are currently 13,212 adults who smoke in Midland County ($\pm 2,240$). We would also estimate that there are 17,150 ($\pm 2,450$) former smokers whose health risks from smoking are decreasing.

Table 14 shows the percentages of the Midland County population that are current smokers, former smokers, never smokers, and the proportion of those who have ever smoked who have quit (labeled the Quit Ratio) overall and for categories of various demographic groups. The percentages listed under "Current" are the prevalence rates of smoking for Midland County residents of various types. The percentages listed under "Never" help to assess which demographic groups have been more or less resistant to smoking and are therefore at lower levels of risk. And the proportions listed under Quit Ratio can help identify those groups who either have been more difficult to persuade to stop smoking or groups that have not been adequately reached with anti-smoking information or policies or smoking cessation assistance.

The table indicates that:

Males were more likely than females to have ever smoked and to be current smokers. Males who ever smoked were less likely than females to have quit (.53 vs. .60)

In general, younger respondents were more likely to be current smokers than were older respondents, but older respondents were similarly likely as younger to have ever smoked, indicating that quit ratios tended to increase with age.

Table 14. Percentage Distribution of Current Smoking Status by Demographic Characteristics

CHARACTERISTIC	Smoking Status			n	Quit Ratio
	Current	Former	Never		
Overall	20.8%	27.0%	52.2%	506	.56
Gender					
Male	24.8%	27.8%	47.4%	234	.53
Female	17.3%	26.2%	56.3%	271	.60
Age***					
18 - 24 yrs. old	26.5%	6.1%	67.3%	49	.19
25 - 34 yrs. old	29.9%	18.4%	51.7%	87	.38
35 - 44 yrs. old	23.0%	20.0%	57.0%	100	.47
45 - 54 yrs. old	23.1%	25.0%	51.9%	104	.52
55 - 64 yrs. old	13.0%	39.1%	47.8%	69	.75
65 - 75 yrs. old	5.8%	48.1%	46.2%	52	.94
75 + yrs. old	11.9%	45.2%	42.9%	42	.79
Education***					
Less than H.S.	30.4%	28.3%	41.3%	46	.48
High School Graduate	30.5%	26.0%	43.5%	154	.46
Some College	18.8%	27.3%	53.9%	165	.59
College Graduate	10.1%	27.3%	62.6%	139	.73
Income***					
Less Than \$20,000	44.9%	18.8%	36.2%	25	.30
\$20,000 - 34,999	24.1%	25.3%	50.6%	44	.53
\$35,000 - 49,999	22.4%	29.3%	48.3%	28	.57
\$50,000 - 74,999	19.7%	26.3%	53.9%	41	.57
\$75,000 +	14.3%	27.1%	58.6%	82	.65

* p < .05; ** p < .01; *** p < .001

In general, those with more education were less likely to be current smokers than were those with less education, they were less likely to have ever started smoking, and they were more likely to have quit if they ever started.

There were also statistically significant differences in smoking status across levels of income with those with higher incomes being somewhat more likely to have never smoked and more likely to quit if they did start.

Interviewers asked those who are current smokers if they had stopped smoking for one day or longer during the last year because they were trying to quit smoking. Among the current smokers, 51.2% said they had. Roughly half of all current smokers reported having tried to quit smoking within the past year.

Of those who were current smokers, 75% stated that they smoked every day. There was no significant difference between males and females, or among age groups and levels of education. There was a significant differences among income groups, but no consistent pattern to the differences.

Alcohol Consumption. The 2006 Midland BRFSS included several questions regarding alcohol consumption frequency and quantities, and frequencies of driving after drinking. The Centers for Disease Control's Behavioral Risk Factor Surveillance System (BRFSS) classifies individuals' drinking statuses based on a combination of quantity and frequency of drinking. To measure this, two questions were asked. The first asked respondents how many days in the past month they had consumed any beer, wine, wine coolers, cocktails, or liquor. Those who indicated that they had not had any drinks in the past month were categorized as "abstainers" and were not asked the follow-up questions. Those who said they had were asked how many drinks they drank on average on the days when they did drink alcoholic beverages.

These answers were then converted into the average number of drinks per day they had over the past 30 days. BRFSS currently focuses primarily on those it classifies as heavy drinkers, i.e., males who drink an average of more than 2 alcohol drinks per day all month and females who drink an average of more than one alcohol drink per day all month. This is a different classification scheme than was used in 1998. In 1998, individuals who reported no drinks in the previous month were classified as non-drinkers, those who consumed 1 to 9 drinks in the month were classified as light drinkers, those who consumed 10 to 59 drinks in the month were classified as moderate drinkers, and those who consumed 60 or more (an average of 2 or more per day) were classified as heavy drinkers. BRFSS no longer bothers to break out those who are not heavy drinkers into other separate categories (i.e., abstainer, light, and moderate) as they had in 1998. Based on the 2006 BRFSS classification scheme, 5.9% of Midland adults were heavy drinkers. This prevalence rate for heavy drinking would be projected to represent 3,748 adults ($\pm 1,300$).

For summary purposes, we have created three drinking status classifications: abstainers (0 drinks in a month), light/moderate drinkers (greater than none but 2 or fewer per day for males or one or fewer per day for females), and heavy drinkers.

Table 15 shows the results of this analysis for categories of sex, age, education, and income. The table indicates that 46.5% of Midland adults were classified as abstainers. This is projected to represent 29,536 adults county wide ($\pm 2,752$). The table also indicates that:

There was no significant difference between males and females in terms of their drinking status.

Generally, younger respondents were both less likely than older respondents to be abstainers and more likely to be heavy drinkers.

Those who had no college education were more likely than those who had at least some college education to be abstainers.

Those with greater incomes were less likely than their lower income counterparts to be abstainers, but also less likely to be heavy drinkers, i.e., they were more likely to be light/moderate drinkers.

