

**The  
Livingston County  
Behavioral Risk Factor Survey,  
2004:  
Summary Report**

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# **The Livingston County Behavioral Risk Factor Survey, 2004: 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 data from the current survey will be used to assess health status in Livingston County and the rural and suburban geographic areas of the county, will identify segments of the population that are at greater risk, and guide resource allocation and programming decision-making within the public health community to optimize efforts toward 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 Livingston County residents to others throughout the state. And, similar surveys of residents of this county in the future will be able to compare their results to these in order 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 Livingston 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 larger samples than they actually would have to pay for. Livingston County elected to take advantage of this opportunity in 2004.

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 Livingston 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 Livingston County BRFS interview, sampling design, and outcomes. Finally, the bulk of this report will summarize the results of the survey on the major health-related issues covered by the survey.

## THE SURVEY METHODOLOGY

### The Survey

The 2004 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 states are at liberty to raise the standards further if they wish.

The BRFSS is generally designed to collect interviews throughout the calendar year in quarterly field periods. Livingston County was able to secure their funding of a supplemental over-sampling of the county within the Michigan BRFSS in late 2003 so that it could be a participating county beginning at the end of the first quarter of the 2004 data collection year. Thus, the Livingston County BRFSS data set includes interviews throughout the calendar year collected through MBRFS and the over-sampling of the Livingston county during the last three-quarters of the calendar year.

**The Sample.** MBRFS is designed to be a representative cross-sectional telephone survey of English-speaking, non-institutionalized adults in Michigan. These individuals are found using random digit dial sampling procedures to ensure that all residents have a chance to be included in the study. In 2004, a total of 4,943 interviews were completed with randomly selected individuals 18 years of age or older as a part of the MBRFS sample. Since the population of the Livingston County makes up only 1.58% of the total population of the state, only 90 cases of the 4,943 interviews completed in the 2004 MBRFS were with residents of Livingston County. The county health department requested that an additional 600 interviews be completed within the county beyond what would be expected in the MBRFS cross-sectional sample. OSR completed the 600 interviews requested and combined them with the additional 90 interviews from the MBRFS completed with Livingston County for a total of 690.

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 2004, 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 Livingston County BRFSS from Survey Sampling, Inc., using the same design specifications. To keep the calling as efficient as possible, both Genesys and Survey Sampling 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 Survey Sampling coded each phone number accordingly. As recommended by CDC, those phone numbers prescreened by Genesys or Survey Sampling as business or non-working numbers were not called by OSR.

Sample files were delivered to OSR by Genesys or Survey Sampling prior to each quarter's field period. 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 Survey Sampling, create variables needed, and then write the files out into a predetermine layout.

OSR arranged for Genesys and Survey Sampling 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. OSR asked that Genesys and Survey Sampling not provide information as to which subscriber and address corresponded to which phone number however so that anonymity was maintained.

**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 statewide estimates, the unequal rates of selection of households between the two 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 is 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.

## **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 question added by MDCH for the Michigan survey. Additionally, if counties elected to purchase over-samplings 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. Livingston County elected to drop some of the state-added questions in favor of other BRFSS questions otherwise not being included in the 2004 MBRFS interview and a number of other questions of particular interest to Livingston 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 thirty-one sections as follows:

- Section 1: Health Status
- Section 2: Healthy Days
- Section 3: Health Care Access
- Section 4: Exercise
- Section 5: Environmental Factors
- Section 6: Excess Sun Exposure
- Section 7: Tobacco Use
- Section 8: Alcohol Consumption
- Section 9: Asthma
- Section 10: Diabetes
- Section 11: Oral Health
- Section 12: Immunization
- Section 13: Demographics, including height and weight
- Section 14: Veteran Status
- Section 15: Women's Health
- Section 16: Prostate Cancer Screening
- Section 17: Colorectal Cancer Screening
- Section 18: Family Planning
- Section 19: Disability
- Section 21: Firearms
- Section 27: Childhood Asthma
- Section 30: Binge Drinking

\*\*\*\*\* Livingston County-added questions \*\*\*\*\*

- Section M1: Hypertension & Cholesterol
- Section M2: Servings of Fruits and Vegetables
- Section M3: Moderate and Vigorous Physical Activity
- Section M4: Dental Care
- Section M5: Basic Needs
- Section M6: Work/Home Smoke Exposure

- Section M7: Assistance with Daily Activities
- Section M8: Caregiving Responsibilities
- Section M9: Prescription Drug Coverage
- Section M10: Depression

**Preparation of The CATI Interview Instrument.** OSR collected the telephone interviews 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.

To administer an interview via CATI, the entire interview script along with the introductory scripts and callsheet must be programmed. The interview as programmed in CASES was contained in 17 separate files, some parts 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 interview and OSR's CATI program files which contain them.

**Table 1.** Household Interview Components and Their CATI Program File Locations

Module	CATI Program Module(s)
<i>Household and Eligibility Screening Livingston BRFSS-2004 Informed Consent and the Entire Interview</i>	<i>auto0.q, auto1.q, auto2.q, auto3.q</i>
<i>CATI re-entry on callback</i>	<i>cdc.q, Module.q, Append.q 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, FNL assignments (case disposition coding)</i>	<i>auto8.q, auto9.q</i>
<i>Supplemental Interviewer Instructions and Coding Categories</i>	<i>Referenc.q</i>
<i>Electronic help screens for Interviewers &amp; Supervisors</i>	<i>Autohelp.q</i>
<i>Supervisor access to reassign next question</i>	<i>Oopsloq.q</i>
<i>Script for message to leave on answering machines</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.** Since all of the interviewers who worked on this project were experienced interviewers, only study-specific training was required. For this, the interviewers were provided the study background, question objectives, and sample management of this particular project. The study-specific training included an explanation of the survey and its

purpose, descriptions and explanations of the respondent selection procedures to be implemented, a paper copy of the question-by-question objectives, a list of appropriate responses to most frequently asked questions, and a paper copy of the CATI interview instrument for each interviewer. These were reviewed during the study specific training, uncommon terms or phrases were clarified, definitions were provided, and special probes identified.