Interviewers also asked those respondents who drank at least some alcohol in the past month how many times in that month they had five or more drinks on a single occasion. This is what BRFSS refers to as “**binge drinking**.” Although it is unlikely that an individual would accurately, reliably recall whether they had done this three times or four times, or six times or eight, we do expect that individuals would reliably recall whether or not they had done this at all. Therefore, BRFSS usually only reports the percentage of respondents who engaged in binge drinking *at least once* in the past month.

In 2005, BRFSS redefined binge drinking based on sex. Males were still considered “binging” if they consumed 5 or more drinks on a single occasion, but females were considered binging if they consumed 4 or more drinks. Both the current BRFSS method and the one used in 2002 have been calculated for 2006 to allow equivalent comparisons. The conversion of the 2006 calculation to the 2002 standard for women was based on an additional question that asked what was the maximum number of drinks the respondent consumed on a single occasion in the past 30 days. If this number was less than 5 for the female respondents, they were not considered to have “binged” under the old formula.

The 2006 Midland BRFSS found that 17.5% of all respondents reported “binging” on at least one occasion in the past 30 days. This is higher than the 16.7% found in the 2005 Michigan BRFSS, but still within the margin of error. The value under the 2002 method was 15.4% of the respondents claimed to have had five or more alcohol drinks on a single occasion one or more times in the past month. This would be projected to equal 11,116 ($\pm 2,097$) adults binge drinking at least once county wide in a month.

Table 16 shows the percentage of respondents who reported having engaged in binge drinking at least once in the previous month among the categories of sex, age, level of education, and level of household income. The table indicates that:

Males were more likely than females (21.2.7% vs. 14.2%) to report having engaged in binge drinking at least once in the past month. The difference is more dramatic under the old classification scheme (21.2% vs. 10.4%).

Table 15. Percentage Distribution of Current Drinking Status by Demographic Characteristics

CHARACTERISTIC	Current Drinking Status			N
	Abstainer	Light/Moderate	Heavy	
Overall	45.6%	48.5%	5.9%	499
Gender				
Male	43.6%	51.5%	4.8%	227
Female	47.3%	45.8%	7.0%	273
Age ***				
18 thru 24	42.9%	44.9%	12.2%	49
25 thru 34	40.7%	50.0%	9.3%	86
35 thru 44	45.9%	52.0%	2.0%	98
45 thru 54	35.7%	61.2%	3.1%	98
55 thru 64	44.9%	46.4%	8.7%	69
65 thru 74	57.7%	40.4%	1.9%	52
75 or Older	65.0%	30.0%	5.0%	40
Education***				
Less than H.S.	74.4%	18.6%	7.0%	43
High School Graduate	49.7%	43.9%	6.5%	155
Some College	42.5%	50.0%	7.5%	160
College Graduate	34.1%	61.6%	4.3%	138
Income ** *				
Less Than \$20,000	63.8%	24.6%	11.6%	69
\$20,000 - 34,999	54.8%	40.5%	4.8%	84
\$35,000 - 49,999	37.0%	55.6%	7.4%	54
\$50,000 - 74,999	41.3%	49.3%	9.3%	75
\$75,000 or more	28.6%	69.3%	21.1%	140

* p < .05; ** p < .01; *** p < .001

Table 16. Prevalence of Binge Drinking, and Drinking and Driving by Demographic Characteristics

CHARACTERISTIC	Binge Drank			Drove After Drinking Too Much	
	% > 1 in Past Month			% > 1 in Past Month	N
	New ^a	Old	N		
Overall	17.5%	15.4%	500	3.5%	508
Gender					
Male	21.2%*	21.2%***	231	5.9%**	236
Female	14.2%	10.4%	268	1.5%	272
Age					
18 thru 24	22.4%***	22.4%***	49	6.1%	49
25 thru 34	31.0%	26.2%	84	4.5%	89
35 thru 44	20.4%	18.0%	98	4.0%	99
45 thru 54	21.2%	20.2%	104	5.8%	104
55 thru 64	8.8%	7.4%	68	0.0%	69
65 thru 74	1.9%	1.9%	53	0.0%	52
75 or Older	4.9%	2.4%	41	2.4%	41
Education					
Less than H.S.	19.1%	19.1%	47	0.0%*	46
High School	15.2%	14.4%	151	2.5%	157
Some College	23.6%	19.9%	161	6.7%	163
College Graduate	12.2%	10.0%	139	2.1%	140
Income					
Less Than \$20,000	15.9%	15.9%	69	0.0%	69
\$20,000 - 34,999	14.1%	14.1%	85	4.7%	86
\$35,000 - 49,999	25.5%	25.5%	55	8.3%	60
\$50,000 - 74,999	20.5%	10.7%	73	2.7%	74
\$75,000 or more	20.7%	19.1%	140	2.9%	140

^aSince 2005, CDC has redefined “binged” drinking based on the R’s sex with women defined as “binging” at 4 or more drinks and men still being defined at 5.

* p < .05; ** p < .01; *** p < .001

Younger respondents were much more likely to report binge drinking than were older respondents.

There were no significant differences in binge drinking rates across levels of education or across income groups.

Respondents who were single or divorced were two to three times more likely to report binge drinking than were respondents who are married or widowed. Also, 80.0% of those classified as heavy drinkers reported binge drinking at least once in the previous month, compared to 13.5% of those classified as light or moderate drinkers.

Interviewers also asked respondents who drank any alcohol in the previous month how many times they drove when they had perhaps had too much to drink. For all practical purposes, this is an indicator of the prevalence of **drunk driving**. The 2006 Midland BRFSS found that 3.5% of all respondents claimed to have done this at least once in the previous month. This would represent approximately 2,223 (\pm 1,014) adults in the total county population.

This 3.5% prevalence rate is much larger than the 1.6% drunk driving rate found for Midland County in 2002, but is still within the confidence interval.

Table 16 also shows the prevalence of drunk driving among the various demographic groups. The table indicates that:

Males were almost four times more likely than females to report having driven when they had too much to drink.

There was a significant difference in rates across education groups, although no clear pattern. Those with some college were more likely than their counterparts to have driven drunk in the past month.

There were no significant differences across age or income groups in the prevalence of drunk driving.