**Interviewing Schedule.** Data collection for this project occurred on a quarterly basis throughout the year. Each quarter's interviewing was spread across nearly the entire three months in 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 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 30% of the calling took place during the weekdays daytime and 70% 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-2004 survey but often supplemented it with hand recorded appointment cards interviewers would turn in to supervisors for subsequent distribution at the time of the appointment to decrease further the possibility of inadvertently missing a firm call back appointment.

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 interviewer 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 project managers. 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 supervisory review indicated that calls had not been attempted during some of the time blocks, then the number was returned for up to three additional attempt. If no contact was made by the 18th attempt, the number was retired and a final disposition code assigned appropriately. 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.

**Refusals.** In the case of refusals, the project manager or a project manager assistant 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 respondents to guide subsequent conversion efforts. OSR attempted conversions with all except those where the initial refusal from the respondent or informant appeared to be absolute. The CDC protocol for 2004 required that all refusals (except hard refusals) be called 15 times unless there is a second refusal before reaching the 15<sup>th</sup> call.

**Supervision And Monitoring.** OSR maintained an interviewer to supervisor ratio for this project of 8:1. OSR assigned two supervisors to each evening and weekend calling period and at least one supervisor to each daytime shift. The supervision during the daytime shifts was routinely supplemented further by the Survey Operations Manager and the Project Manager.

A supervisors' 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 that enables the manager or supervisor to monitor the interviewer's interviewing method, adherence to protocol, and data entry during interviews.

For this study, a shift supervisor or a senior interviewer 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**

Near the end of the data collection period, OSR staff output the text of responses to questions that were open-ended or which provided an “other” response for which respondents were asked to specify what “other” they meant. Once any additionally needed coding categories were constructed for these, 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 path<sup>1</sup>. This then constitutes the certified data set for each completed interview. Only completed interviews can be cleaned and certified in this manner.

Once all interviews were completed, coded, and certified, and all non-interview cases had been reviewed and assigned final disposition codes, the data files for all cases were output for additional processing.

**Outcomes.** Over the course of the four quarters of 2004, OSR interviewers completed a total of 600 interviews for the Livingston County Behavioral Risk Factor Survey, which then were supplemented by 90 interviews completed with county residents in the 2004 MBRFS. The typical completed interview lasted approximately 18.7 minutes. Completed interviews required an average of 5.5 call attempts in order to produce the completed interview, but ranged from as few as a single call attempt to as many as 27 call attempts.

Including the interviews for the Michigan BRFSS, the field dates for the ‘four’ quarters were as follows:

First Quarter:	1/30/2004 through 4/07/2004
Second Quarter:	4/1/2004 through 7/12/2004
Third Quarter:	7/3/2004 through 10/21/2004
Fourth Quarter:	10/1/2004 through 12/31/2004

The list of disposition categories and the numbers of phone numbers that were assigned each of the final dispositions is presented in Table 2 below.

BRFSS provided instructions in the 2002 Data Quality Report as to how response rates are to be calculated using these categories. For the Livingston BRFSS, these calculations indicate that the completion rate was 49.0%. The refusal rate was 10.3%.

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<sup>1</sup> 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. 2004 Livingston BRFs Distribution of Final Outcome Distributions**

<b>Outcome Category</b>	<b>Number</b>
110 completed INV/W	600
120 partial complete	7
210 termination in q	0
220 refusal after R selected	195
230 R never reached or did not start q	90
240 R away from residence	5
250 Language prob after R selected	0
260 R phys/ment unable	23
<b>270 Hang up or termination after # adults recored but before R select</b>	<b>0</b>
<b>280 HH contact after # adults recorded but before R selected</b>	
305 residents away for duration	3
310 HU or term, unknown elig	327
315 HH contact, elig not known	147
320 Language prob before R selected	2
325 Phys/ment prob before R selected	7
330 HU, term, unknown if residence	175
<b>332 Contact, unknown if private residence</b>	
335 MAD, message indicates HH	19
340 Tele Tech barrier, message indicates HH	0
345 MAD, unsure if HH	114
350 Tele Tech barrier, unsure if HH	17
355 Phone num changed from HH to non-work during calling	66
360 No Answer	35
365 Busy	11
<b>370 On Never Call List</b>	
<b>405 Out of state</b>	
410 HH, no eligible respondent	142
420 Not Private residence	390
430 FAX, Data, Modem line, no contact	3
440 Fast Busy	4
450 Non-Working, Disconnected	1348
<b>Total</b>	<b>3,730</b>

**Weighting and Data Analysis.** 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 three counties' populations of adults. Initially, the data set was weighted by the inverse of the probability of selection, taking into account the two strata (listed numbers, not-listed numbers from 1+ listed banks), 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 education based on the 2000 Census of Livingston County ([www.midata.msu.edu/](http://www.midata.msu.edu/)). The final working sample size was 690. In general, the overall margin of sampling error for a sample of 690 is  $\pm 3.7\%$  or less. There were 267 interviews completed among respondents in rural geographic area of the county and 333 interviews completed among respondents in the suburban geographic area of the county. The margin of sampling error for a sample of 267 is  $\pm 6.0\%$  and the margin of sampling error for a sample of 333 is  $\pm 5.4\%$ .

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

Table 3. Demographic Profile of the Weighted Sample, by Geographic Area Within the County

Characteristic		Livingston County	Within the County	
			Rural	Suburban
Sex	Male	49.1%	48.7%	50.8%
	Female	50.9%	51.3%	49.2%
Age	18-24	8.0%	7.5%	8.4%
	25-34	17.6%	18.0%	16.8%
	35-44	24.2%	23.2%	24.3%
	45-54	20.2%	17.6%	21.9%
	55-64	14.1%	17.6%	12.3%
	65+	15.8%	16.1%	16.2%
Race	White	97.6%	98.5%	97.5%
	Other	2.4%	1.5%	2.5%
Education	< High School	8.1%	7.1%	9.9%
	High School Grad.	28.0%	37.8%	23.1%
	Some College	36.2%	38.6%	34.5%
	College Grad. +	27.7%	16.5%	32.4%
Marital Status	Single (never married)	11.9%	9.4%	13.8%
	Married	71.2%	68.5%	71.0%
	Divorced	7.7%	11.2%	6.0%
	Widowed	4.5%	5.6%	4.2%
	Separated	1.4%	0.0%	2.1%
	Unmarried couple	3.3%	5.2%	3.0%
Employment Status	Employed for wages	48.4%	45.9%	47.6%
	Self-Employed	14.1%	14.3%	15.3%
	Out of work (> 1 year)	0.7%	1.1%	0.3%
	Out of work (< 1 year)	2.2%	1.5%	2.7%
	Homemaker	12.4%	11.7%	13.2%
	Student	5.4%	3.4%	6.6%
	Retired	15.0%	19.9%	12.9%
	Unable to Work	1.7%	2.3%	1.5%
Children <18 in Home	Yes	46.0%	37.1%	48.8%
	No	54.0%	62.9%	51.2%
Household Income	< \$20,000	7.3%	9.3%	6.9%
	\$20,000 - 34,999	16.3%	18.5%	15.6%
	\$35,000 - 49,999	11.1%	9.7%	11.3%
	\$50,000 - 74,999	25.0%	27.8%	25.1%
	\$75,000 +	40.3%	34.7%	41.1%



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 Livingston County BRFSS to those for the state as a whole. 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.

Decisions as to differences among categories of respondents are based on the test statistic  $\chi^2$  (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. 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, an asterisk 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. When an asterisk appears, it will mean that differences as great as observed would occur less than 5 times out of 100 as a result of only sampling error, and, therefore, probably indicate that these reflect actual differences rather than just sampling error.

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 counties 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 2000 U.S. Census as made available for Michigan counties through [http://factfinder.census.gov/home/saff/main.html? lang=en](http://factfinder.census.gov/home/saff/main.html?lang=en). The 2000 Census indicated that there were 110,355 adults (i.e., individuals 18 years of age or older) in Livingston County. The Census Bureau estimates the county's annual growth rate from 2000 to 2003 to have been 3.4%. Therefore, using this estimate growth rate, we projected the 2004 population to equal 125,289 adult residents.

## RESULTS

### Health Status

When asked to describe their current health, 57.0% of Livingston County adults said their health was either excellent (23.3%) or very good (33.7%). Table 4 shows the percentage distribution of responses for the county as a whole and for the two geographic areas (excludes the MBRFS cases). The percent claiming their health was only fair or poor was 11.8% for the county as a whole, and 12.0% and 11.7% for the two geographic areas respectively. Each of these is similar to the 12.5% reported among white respondents in the 2002 Michigan Behavioral Risk Survey.

Table 4. Percent Distribution of Perceived Health Status, by Area Within the County

Perceived Health Status	Overall	Within the County	
		Rural	Suburban
Excellent	23.3%	19.9%	25.2%
Very Good	33.7%	40.4%	30.9%
Good	31.5%	27.7%	32.1%
Fair	10.1%	10.5%	10.5%
Poor	1.4%	1.5%	1.2%
N =	690	267	333

Table 5 shows the percentage of respondents who rated their health as fair or poor broken down by gender, age, education, income and marital status. The table indicates that

Females were equally likely as males to report their health as only fair or poor.

Older respondents were more likely than their younger counterparts to judge their health as only fair or poor.

Generally, respondents with more education and those with greater income were less likely to describe their health as only fair or poor.

Respondents who were either married or were members of unmarried couples were least likely to rate their health as only fair or poor, while those who were currently divorced or separated were much more likely to rate their health this way.

Table 5. Percentage of Respondents Rating Their Health as Fair or Poor, by Demographic Background

Demographic Characteristic		% Reporting Health Fair or Poor
Area of County	Rural	12.0%
	Suburban	11.7%
Sex	Male	9.8%
	Female	13.1%
Age*	18-34	6.8%
	35-54	10.1%
	55-64	21.6%
	65+	13.8%
Education*	< High School	17.9%
	High School	16.1%
	Some College	12.4%
	College +	3.7%
Income*	< \$20,000	42.9%
	\$20,000 - 34,999	8.57%
	\$35,000 - 49,999	15.9%
	\$50,000 - 74,999	11.8%
	\$75,000 +	5.6%
Marital* Status	Single, Never Married	15.7%
	Married	9.2%
	Widowed	16.1%
	Divorced, Separated	25.8%
	Member Unmarried Couple	0.0%

\* Statistically significant,  $p < .05$

### **Days Health Was Not Good**

The interview contained several other questions through which to assess the general health status of the respondents. Three questions asked respondents to indicate the numbers of days in the past month that their health (physical and mental) was not good and the number of days in the past month that they were unable to do their usual activities because of poor mental or physical health.

In the county as a whole, the average number of days in the previous month respondents reported their physical health not being good (whether from illness or injury) was 3.1 (standard deviation = 7.7) and the average number of days they reported that their mental health was not good in this same time period was 3.7 (standard deviation = 7.5). In the rural area of the county,

the average number days respondents reported their physical health was not good was 2.1 (standard deviation = 6.2) while the average number of days they reported their mental health was not good was 2.2 (standard deviation = 5.5). In the suburban area of the county, respondents reported the average number of days of bad physical health to be 3.5 (standard deviation = 8.2) and the average number of days of bad mental health to be 4.2 (standard deviation = 8.1). That is, on average, respondents in the suburban area tended to report slightly greater number of days of both bad physical and mental health.

Both of these measures of ill health (i.e., the average number of days health was not good), however, somewhat distort what is typical. Both distributions are severely skewed. In fact, 70.4% of respondents in Livingston County reported that there were no days when their physical health was not good, while 10.9% reported their physical health was not good from 1 to 2 days. On the other hand, 6.9% of respondents reported their physical health was not good for all of the previous 30 days.

Similarly, 60.0% of respondents reported there were no days when their mental health was not good in the previous 30 days, while 11.4% reported it was not good between 1 and 2 days, and only 6.1% reported their mental health was not good 20 or more of the preceding 30 days.

While it is one thing to feel bad physically or mentally, it is quite another to be so impaired that one cannot function more or less normally. Respondents were asked how many days of the previous month poor mental or physical health kept them from doing their usual activities such as self-care, work or recreation. Whereas the previous two questions each provides a measure of prevalence and frequency, this question provides a measure of severity. Among those who had reported not feeling good physically at least one day in the previous month, the average number of days individuals reported not being able to do their usual activities because of poor health was 4.4. Nevertheless, 41.4% of these county respondents said there were no days their bad physical health prevented them from doing their usual daily activities.