Again, those classified as heavy drinkers were much more likely than others to have done this. While only 3.7% of those classified as light-moderate drinkers reported having driven when they had too much to drink, over one quarter (27.6%) of those classified as heavy drinkers said they had done this at least once in the past month.

Seatbelt Use. Traffic accidents represent one of the leading causes of early death; however, wearing a seatbelt has been shown to be an extremely effective means of reducing the risk of death or injury from such accidents. In the interview, interviewers asked respondents how often they wear their seatbelts when they drive or ride in a car. Overall, 90.8% of respondents said they always wear their seatbelt, while 7.9% said they wear it nearly always, 0.9% sometimes, 0.2% seldom, and 0.3% said they never wear their seatbelt (Table 17).

Since we cannot know whether we will be in an accident during a particular driving trip or not, the only way to minimize risk of death or injury from an accident is to always wear it. Consequently, BRFSS classifies individuals as being “at risk” because of seatbelt non-use if they

Table 17. Percentage Distribution of Seatbelt Use by Demographic Characteristics

CHARACTERISTIC	% Who Use Seatbelts. . .					N
	Always	Nearly Always	Some-Times	Seldom	Never	
Overall	90.8%	7.9%	0.9%	0.2%	0.3%	509
Gender***						
Male	84.9%	12.2%	2.1%	0.4%	0.4%	238
Female	95.9%	4.1%	0.0%	0.0%	0.0%	271
Age**						
18 thru 24	81.3%	18.8%	0.0%	0.0%	0.0%	48
25 thru 34	92.1%	7.9%	0.0%	0.0%	0.0%	89
35 thru 44	88.0%	12.0%	0.0%	0.0%	0.0%	100
45 thru 54	92.4%	4.8%	2.9%	0.0%	0.0%	105
55 thru 64	89.9%	7.2%	2.9%	0.0%	0.0%	69
65 thru 74	100.0%	0.0%	0.0%	0.0%	0.0%	52
75 or Older	90.2%	4.9%	0.0%	2.4%	2.4%	41
Education*						
Less than H.S.	95.7%	4.3%	0.0%	0.0%	0.0%	46
High School Graduate	85.3%	14.7%	0.0%	0.0%	0.0%	156
Some College	92.1%	4.9%	2.4%	0.0%	0.6%	164
College Graduate	93.6%	5.0%	0.7%	0.7%	0.0%	141
Income						
Less Than \$20,000	98.6%	1.4%	0.0%	0.0%	0.0%	69
\$20,000 - 34,999	89.5%	8.1%	2.3%	0.0%	0.0%	86
\$35,000 - 49,999	86.7%	13.3%	0.0%	0.0%	0.0%	60
\$50,000 - 74,999	89.3%	8.0%	1.3%	0.0%	1.3%	75
\$75,000 or more	92.1%	6.4%	0.7%	0.7%	0.0%	140

* p < .05; ** p < .01; *** p < .001

give any response to this question other than “always.” Thus, the 2002 Midland BRFSS found that 9.2% of the respondents were “at risk” because they do not always wear their seatbelt when riding or driving in a car. This represents 5,844 (\pm 1,595) adults when projected onto the county’s total adult population.

The 90.8% that reported always wearing their seatbelt is higher than the 87.3% found in the 2002 Midland survey. This increase is not statistically significant.

Table 17 shows the percentage distribution of responses regarding how often individuals

wear seatbelts in the car both overall and within categories of various demographic characteristics. The table indicates that:

Females were much more likely to always wear seatbelts than were males.

Those between 18 and 24 years old were least likely to always wear their seatbelt and those between 65 and 74 were the most likely to wear always their seatbelt.

Those with a high school degree were somewhat less likely to report wearing their seatbelt than the other educational groups.

There was no statistical differences between income categories in terms of seatbelt use.

As in the 2002 Midland BRFS, those who admitted to driving at least once under the influence during the past month were significantly less likely to wear their seatbelt (66.7%) than those who did not (91.6%). Unlike in 2002, there was no significant difference in always wearing seatbelts between those who were heavy drinkers and others or those who binged at least once in the past 30 days and others. The new seatbelt law may have modified the behavior of these individuals.

Weight Status - Adult. Obesity has been shown to be a risk factor for a variety of health problems, including cardiovascular disease, a variety of cancers, osteoarthritis, and gallbladder disease. As a result, there is considerable concern about reducing obesity, particularly through dietary improvements such as reducing total caloric intake and especially the percentage of calories consumed from fats, and through increased physical activity. In this section, we will examine the results of the 2006 Midland BRFS regarding weight status for adults.

The 2006 Midland BRFS included a question about the respondent's weight and another question about the respondent's height. These can be used to calculate the Body Mass Index score (BMI) for adults, defined as the individual's weight (measured in kilograms) divided by the square of the individual's height (measured in meters). For example, a 120 pound female who is 5' 4" tall would have a BMI score of 20.6. That same female at 150 pounds would have a BMI score of 25.7. A 160 pound male who is 5' 10" would have a BMI score of 23.0. That same male at 210 pound would have a BMI score of 30.1.

Based on a variety of health outcome studies, BRFS classifies adults as obese if their BMI score is 30.0 or greater, as overweight if their BMI score is greater than or equal to 25.0 but still less than 30.0, and as acceptable if their BMI score is less than 25.0. Compared to those not overweight, health risks are greater for those who are overweight, but especially for those who are obese.