Among those who had reported their mental health was not good at least one day during the previous month, the average number of days they said they could not do their usual activities was 2.8. with 60.6% of these reporting there were no such days. Thus, while experiences of bad mental health are somewhat more common in the population, they are also less often severe enough to be debilitating.

Individuals who assessed their health as being only “fair” or “poor” reported substantially larger numbers of days in the past month when their physical or mental health was not good. Those who described their health as only fair or poor reported an average of 12.9 days of bad physical health, 6.8 days of bad mental health, and 5.9 days their health limited their daily activities in the previous month compared to only 1.8 days of bad physical health, 3.2 days of bad mental health and 1.1 days of limited activities among those who described their health as good, very good, or excellent.

Table 6 shows the average number of days respondents of various demographic backgrounds reported their physical health and mental health were not good and the average number of days their daily activities were limited.

Table 6. Average Number Days Health (Physical, Mental) Was Not Good, Activities Limited, by Demographic Characteristics

Demographic Characteristic		Phys. Health Not Good <sup>1</sup> (Mean # Days)	Mental Health Not Good <sup>2</sup> (Mean # Days)	Limited Activities <sup>3</sup> (Mean # Days)
Overall		3.1	3.7	1.6
Area of County	Rural	2.1*	2.2*	1.7
	Suburban	3.5	4.2	1.6
Gender	Male	2.9	2.9*	1.6
	Female	3.2	4.3	1.7
Age	18-34	2.1*	5.6*	2.1*
	35-54	2.9	3.2	1.2
	55-64	5.4	4.7	2.5
	65-99	3.0	0.6	1.0
Education	< High School	5.4*	5.0*	4.0*
	H.S. Grad.	2.5	3.5	1.3
	Some College	3.5	4.9	2.0
	College Grad.	2.4	1.8	0.7
Income	< \$20,000	10.2*	8.1*	10.1*
	\$20,000-34,999	2.6	5.7	1.3
	\$35,000-49,999	4.7	2.7	0.9
	\$50,000-74,999	3.8	3.0	1.1
	\$75,000 +	1.3	2.6	1.0

<sup>1</sup> Mean number of days in past 30 physical health was not good.  
<sup>2</sup> Mean number of days in past 30 mental health was not good  
<sup>3</sup> Mean number of days in past 30 when poor physical or mental health kept respondent from doing usual activities (all respondents)  
\* Statistically significant,  $p < .05$

Table 6 indicates that:

Females tended to report a greater number of days their mental health was not good than did males.

Generally, the number of days physical health was not good tended to increase with age while the number of days mental health was not good tended to decrease with age.

In general, those with less education tended to report more days that their physical or mental health was not good.

The number of days physical health was not good, mental health was not good, and daily activities were limited by either tended to decrease as household income increased.

Interviewers asked respondents if, in the past year, they had been so depressed or emotionally down that they thought they should get professional help. One in seven respondents (13.2%) said they had experienced this level of depression. Of these, 69.8% (or 9.2% of all respondents) said they actually got help. Among those who reported feeling this level of depression, the average number of days in the previous month their bad mental health prevented them from doing their usual activities was 6.3, although the median number of days was 1. By contrast, among those who said they did not feel this level of depression at all, 95.1% said there were no days in the previous month when their bad mental health prevented them from doing their usual activities.

Among those who actually got help for their depression, the average number of days in the previous month they were unable to do their usual activities was 6.7 compared to an average of 5.2 days among those who did not get help. That is, those who sought help appear to have been depressed for a longer time than those who did not seek help.

Females were about twice as likely as males (18.4% vs. 7.9%) to report feeling this level of depression in the past year and appear to be somewhat more likely to have sought professional help. Those over age 65 were less likely to be this depressed than those 55 to 64 (3.1% vs. 23.5%), while those 35 to 54 were least likely (11.1%; 17.5% of 18 to 34 year olds) to report being this depressed. Those with lower incomes were more likely to experience this level of depression than those with higher incomes. Married respondents were less likely to experience this level of depression (7.9%) than those who are widowed (17.2%) or single (18.4%), while those who are divorced or are members of an unmarried couple were most likely to experience this level of depression (36.4% and 38.1% respectively).

### **Access to Care and Utilization**

**Health Care Coverage.** The Livingston BRFSS 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 plans such as HMO's, or government plans such as Medicare. It did not, however, ask respondents to identify the specific source of their coverage if they claimed to have it. Thus, we can only report what percentage of respondents said they do or do not have coverage.

The 2004 Livingston BRFSS found that 93.0% of adults in the county reported having some type of health care coverage. The percentage without coverage would be projected to equal 8,770 ( $\pm$  2,387) uninsured adults in the county.

Virtually all adults aged 65 or older are covered under Medicare. Therefore, it may be more meaningful to determine what percentage of those 18 to 64 are without insurance coverage. For the county as a whole, 8.0% of those under age 65 reported having no coverage. The 2002 Michigan Behavioral Risk Factor Survey found that 13.8% of all adults 18 to 64 and 11.9% of white adults 18 to 64 reported having no insurance coverage.

Table 7 shows the percentage of respondents who reported having no health care coverage across various demographic categories for each of the county. The table indicates that:

Table 7. Prevalence of Having No Health Care Coverage<sup>1</sup> Among 18-64 Year Olds, by Demographic Characteristics

Demographic Characteristic		% of Respondents
Overall		8.0%
Area of* County	Rural	14.4%
	Suburban	5.2%
Gender*	Male	10.4%
	Female	5.8%
Age	18-34	8.5
	35-54	8.8%
	55-64	4.1%
Education*	< High School	4.0%
	H.S. Grad.	14.8%
	Some College	5.5%
	College Grad.	5.0%
Income*	< \$20,000	24.2%
	\$20,000-34,999	22.0%
	\$35,000-49,999	7.7%
	\$50,000-74,999	5.3%
	\$75,000 +	2.3%

<sup>1</sup> Among 18-64 year olds, the percentage who responded “no” to the question, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

\* Statistically significant,  $p < .05$

Males were more likely to report having no health care coverage than females.

Respondents in the rural areas of the county were more likely to report having no insurance coverage than were their suburban counterparts.

Those with a high school education were more likely to be uninsured than those with other levels of education.