The 2006 Midland BRFS found that only 39.0% of the respondents had BMI scores in the acceptable range, while 31.3% were overweight, and 29.7% were obese. Though the percentage of those in the acceptable range did not change significantly from 2002 (38.2%), the percentage classified as obese did (21.6% vs. 29.7%). Table 18 shows the percentage distribution of weight

Table 18. Percentage Distribution of Weight Status by Demographic Characteristics

CHARACTERISTIC	Current BMI Weight Status			N
	Acceptable Weight	Overweight	Obese	
Overall	39.0%	31.3%	29.7%	484
Gender				
Male	33.6%	34.1%	32.3%	231
Female	44.0%	28.6%	27.4%	252
Age***				
18 - 24 yrs. old	55.3%	19.1%	25.5%	47
25 - 34 yrs. old	54.8%	25.0%	20.2%	84
35 - 44 yrs. old	31.6%	30.5%	37.9%	95
45 - 54 yrs. old	37.8%	29.6%	32.7%	98
55 - 64 yrs. old	20.9%	38.8%	40.3%	67
65 - 74 yrs. old	25.5%	49.0%	25.5%	51
75 + yrs. old	53.8%	28.2%	17.9%	39
Education***				
Less than H.S.	11.1%	37.8%	51.1%	45
High School Graduate	47.1%	26.8%	26.1%	153
Some College	37.5%	29.6%	32.9%	152
College Graduate	41.4%	36.1%	22.6%	133
Income*				
Less Than \$20,000	19.1%	36.8%	44.1%	68
\$20,000 - 34,999	43.2%	33.3%	23.5%	81
\$35,000 - 49,999	37.3%	35.6%	27.1%	59
\$50,000 - 74,999	34.2%	34.2%	31.5%	73
\$75,000 or More	44.2%	27.5%	28.3%	138

* p < .05; ** p < .01; *** p < .001

status overall and within categories of sex, age, education and income. The table indicates that:

No significant difference was found between males and females. When overweight and obese are combined together into a single category, women are more likely to be within the acceptable weight range.

Generally, older respondents were less likely to be in the acceptable weight category and somewhat more likely to be in the obese category. This did not hold true for those in the 75+ years old group which may simply be those in the acceptable range are more likely to make it to this age group.

There were statistically significant differences in the prevalence of being overweight or obese across levels of both education and income but in neither case was the pattern of the difference clear. Although those with less than a high school degree and/or those with less than \$20,000 annual household income were much less likely to be in the acceptable weight range.

When the 1998 survey was conducted, BRFSS used different BMI scores to classify individuals as overweight or obese. In fact, BRFSS used a different BMI score for males than females in classifying individuals as obese. Table 26 at the end of this report shows the comparison for 1998 and 2002, but not for 2006 using the 2002 calculations.

Weight Status - Child. Weight and height were also collected for the randomly selected child, one year of age or older, in each household containing at least one child. This information was used to calculate the child's BMI. Using the child's age in months and sex, the age/sex-specific percentile for that BMI is then determined. CDC's defines a child's weight status based on the age/sex-specific percentiles with unhealthy being less than 5th percentile, healthy is 5th percentile to less than 85th percentile, at risk for overweight is 85th percentile to less than 95th percentile, overweight is 95th percentile and above. CDC does not define an obese category for children.

The majority of children were in the healthy range (62.6%), but 22.8% of the children were overweight and an additional 14.6% were at risk to be overweight. If one was to use the 99th percentile as the indicator of obesity, than 6.3% of the children would qualify.

Very few demographics were collected for the child (sex and age) and, since the respondent was not necessarily a parent of the children, the respondent's demographic characteristics cannot be used for analyzing the child's weight status. Girls were more likely to have weight within the healthy range than were boys.

Respondents were also asked to evaluate the child's weight status on a scale from very underweight to very overweight. All of the respondents that stated that the child was slightly overweight or very overweight were correct according to the child's BMI score. No one identified a child that was not overweight as being overweight. Over a quarter (28.8%) of the children that were perceived as being within a healthy range were actually either at risk for overweight (12.5%) or overweight (16.3%).

Physical Activity - Adult. Numerous studies have shown the health benefits of even moderate physical activity, particularly in reducing the risk of cardiovascular health problems. Some studies have indicated that the risks of such problems are appreciably greater for those who engage in no physical activity even compared to those with sedentary lifestyles.

Interviewers asked all respondents if, other than their regular job, they had participated in any physical activities or exercises in the past month, such as running, calisthenics, golf, gardening, or walking for exercise. Those who said they had not have been categorized as

inactive.

Among all respondents, 26.0% were inactive. Table 19 shows the percentage of respondents within each of the categories of sex, age, education, and income who were inactive. The table indicates that:

There were no statistically significant differences in the prevalence of inactivity between males and females or across age groups.

Those with less education were more likely to be inactive than were those with more education.

Generally, those with less income were more likely to be inactive than were those with greater income. Those with income between \$35,000 and \$49,999 also had a high rate of inactivity.

Also, there were statistically significant differences in the percentages who were inactive among those who were classified as obese, overweight, and not overweight (acceptable). As would be expected, those in the acceptable weight classification were more likely to be active.

Interviewers asked those respondents who were employed at the time of the interview (68.3% of all respondents) if their physical activity at work would be described as mostly sitting or standing, mostly walking, or mostly heavy labor or physically demanding work. Among all employed respondents, 63.2% said their work mostly involves sitting or standing, 24.6% said mostly walking, 12.2% said mostly heavy labor. Those who had work that was mostly sitting were statistically more likely to be overweight or obese than those who had a job that was either physically demanding or required a lot of walking.

Interviewers asked all respondents whether or not in a usual week they do any moderate physical activities (i.e., the kind that would cause a small increase in breathing or heart rate such as brisk walking, bicycling, vacuuming, or gardening) outside of work for at least ten minutes at a time. Almost nine out of ten respondents (86.6%) said that they did. About two thirds of the respondents (64.5%) said they participated in moderate physical activities for ten or more minutes at a time three or more days a week and 48.5% said they did so five or more days per week. There were no differences between males and females in the percentages who participate in moderate activities five or more days a week, nor was there between educational levels or income categories. There was a significant difference among age groups with those between 18 and 24 years old being the least likely to participate in moderate exercise five or more days a week.

Among those who reported participating in moderate activities, the amount of time respondents claimed they did these activities per occasion varied from ten minutes to six hours, but the median length of time they reported was 30 minutes (with the average being 52.0 minutes). There was no significant difference in the amount of time spent doing moderate activities between those who were overweight and those that were not.