Those with less income – especially those with less than \$35,000 of income per year – were much more likely to be uninsured than those with greater incomes.

One in eight (12.8%) respondents had served in the U.S. Armed Forces, none of whom were currently on active duty. One in twenty of these veterans (5.5% of the veterans, or 0.7% of all respondents) received at least some of their health care in the past year through a Veteran’s Administration facility. Among those 18 to 64 years of age who have ever served in the armed forces, 13.2% said they do not currently have health insurance compared to 7.6% of those who



did not serve in the military.

**Health Care Provider.** To explore whether or not individuals have on-going, integrated health care, interviewers asked all respondents whether they have one person that they think of as their personal doctor or health care provider. Overall, 85.3% of respondents in Livingston County said they have one or more individuals they think of as their personal doctor or healthcare provider. Projected to the adult population of the county, this suggest that there are 18,418 ( $\pm$  3,313) adults in Livingston County who do not have a personal physician or health care provider.

Table 8 shows the percentage of respondents who said they do not have a personal physician or health care provider across areas of the county, categories of gender, age, level of education, and household income. The table indicates that:

Respondents in the rural areas of the county were less likely to have a personal health care provider than were their suburban counterparts.

Males were more than twice as likely as females to not have a personal physician.

Younger individuals, especially those under 35, were more likely than their older counterparts to not have a personal physician or provider.

Generally, those with high school education were more likely than their counterparts to not have a personal physician or health care provider.

Table 8. Prevalence of Having No Personal Doctor or Health Care Provider<sup>1</sup> by Demographic Characteristics, by County

Demographic Characteristic		% No Health Care Provider
Overall		14.7%
Area of* County	Rural	22.3%
	Suburban	12.0%
Gender*	Male	21.5%
	Female	8.2%
Age*	18-34	26.6%
	35-54	12.7%
	55-64	7.2%
	65-99	6.4%
Education*	< High School	1.8%
	H.S. Grad.	23.8%
	Some College	15.3%
	College Grad.	8.4%
Income	< \$20,000	14.3%
	\$20,000-34,999	12.9%
	\$35,000-49,999	12.7%
	\$50,000-74,999	21.0%
	\$75,000 +	13.0%

<sup>1</sup> Among all respondents, the percentage who responded “no” to the question, “Do you have one person you think of as your personal doctor or health care provider?”

\* Statistically significant,  $p < .05$

**Needed Care Foregone.** Roughly one in nine respondents (11.3%) reported that there had been a time in the past year when they did not go to get medical care they needed because of the cost. Table 9 shows the percentage of respondents indicating this among various demographic groups.

The table indicates that:

In general, younger adults, those with less than a college education, and those with less income were more likely to report not getting care they needed because of the cost.

Those who said they have no health care insurance were five times more likely than their counterparts to report not getting care they needed because of costs.

Nevertheless, the majority of those who reported foregoing needed care because of costs were individuals who said they have health insurance coverage – 70.5% of those who did not see a doctor as needed said they have health care coverage.

Table 9. Prevalence of Not Getting Needed Medical Care Because of Cost<sup>1</sup> by Demographic Characteristics

Demographic Characteristic		% Not Getting Needed Care Because of Cost
Overall		11.3%
Area of County	Rural	13.1%
	Suburban	11.3%
Gender	Male	8.8%
	Female	13.7%
Age*	18-34	19.2%
	35-54	8.5%
	55-64	12.4%
	65-99	5.5%
Education*	< High School	12.5%
	H.S. Grad.	13.5%
	Some College	15.7%
	College Grad.	2.6%
Income*	< \$20,000	28.6%
	\$20,000-34,999	17.2%
	\$35,000-49,999	7.0%
	\$50,000-74,999	3.0%
	\$75,000 +	3.4%
Have* Insurance	Yes	8.6%
	No	47.9%

<sup>1</sup> Among all respondents, the percentage who responded “yes” to the question, “Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost?”

\* Statistically significant,  $p < .05$

## **Health Conditions**

The interview included a number of questions regarding whether or not the respondent had various health conditions or problems. These included asthma, diabetes, hypertension, high cholesterol, and being overweight. The results for these will be summarized in this section of the report.

**Asthma.** Among all those interviewed, 11.1% reported ever being told by a doctor, nurse or other health professional that they have asthma. This is similar to the 12.4% found statewide in the 2001 Michigan BRFs. Of the 11.1%, 61.3% claimed they still have asthma. That is, 6.8% of the respondents reported having ever been told they have asthma and have it now compared to 8.8% reported statewide in 2002. Projected to the total adult population of the county, this corresponds to 8,520 adults with asthma ( $\pm 2,355$ ) in Livingston County.

Table 10 shows the percentage of respondents who reported having ever been told they have asthma and the percentage of all respondents who indicated they have asthma currently. The table indicates that:

Rural residents were both less likely to have ever been told they have asthma and less likely to have asthma currently compared to suburban residents.

Females were much more likely than males to report having ever been told they have asthma and having it currently.

Those with some college education were more likely to have been told they have asthma and have it currently than their counterparts.

In general, those with lower incomes were somewhat more likely than their more affluent counterparts to report having ever been told they have asthma and to still have asthma.

Among all respondents, 46.0% said there was at least one child under the age of 18 living in the household. Interviewers asked how many of these children have ever been diagnosed with asthma and whether or not they still have asthma. More than eight out of ten (82.1%) respondents with children in the household said none of the children has asthma while 16.0% said one of the children and 1.9% said two of the children have been diagnosed with asthma. Of these, seven out of ten (71.0%) still has asthma.

**Diabetes.** Among all respondents, 7.6% 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. The 7.6% for Livingston County is virtually the same as the prevalence rate of 7.5% reported statewide among white adults by the 2002 Michigan BRFs. Projected to the adult population of the county, this prevalence rate suggests that there are 9,522 adults with diabetes in Livingston County ( $\pm 2,479$ ).

Table 10 indicates that there were no differences in the prevalence rates between rural and suburban areas of the county or between males and females. However,

Those 35 or older were more likely to have ever been told they have diabetes.

Those with less education and those with lower incomes were more likely to report having been told they have diabetes than those with more education or greater incomes.