Interviewers asked respondents whether or not they engaged in any vigorous physical activities outside of work (i.e., activity that causes large increases in breathing or heart rate such as running, aerobics, or heavy yard work) outside of work for at least 10 minutes at a time in a usual week. More than half the respondents (51.4%) said that they did. Almost one out of six of those respondents (59.6%) said they engaged in vigorous physical activity for at least ten minutes

Table 19. Prevalence of Physical Inactivity by Demographic Characteristics

CHARACTERISTIC	% Physically Inactive	N
Overall	26.0%	510
Gender		
Male	23.2%	237
Female	28.6%	273
Age*		
18 - 24 yrs. old	8.2%	49
25 - 34 yrs. old	27.0%	89
35 - 44 yrs. old	24.0%	100
45 - 54 yrs. old	26.9%	104
55 - 64 yrs. old	33.3%	69
65 - 74 yrs. old	26.4%	53
75 + yrs. old	39.0%	41
Education***		
Less than H.S.	63.8%	47
High School Graduate	34.4%	157
Some College	14.0%	164
College Graduate	17.0%	141
Income***		
Less Than \$20,000	47.8%	69
\$20,000 - 34,999	27.9%	86
\$35,000 - 49,999	46.7%	60
\$50,000 - 74,999	21.6%	74
\$75,000 or More	12.1%	141

p < .05; ** p < .01; *** p < .001

at a time three or more days per week, while 15.6% reported participating five or more days a week. Males and those with \$75,000 or more income were more likely than others to participate in vigorous exercise five or more days per week. Among those who did participate, the median length of time they reported exercising per day was 40 minutes (with the average being 56.2 minutes), with the durations varying from only ten minutes to six hours.

Questions about walking as a form of exercise or transportation were added to the 2006 Midland BRFS. Respondents were asked if they walked 10 minutes or more at a time in a usual week. Four out of five respondents (80.7%) stated that they did. Of those who had previously stated that they did not do any physical activity, 61.7% stated that they walked for at least 10 minutes at a time at least once in the average week. Those between the ages of 18 and 24 years of

age were the most likely to walk, as well as those with a high school diploma compared to other educational levels. Those with less than a high school degree were the least likely to walk as were those who were overweight. There was no significant difference between males and females, or among income groups.

The average number of days per week that the respondents walked was 4.3 days for an average of 37.8 minutes per day. Walking duration ranged from ten minutes to six hours and ranged from one to seven days per week. Respondents of different ages differed by how many days a week they walked, with those between the ages of 18 and 24 walking the least number of days and those between 65 and 74 walking the most. There was no statistical difference between males and females, or among levels of income, education, or weight status. The length of time walked was significantly different by educational level and income levels. Those with a high school degree or those with income between \$20,000 and \$34,999 walked the longest on average and those with less than a high school degree or with less than \$20,000 of household income walked the least amount of time.

Respondents were also asked how quickly they walked. The majority (60.7%) stated that they walked briskly or very fast. Only age significantly differentiated whether or not someone walked briskly or faster. Those between the ages of 18 and 24 were most likely to walk fast and those 75 years of age or older were least likely.

Physical Activity - Child. Respondents were also asked about the amount of time that the child spent doing computer games and watching television each day. For those children between one and five years old, they were also asked about how many hours of active play the child had each day.

The average number of minutes spent involved in electronic entertainment was 107.6 with a range of zero minutes to six hours. The average time for active play was 139.3 minutes with a range of zero minutes to eight hours. There was no difference by age or sex for either of these variables.

Neither of these variables were statistically significant in predicting the child's weight status, possibly due to the small number of children that were in the sample. Also, there was no significant correlation between the number of hours spent actively playing and the time spent with electronic entertainment.

Nutrition and Diet. The 2006 Midland BRFs included a series of questions designed to assess the nutrition and dietary intake of adults. Part of the reason was to see the extent to which adults consume the recommended numbers of servings of several types of foods, particularly fruits and vegetables. Interviewers asked respondents how many times per day, week, month, or year they drink fruit juices, eat fruit, eat green salad, eat potatoes (not including french fries, fried potatoes, or chips), eat carrots, and eat other vegetables. For each of these, we have computed the per day equivalent of the respondent's answer. For example, four times a week was converted to $4/7$ or 0.57 servings per day, or three times a month was converted to $3/30$ or 0.1 servings per day.

Table 20 shows the median and mean number of servings per day for each of these various foods reported by respondents. The table indicates that respondents, on average, reported eating more servings of other vegetables each day than any of the other fruit/vegetable listings, with fruit and fruit juice the second and third greatest average number of servings per day.

We have also summed the computed average numbers of servings of fruit juice, fruits, green salad, potatoes, carrots, and other vegetables to represent the average total number of servings of fruits and vegetables the respondent consumes. The table indicates that the median number of servings of fruits and vegetables per day respondents reported eating was 3.1 with an average of 3.4. This is less than the five servings of fruits and vegetables per day that is recommended and approximates what was found in 2002 (median=3.8, mean=3.7). In fact, only 16.5% of the Midland County respondents reported eating five or more servings of fruits and vegetables per day. A significant drop from the 22.3% found in 2002. This is also significantly

Table 20. Number of Servings per Day for Various Types of Fruits and Vegetables

Type of Food	Mean	Median	St.Dev	Low	High	n
Juice	.48	.29	.51	.00	3.0	446
Fruit	.82	.43	.87	.00	5.0	447
Green Salad	.42	.29	.37	.00	3.1	447
Potatoes	.32	.29	.29	.00	3.0	446
Carrots	.24	.14	.32	.00	4.0	446
Other Vegetables	1.09	1.00	.90	.00	8.0	445
Total Servings of Fruits & Vegetables	3.39	3.14	1.95	.03	13.6	435

lower than the 22.8% found in the 2005 Michigan BRFS.

Table 21 shows that among all respondents, 6.8% reported eating no or less than one serving of fruits and vegetables per day, 37.8% reported eating one or more but less than three, and 39.0% reported eating three or more but less than five servings per day. The mean number of servings was 3.4.

Table 21 also shows the percentage distribution of respondents who ate various numbers of servings per day, the average servings of fruits and vegetables among categories of sex, age, level of education, and level of income. That table indicates that:

Females tended to report eating more fruits and vegetables per day than did males.

In general, older respondents tended to report eating more fruits and vegetables than did younger respondents.

Table 21. Number of Servings per Day for Various Types of Fruits and Vegetables.

	Servings of Fruits & Vegetables				Mean # Servings
	%Eating LT 1	%Eating 1-2.9	%Eating 3-4.9	%Eating 5+	
Overall	6.8%	37.8%	39.0%	16.5%	3.4
Sex					
Male	11.3%	41.4%	37.4%	9.9%***	3.0***
Female	2.6%	34.6%	40.3%	22.5%	3.8
Age					
18-24	13.2%	21.1%	65.8%	0.0%***	2.9***
25-34	11.5%	57.7%	23.1%	7.7%	2.6
35-44	11.6%	38.4%	40.7%	9.3%	3.0
45-54	2.2%	43.0%	35.5%	19.4%	3.5
55-64	5.2%	29.3%	41.4%	24.1%	3.8
65-74	2.4%	26.2%	42.9%	28.6%	4.4
75+	0.0%	28.6%	37.1%	34.3%	4.2
Education					
Less than H.S.	14.9%	38.3%	29.8%	17.0%***	3.0***
High School	4.0%	45.2%	40.3%	10.5%	3.1
Some College	10.8%	43.9%	32.4%	12.9%	3.1
College Grad	1.6%	23.4%	48.4%	26.6%	4.2
Income					
< \$20,000	7.7%	36.9%	43.1%	12.3%***	3.3***
\$20-34,999	15.9%	44.9%	27.5%	11.6%	2.8
\$35-49,999	1.8%	58.9%	19.6%	19.6%	3.1
\$50-74,999	7.9%	41.3%	34.9%	15.9%	3.1
>\$75,000	1.7%	22.9%	54.2%	21.2%	4.0

* p < .05; ** p < .01; *** p < .001

Those with more education tended to report eating more fruits and vegetables than did those with less education.

Generally, more affluent respondents reported eating more fruits and vegetables than did less affluent respondents.

Neither the mean number of fruits and vegetables consumed nor if they ate the minimum

five fruits/vegetables a day recommendation was significantly related to weight status. Those who were overweight/obese were just as likely to eat too few fruits/vegetables as those who were of healthy weight (81.5% vs 81.6% respectively).

Falls. Respondents 45 years of age or older were asked how many times they had fallen within the past 3 months and how many of those falls had resulted in some form of injury that required seeing a doctor or limited regular activities for one or more days. Of those 45 years of age or older, 13.2% had at least one fall in the past 3 months. Of those who had fallen, the mean number of falls was 1.8 with a median number of falls of 1.0. There were no statistically differences across demographic groups on whether or not the respondent had at least one fall. Although those with less than a high school education are not any more likely to have at least one fall, they reported having had more falls than their more educated counterparts.

Of those who had fallen at least one, over one third (33.8%) had at least one fall that resulted in injury. The mean number of falls that resulted in injury was 0.63. For those who had been injured, two-thirds did not have an additional falls that resulted in injuries. The only statistical difference across demographic groups in regards to a fall resulting in injury was within the educational categories. Those with less than a high school degree were more likely to have a fall that resulted in an injury. Those between the ages of 65 and 74 years old had more falls that resulted in injury even though they did not appear to have to have any more falls than the other age groups. Those with less than a high school degree also had more falls that resulted in injury than did the other educational groups. Given the cell size for this analysis (n=32), this finding should be interpreted with caution.

Other Health Related Issues

End of Life. Only those who participated in the Midland BRFSS supplemental study were asked about hospice care. More than nine out of 10 respondents (92.6%) stated that they had heard of hospice care. This number is important given that 14.1% of respondents had been a caregiver of a terminally ill person within the past five years.

The awareness of Midland residents about hospice care differed significantly across demographic groups (Table 22).

- Women were more likely than men to know about hospice and to have been caregivers for a family member or close friend who was terminally ill.
- Those between the ages of 18 and 24 years old, as well as those with less than a high school degree were less likely than their counterparts to know about hospice. Those in the 18 to 24 year age group were also less likely to have been a caregiver for a terminally ill person. Those with less than a high school education were also the group most likely to have been a caregiver for a terminally ill family member or friend, the differences across age groups was not significant.

Table 22. Percentage Distribution of Hospice Knowledge and Caregiving

CHARACTERISTIC	Heard of Hospice	Caregiver In Past 5 Years
Overall	92.6%	14.1%
Gender		
Male	89.5%*	9.5%*
Female	95.4%	17.9%
Age		
18 - 24 yrs. old	76.9%***	0.0%*
25 - 34 yrs. old	90.9%	10.3%
35 - 44 yrs. old	97.7%	21.6%
45 - 54 yrs. old	89.6%	12.5%
55 - 64 yrs. old	100.0%	18.6%
65 - 74 yrs. old	97.9%	17.8%
75 + yrs. old	92.1%	13.5%
Education		
Less than H.S.	80.9%**	17.4%
High School Graduate	92.6%	15.0%
Some College	92.1%	13.0%
College Graduate	96.9%	12.0%
Income		
Less Than \$20,000	90.6%**	35.9%***
\$20,000 - 34,999	92.1%	12.0%
\$35,000 - 49,999	83.9%	8.8%
\$50,000 - 74,999	95.2%	15.6%
\$75,000 or More	98.3%	9.2%

* p < .05; ** p < .01; *** p < .001

- Those whose income was between \$35,000 and \$49,000 were less likely to know about hospice care than respondents with other incomes. Those with the lowest income were the most likely to have been a caregiver to a terminally ill family member or friend.

General Preparedness. For the 2006 Midland BRFSS, a portion of the CDC's General Preparedness Module was included. Only 16.6% of the Midland supplemental study respondents said that they felt that they were very prepared for a large scale disaster, while 65.0% said they were somewhat prepared, and 18.3% said that they were not prepared at all (Table 23).