Table 10. Prevalence of Asthma, Diabetes, Hypertension, High Cholesterol by Demographic Background

Demographic Characteristic		Asthma		Diabetes	Hypertension	Cholesterol
		% Ever <sup>1</sup> Told Have	% Have <sup>2</sup> Now	% Ever <sup>3</sup> Told Have	% Ever <sup>4</sup> Told Have	% Ever <sup>5</sup> Told High
Overall		11.1%	6.8%	7.6%	25.8%	39.2%
Area of County	Rural	7.0%*	5.8%*	5.6%	22.8%	33.5%
	Suburban	12.7%	7.2%	8.7%	27.0%	41.6%
Gender	Male	3.3%*	1.5%*	7.7%	28.2%*	41.4%
	Female	18.6%	11.7%	7.4%	23.4%	37.0%
Age	18-34	10.2%	5.1%	0.0%*	10.4%*	26.6%*
	35-54	10.7%	6.6%	6.5%	15.4%	30.6%
	55-64	15.5%	12.2%	22.4%	50.6%	51.8%
	65 or older	9.3%	5.6%	10.1%	58.2%	72.4%
Education	< High School	7.1%*	3.6%*	14.3%*	55.4%*	54.5%*
	H.S. Grad.	7.3%	5.7%	10.4%	29.9%	38.0%
	Some College	18.4%	10.7%	6.0%	22.1%	42.6%
	College Grad.	6.8%	4.2%	4.7%	16.6%	31.4%
Income	< \$20,000	7.1%*	7.1%*	19.0%*	54.1%*	54.1%*
	\$20,000-34,999	22.8%	21.5%	10.8%	41.6%	48.1%
	\$35,000-49,999	19.0%	14.3%	12.5%	27.8%	53.7%
	\$50,000-74,999	9.8%	2.1%	9.1%	25.6%	41.9%
	\$75,000 +	7.4%	2.6%	4.3%	16.8%	23.0%

<sup>1</sup> The percentage who responded “yes” to the question, “Have you ever been told by a doctor, nurse or other health professional that you had asthma?”

<sup>2</sup> The percentage who responded “yes” to the question, “Have you ever been told by a doctor, nurse or other health professional that you had asthma?” and “yes” to the question “Do you still have asthma?”

<sup>3</sup> The percentage who responded “yes” to the question, “Have you ever been told by a doctor that you have diabetes?” excluding those women who said it was only when pregnant.

<sup>4</sup> The percentage who responded “yes” to the question, “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?” (excluding those who only had this during pregnancy)

<sup>5</sup> The percentage of all respondents who said “yes” to the question, “Have you ever been told by a doctor, nurse, or other health professional that your blood cholesterol is high?”

\* Statistically significant,  $p < .05$

**Hypertension.** High blood pressure, or hypertension, is an important risk factor for cardiovascular health problems. It is a significant factor in morbidity and mortality due to stroke, kidney failure, and heart and blood vessel disease. For monitoring efforts to reduce this risk, the Livingston BRFS included a single question in the interview to determine the proportion of the adult population that has been told that they have high blood pressure.

For the county as a whole, 25.8% of respondents reported being told they have high blood pressure. Projected to the full adult population, these results suggest that 32,325 adults in Livingston County ( $\pm 4,093$ ) have been told they have high blood pressure. Table 10 indicates that:

Males were somewhat more likely than females to report having been told they have high blood pressure.

Respondents over age 55 were much more likely than their younger counterparts to report having been told they have high blood pressure.

Those with higher levels of education were less likely to report having been told they have high blood pressure than their counterparts with less education.

Those with lower incomes were more likely to report being told they have high blood pressure than those with higher incomes.

**High Cholesterol.** High blood cholesterol has been determined to be a risk factor for heart disease. The risk increases directly as blood cholesterol levels increase. Furthermore, the risks are appreciably greater when elevated levels of blood cholesterol are combined with smoking and high blood pressure.

A first step in trying to reduce one's risk of heart disease is to have one's blood cholesterol level checked. Healthy individuals are recommended to have their blood cholesterol checked every three years while those with elevated cholesterol levels or those with heart disease should have it checked more frequently. The second step, when elevated levels of cholesterol are detected, is to reduce dietary intake of fats or to reduce the cholesterol level with medications.

Overall, 39.2% of respondents in Livingston County indicated they have ever been told their cholesterol is high. This is higher than the 33.0% reported for the state as a whole in 2002. Projected to the adult population of the county, the results indicate that 49,113 adults in Livingston County ( $\pm 4,567$ ) have been told they have high cholesterol.

Table 10 indicates that:

There was no significant difference in the prevalence among rural and suburban residents.

Males and females were about equally likely to have high cholesterol.

The prevalence of having high cholesterol tended to increase with age.

The prevalence of having high cholesterol was lower among those who have more

education or greater incomes.

**Weight Status.** 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. Some studies have also indicated that body shape in terms of where fat deposition occurs is also associated with different levels of risk for certain kinds of cardiovascular problems. 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 regarding weight status.

The 2004 Livingston BRFSS included a question about the respondent's weight and another question about the respondent's height. These can be used to calculate the individual's Body Mass Index score (BMI), 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, BRFSS classifies individuals 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 2004 Livingston BRFSS found that – excluding pregnant women -- 37.9% of the respondents had BMI scores in the acceptable range, while 38.3% were overweight, and 23.7% were obese. For the white population of Michigan adults, the 2002 Michigan BRFSS found that 36.9% were overweight and 23.7% were obese. Thus, the prevalence of obesity in Livingston County is very similar to that among the corresponding population in Michigan generally. Table 11 shows the percentage distribution of weight status overall and within geographic areas of the county, sex, age, education and income. The table indicates that:

There were no significant differences between rural and suburban residents regarding the percentages that were overweight or obese.

Males were more likely than females to be overweight and more likely to be obese.

Generally, older respondents were more likely to be in either the overweight or obese category rather than the acceptable weight category than were younger respondents. The prevalence of obesity was greater among respondents between ages 35 and 64 than among those either younger or older than this. In part, this undoubtedly reflects the greater mortality among obese individuals.

There was no statistically significant difference across levels of education regarding the percentages who were overweight or obese, but, while there were significant differences across levels of income, there was no clear pattern to the differences.