Table 23: Percentage Distribution of Preparedness for Large Scale Disaster

CHARACTERISTIC	How Well Prepared			Have Evacuation Plan	Would Evacuate
	Very	Some-what	Not at all		
Overall	16.2%	65.5%	18.3%	31.8%	96.5%
Gender					
Male	17.0%	71.4%	11.7%**	31.2%	96.0%
Female	15.4%	60.3%	24.4%	32.3%	97.0%
Age					
18 thru 24	20.5%	79.5%	0.0%***	42.9%	100.0%*
25 thru 34	20.0%	49.3%	30.7%	26.7%	90.7%
35 thru 44	14.3%	63.1%	22.6%	29.8%	96.6%
45 thru 54	7.4%	68.4%	24.2%	25.0%	96.5%
55 thru 64	13.6%	76.3%	10.2%	32.2%	98.3%
65 thru 74	27.3%	66.0%	6.4%	37.0%	100.0%
75 or Older	21.6%	64.9%	13.5%	45.9%	100.0%
Education					
Less than H.S.	29.3%	53.7%	17.1%	53.7%**	100.0%
High School Graduate	13.3%	68.1%	18.5%	36.6%	94.7%
Some College	19.1%	63.2%	17.6%	29.2%	94.0%
College Graduate	11.1%	69.0%	19.8%	23.0%	99.2%
Income					
Less Than \$20,000	28.3%	40.0%	31.7%***	61.8%***	95.3%
\$20,000 - 34,999	15.1%	78.1%	6.8%	26.0%	98.6%
\$35,000 - 49,999	7.0%	68.4%	24.6%	31.6%	90.6%
\$50,000 - 74,999	17.5%	55.6%	27.0%	21.9%	96.8%
\$75,000 or more	13.6%	72.0%	14.4%	24.6%	97.4%

* p < .05; ** p < .01; *** p < .001

- Males were more likely to feel that they were somewhat prepared than females and females were more likely than males to feel totally unprepared.
- Those 18-24 years old were most likely to be at least somewhat prepared. Twenty-five to 34 year olds were the least likely of all to be prepared.

- Those with household incomes below \$20,000 were the most likely to be very prepared compared to the other income groups.

In terms of preparedness, respondents were asked if they had an evacuation plan. Only three out of ten (31.8%) had an evacuation plan in case of a large scale disaster. There was no difference on this between males and females, nor among age groups. The higher the level of education, the less likely respondents were to report having a plan in place. Similarly, those with the lowest income were the most likely to report having a plan in place.

Respondents were asked if they would evacuate, if ordered. Almost all of the respondents (96.5%) said that they would indeed evacuate if there was a large scale disaster. Those between 25 and 34 years old were the least likely report they would actually to evacuate. The primary reasons given for not evacuating, by those who reported that they would not, were concern about property (11.7%) and the need to evaluate the actual risk first (29.2%). Other responses could not be readily combined into categories.

When asked where they would look for information about the evacuation/disaster, respondents primarily claimed radio (53.7%) and television (31.0%). Respondents also said they would call for information or call 9-1-1 (9.3%), go to the internet (1.4%), or go to print media (0.4%) (Table 24). Sources of information they would rely on differed across age groups and levels of education, although there did not appear to be any clear pattern.

Respondents were also asked how they would communicate with family and friends if there was a large scale disaster. The primary response was cell phones (71.0%), followed by home telephones (22.7%), 2-way radios (1.3%), and e-mail (0.3%) (Table 25). Those 75 years of age or older were more likely than their younger counterparts to say they would use home phones and less likely than other to say that they would use cell phones. Those with a high school education or less were less likely to use cell phones than more educated counterparts. Those with lower incomes were more likely than more affluent respondents to say they would use a regular home phone and less likely to use a cell phone.

Table 24: Percentage Distribution of Disaster Information Sources

CHARACTERISTIC	% Information Sources						N
	Television	Radio	Internet	Print Media	Phone/ Call 911	Other	
Overall	31.0%	53.7%	1.4%	0.4%	9.3%	4.1%	425
Gender							
Male	30.4%	55.9%	0.5%	1.0%	10.3%	0.0%	204
Female	31.4%	51.6%	2.2%	0.0%	8.5%	6.2%	223
Age**							
18 thru 24	52.8%	22.2%	5.6%	0.0%	19.4%	0.0%	36
25 thru 34	32.9%	52.1%	1.4%	0.0%	13.7%	0.0%	73
35 thru 44	26.8%	63.4%	2.4%	1.2%	3.7%	2.4%	82
45 thru 54	32.6%	54.7%	0.0%	1.1%	8.4%	3.2%	95
55 thru 64	18.6%	72.9%	3.4%	0.0%	1.7%	3.4%	59
65 thru 74	27.3%	47.7%	0.0%	0.0%	9.1%	15.9%	44
75 or Older	32.4%	35.3%	0.0%	0.0%	20.6%	11.8%	34
Education*							
Less than H.S.	10.3%	59.0%	0.0%	0.0%	19.9%	12.9%	39
High School Graduate	40.0%	43.8%	0.8%	0.0%	10.8%	4.6%	130
Some College	30.0%	54.6%	2.3%	0.0%	10.8%	2.3%	130
College Graduate	28.8%	60.8%	2.4%	0.8%	4.8%	2.4%	125
Income							
Less Than \$20,000	25.5%	45.5%	1.8%	0.0%	18.2%	9.1%	55
\$20,000 - 34,999	32.8%	50.7%	1.5%	0.0%	10.4%	4.5%	67
\$35,000 - 49,999	29.8%	56.1%	0.0%	0.0%	12.3%	1.8%	57
\$50,000 - 74,999	32.3%	54.8%	1.6%	0.0%	9.7%	1.6%	62
\$75,000 or more	22.9%	68.6%	0.8%	0.8%	4.2%	2.5%	118