While only 17.2% of those whose BMI scores were in the acceptable range reported having high blood pressure, 37.1% of those who were overweight and 45.7% of those who were obese reported having hypertension.

Similarly, only 12.8% of those whose BMI scores were in the acceptable range reported being told they have diabetes compared to 29.8% of those who were overweight and 57.4% of those who were obese.

Those who were overweight or obese were also more likely than those in the acceptable range to report having high cholesterol and asthma.

That is, being overweight or obese is associated with a number of other health-threatening conditions.

**Disability.** Interviewers asked all respondents if they are limited in any way in any activities because of physical, mental, or emotional problems. Among all respondents, 18.6% said they were limited due to some disability. Projected to the total adult population of the county, that represents 23,304 individuals ( $\pm$  3,640) with some type of disability.

Table 11. Percentage Overweight, Obese, by Demographic Characteristics

Demographic Characteristic		% Overweight <sup>1</sup>	% Obese <sup>2</sup>
Overall		38.3%	23.7%
Area of County	Rural	37.7%	28.7%
	Suburban	38.5%	21.6%
Gender*	Male	48.7%	26.8%
	Female	27.4%	20.4%
Age *	18-34	25.6%	25.0%
	35-54	40.3%	20.8%
	55-64	45.2%	37.6%
	65-99	47.2%	17.6%
Education	< High School	37.7%	26.4%
	H.S. Grad.	39.1%	23.9%
	Some College	33.3%	28.6%
	College Grad.	43.8%	16.8%
Income *	< \$20,000	22.0%	43.9%
	\$20,000-34,999	39.3%	27.0%
	\$35,000-49,999	52.4%	20.6%
	\$50,000-74,999	31.2%	33.3%
	\$75,000 +	45.0%	16.2%

<sup>1</sup> Among all respondents, the percentage who had BMI scores (from height and weight) 25.0 - 29.9, excluding pregnant women.

<sup>2</sup> Among all respondents, the percentage who had BMI scores (from height and weight) greater than or equal to 30.0, excluding pregnant women.

\* Statistically significant,  $p < .05$

Table 12 shows the percentage of respondents among the various demographic groupings who reported having some type of disability. The table indicates that:

There were no differences in the prevalence rates of disability between rural and suburban residents of the county.

There were no statistically significant differences in the prevalence of disability in men than in women.

Those 55 and older were more than twice as likely as those younger than 55 to have some type of limitation.

Respondents with less than a high school

education were more likely than their more educated counterparts to have some type of limitation.

Those with less than \$20,000 income were much more likely to have some type of disability than those with higher incomes. In many cases, it may very well be that having some type of mental, physical, or emotional limitation results in the individual having an appreciably lower income than their peers.

Respondents who have health insurance were about equally likely to have some sort of limitation as those without insurance. And those who have served in the armed forces were about equally likely to have some sort of disability as those who have not served.

Table 12 also shows the percentage of all respondents who reported that they now have any health problem that requires them to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?

Table 12 shows that:

4.5% of all respondents in Livingston County had a health problem that requires them to use special equipment. Projected to the county's total adult population, this would represent 5,683 ( $\pm$  1,939) individuals.

There were no differences in the prevalence of needing special equipment between rural and suburban residents or between males and females.

Nearly all of those who require special equipment were 55 years of age or older.

Those with less than a high school education and those with lower incomes were more likely to have a health problem that requires them to use special equipment.

Table 12. Percent of Livingston County Adults Who Have Mental, Physical, or Emotional Limitation, Use Special Equipment, by Demographic group

Demographic Characteristic		% Have Limitation	% Require Special Equipment
Overall		18.6%	4.5%
Area of County	Rural	19.4%	4.6%
	Suburban	19.7%	4.4%
Sex	Male	20.9%	3.6%
	Female	16.3%	5.4%
Age	18-34	11.3%*	0.0%*
	35-54	14.4%	1.6%
	55-64	32.3%	12.5%
	65 +	29.4%	13.0%
Education	< HS	35.7%*	14.3%*
	High School	16.1%	4.7%
	Some College	22.6%	4.8%
	College +	10.5%	1.6%
Income	< \$20,000	65.0%*	14.6%*
	\$20,000-34,999	17.2%	7.6%
	\$35,000-49,999	23.8%	10.9%
	\$50,000-74,999	15.3%	2.1%
	\$75,000 +	6.9%	1.3%

**Preventive Care and Health Screenings**



**Influenza and Pneumonia Vaccinations.** An 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 Livingston BRFs interview was designed to determine what proportion of the most at-risk adult population had been successfully persuaded to be vaccinated against these.

Interviewers asked all respondents if they had a flu shot in the past twelve months and if they had had a flu vaccine nasal spray. Overall, 32.2% of respondents said they had. Table 13 indicates that:

Those in the rural parts of the county were less likely to have received a flu vaccination than respondents in the suburban areas.

Females were more likely to have received a flu vaccination than were males.

There were substantial differences across age categories. Whereas only 19.3% of those under age 34 were vaccinated against influenza, 44.3% of those 55 to 64, and 64.2% of those 65 or older reported being vaccinated against influenza.

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.

Table 13. Percentage of Respondents Who Had Flu, Pneumonia Shot,<sup>1</sup> by Demographic Characteristics

Demographic Characteristic		% Had Flu Shot	% Had Pneumonia Shot
Overall		32.2%	20.3%
Area of County	Rural	26.3%*	12.7%*
	Suburban	35.3%	23.3%
Gender	Male	28.6%*	22.2%
	Female	35.9%	18.3%
Age	18-34	19.2%*	21.4%*
	35-54	24.8%	6.6%
	55-64	44.3%	18.9%
	65-99	64.2%	57.7%
Education	< High School	82.1%*	42.9%*
	H.S. Grad.	24.9%	19.7%
	Some College	21.7%	18.5%
	College Grad.	39.1%	16.5%
Income	< \$20,000	46.3%*	17.1%*
	\$20,000-34,999	36.6%	54.2%
	\$35,000-49,999	31.7%	33.9%
	\$50,000-74,999	18.9%	5.0%
	\$75,000 +	32.6%	13.4%

<sup>1</sup> Among all respondents, the percentage who responded "yes" to the questions, "During the past 12 months, have you had a flu shot?" Or "During the past 12 months, have you had a flu vaccine sprayed in your nose?" And "Have you ever had a pneumonia shot?"