* p < .05; ** p < .01; *** p < .001

Table 25: Percentage Distribution of Method of Communicating with Family/Friends

CHARACTERISTIC	% Who Would Likely Use Method					N
	Regular Home Telephone	Cell Phone	E-mail	2-Way Radios	Other	
Overall	22.7%	71.0%	0.3%	1.3%	4.6%	433
Gender						
Male	24.6%	70.0%	0.5%	2.9%	1.9%	207
Female	21.1%	71.4	0.4%	0.0%	0.9%	227
Age***						
18 thru 24	10.3%	76.9%	0.0%	12.8%	0.0%	39
25 thru 34	13.3%	80.0%	0.0%	0.0%	6.7%	75
35 thru 44	27.9%	70.9%	0.0%	0.0%	1.2%	86
45 thru 54	22.1%	72.6%	0.0%	0.0%	5.3%	95
55 thru 64	18.6%	67.8%	1.7%	0.0%	11.9%	59
65 thru 74	22.2%	71.1%	0.0%	2.2%	4.4%	45
75 or Older	57.6%	39.4%	0.0%	0.0%	3.0%	33
Education*						
Less than H.S.	27.9%	60.5%	0.0%	0.0%	11.6%	43
High School Graduate	28.5%	62.3%	0.0%	3.8%	5.4%	130
Some College	16.5%	78.9%	0.0%	0.8%	3.8%	164
College Graduate	21.6%	76.0%	0.8%	0.0%	1.6%	141
Income**						
Less Than \$20,000	33.9%	52.5%	0.0%	1.7%	11.9%	59
\$20,000 - 34,999	37.1%	58.6%	0.0%	0.0%	4.3%	70
\$35,000 - 49,999	19.3%	80.7%	0.0%	0.0%	0.0%	57
\$50,000 - 74,999	20.6%	68.3%	1.6%	0.0%	9.5%	63
\$75,000 or more	13.6%	78.8%	0.8%	4.2%	2.5%	118

* p < .05; ** p < .01; *** p < .001

Health Status and Behaviors: 2006 vs. 2002

As a summary, Table 26 provides an overview of the results regarding twelve health status and health risk behavior indicators for the 2006 survey compared to the 2002 survey. Each of these has already been discussed in greater detail. Here we simply examine whether or not there is any evidence across multiple indicators as to whether there has been any change – particularly improvement – over the past five years. The numbers from the 1998 survey are included for longitudinal reference.

The margin of sampling error for the 2006 survey is about $\pm 4.3\%$ or less. Each individual question also has its own margin of error given the frequency distribution of responses and the number of individuals that answered the question. For some questions, the noted difference between 2002 and 2006 is below the 4.4% margin of error of the study, but is larger than the question specific margin of error. For each question, the question specific margin of error will be used to evaluate the significance of the difference. We will also look at the general direction of difference even if the magnitude of difference may not be significant.

The percentage of respondents whose self-reported health rating was fair to poor in 2006 is significantly greater than that reported in 2002. The percentage in 2006 is close to that found in 1998.

The decrease in the percentage of current smokers is also statistically significant. There has been a general decline in the smoking rate since 1998.

The level of physical inactivity has statistically increased since 2002, although the percentage of the population that is overweight has stayed roughly the same. This is a larger increase than found in either 1998 and 2002.

The number of individuals who received a flu vaccination increased statistically over the past five years. The numbers from 1998 to 2002 showed no significant difference.

The percentage of respondents who always wear their seatbelt also increased significantly. The increase is more than 10% since 1998 and is probably due, at least in part, to the seatbelt regulations that have been put in place since then.

The increase in the percentage of respondents who are uninsured is significant. The percentage found in 2006 is identical to that found in 1998. With the economic problems of the state, an increase from 2002 would be expected.

No statistical differences were found between the 2002 figures and 2006 figures for prevalence rates associated with drinking behaviors, being overweight, getting annual medical check-ups, or receiving a mammogram.

Table 26. Comparison of Various Prevalence Rates for Midland County Adults, 2002 vs. 2006

Health Condition	Percentage of Respondents			Change in %
	1998	2002	2006	
1. Rate own health as only fair or poor	14.3%	7.8%	12.0%	+4.2
2. Overweight (based on BMI classifications used in 1998)	32.4%	40.0%	–	–
Overweight (based on current BMI classifications)	55.3	61.8%	61.0	-0.8
3. Current Smoker	26.5%	25.1%	20.8%	-4.3
4. Physically Inactive	19.6%	18.0%	26.0%	+8.0
5. Heavy Drinker (as classified in 1998; 60 or more drinks per month regardless of gender)	4.2%	4.7%	–	–
Heavy Drinker (as classified currently; more than 60 per month for males, more than 30 per month for females)	5.2%	5.3%	5.9%	+0.6
6. Binge Drank at least once in past month (2002 method - 5 or more drinks regardless of sex)	–	16.7%	15.4%	-1.3
Binge Drank at least once in past month (2006 method - 4 or more for females, 5 or more for males)	–	–	17.5%	–
7. Drove after having too much to drink	2.0%	1.6%	3.5%	+1.9
8. Always wear seatbelt	80.2%	87.3%	90.8	+3.5
9. Have No Health Insurance	10.2%	6.9%	10.2%	+3.3
10. Had medical check-up in past year	66.2%	70.4%	70.2	-0.2
11. Had influenza vaccination in past year	25.9%	27.9%	35.3%	+7.4
12. Ever had mammogram (women 40+ years of age)	90.7%	88.9%	90.9	+2.0

Some of the changes in the health indicators for Midland County residents have been positive steps forward, while others have represent a step or two backwards. The increase in seatbelt use, influenza vaccination and the decrease in the percentage of current smokers all increase life expectancy and quality of life. The increase in physical inactivity may be an indicator of future increasing numbers of weight related health issues straining the health system. This, with the increased number of individuals that are uninsured and relying on free health services and emergency room care for their health needs, increases demands on the limited resources of the health department and others providing health related services. The increased percentage of individuals that identified their health as fair or poor also suggests increased burden on health services.