\* Statistically significant,  $p < .05$

Table 13 also shows the percentage who reported having ever had a pneumonia shot. For Livingston County as a whole, 20.3% of respondents reported having had at least one pneumonia

shot in their lifetime. The table indicates that:

Those in the rural parts of the county were less likely to have received a pneumonia shot than those in the suburban areas.

Those age 65 or older were much more likely than others to have received a pneumonia shot.

There were no significant differences in the percentages reporting having had a pneumonia shot.

There were significant differences in the likelihood of having received a pneumonia shot across levels of education and levels of income, but both of these are correlated with age. That is, older residents – those most likely to have received a pneumonia shot – were much more likely than others to have a high school education or less, and more likely than others to have incomes between \$20,000 and \$35,000. For example, while those 65 or older make up only 15.8% of the adult population, they make up 36.6% of all those with incomes between \$20,000 and \$35,000 and 55.4% of all those with less than a high school education. That is, in this case, it appears that age is the primary factor determining the likelihood of receiving a pneumonia shot.

**Dental Care.** The 2004 Livingston BRFSS included several questions related to dental care. Interviewers asked all respondents how long it has been since they last visited a dentist or dental clinic for any reason. More than three-quarters (76.8%) said their last visit was within the past year. An additional 9.1% said it was within the past two years, and another 7.8% said within the past five years. For 5.2%, it had been five or more years while 1.1% said they had never been to a dentist.

Table 14 indicates that younger respondents, those who completed high school or who have some college education, and those with less income were not as likely to have seen a dentist in the past two years as their counterparts. Among all respondents, 75.6% told interviewers that they have some dental insurance coverage. Table 14 indicates that those with dental insurance were much more likely to have seen a dentist in the past two years than those without insurance.

Interviewers asked respondents how many teeth they have had removed as a result of decay or gum disease. Two-thirds of respondents (65.1%) reported having lost no teeth for these reasons, 31.0% had lost some teeth, and 3.2% said all of their teeth had been removed. Table 14 indicates that older respondents were much more likely to have lost all their teeth than other respondents as were those with less education and lower levels of income, largely because level of education and level of income are correlated with age. The table also indicates that those without dental insurance were more likely than those with insurance to have had all their teeth removed.

Those who have visited a dentist at least sometime and who still have at least some of

Table 14. Percent of Livingston Adults Who Visited Dentist, Had Teeth Cleaned, Check-up, in Past Two Years, by Demographic Background

Characteristic		% Visited <sup>1</sup> Dentist in Past 2 Yrs.	% Had <sup>2</sup> All Teeth Removed	% Had <sup>3</sup> Teeth Cleaned in Past 2 Yrs.	% Had <sup>4</sup> Check-up in Past 2 Yrs.
Overall		85.9%	3.2%	97.0%	98.1%
Area of County	Rural	83.3%	4.0%	95.9%*	96.6%
	Suburban	87.0%	3.0%	97.6%	98.7%
Sex	Male	83.7%	1.8%	97.2%	98.4%
	Female	88.0%	4.6%	96.8%	97.8%
Age	18 - 34	75.0%*	0.0%*	97.7%*	96.5%
	35 - 54	90.8%	0.0%	98.9%	98.8%
	55 - 64	90.7%	3.2%	96.6%	98.7%
	65 or older	86.2%	18.1%	91.4%	97.6%
Education	< High School	87.3%*	17.9%*	89.6%*	100.0%
	High School	84.9%	3.7%	94.4%	97.1%
	Some College	81.6%	2.0%	99.0%	97.8%
	College +	92.2%	0.0%	99.4%	98.7%
Income	< \$20,000	73.2%*	9.5%*	93.3%*	100.0%
	\$20,000-34,999	71.7%	2.2%	98.5%	98.3%
	\$35,000-49,999	88.9%	3.2%	92.9%	97.9%
	\$50,000-74,999	92.4%	3.5%	94.7%	97.5%
	\$75,000 +	94.4%	0.0%	99.5%	98.4%
Have Dental Insurance	Yes	92.4%*	2.2%*	98.6%*	99.1%*
	No	65.5%	6.8%	89.7%	92.8%

<sup>1</sup> Percent of all respondents who answered “within the past year” or “within the past two years” to the question “How long has it been since you last visited a dentist or a dental clinic for any reason?”

<sup>2</sup> Percent of all respondents who answered “all” to the question “How many of your permanent teeth have been removed because of tooth decay or gum disease? Do not include teeth lost for other reasons, such as injury or orthodontics.”

<sup>3</sup> Percent of respondents who saw a dentist within the past two years who still have some teeth and who answered “within the past year” or “within the past two years” to the question “How long has it been since you had your teeth cleaned by a dentist or dental hygienist?”

<sup>4</sup> Excluding Michigan BRFSS respondents, percent of respondents who saw a dentist within the past two years who answered “within the past year” or “within the past two years” to the question “How long has it been since you last visited the dentist or a dental clinic for a routine checkup?”

\* p < .05.

their teeth were asked how recently they had been to a dentist or dental clinic to have their teeth cleaned and how recently for a regular check-up. Of these respondents, 77.7% said they had their teeth cleaned in the past year and another 10.2% in the past two years. This is 85.0% of all respondents and 97.0% of all respondents who said they had visited a dentist or dental clinic for any reason in the past two years. Similarly, 74.7% of respondents with some teeth and who had ever visited a dentist reported having had a dental checkup in the past year, with another 12.0% reporting it had been in the past two years. That is, 85.3% of all respondents and 98.1% of those

who had visited a dentist or dental clinic in the past two years for any reason had had a dental check-up in the past two years. Together, 96.0% of those who visited a dentist in the past two years received both a check-up and a cleaning.

Table 14 indicates that:

Suburban respondents were somewhat more likely than rural respondents to have had their teeth cleaned more recently;

Older respondents were somewhat less likely than their younger counterparts to have had their teeth cleaned recently;

Those with a high school education or less were less likely than their counterparts to have had their teeth cleaned in the past two years;

Those with middle levels of income were somewhat less likely than those with low incomes or high incomes to have had their teeth cleaned recently.

Those with dental insurance were more likely to have had their teeth cleaned and have had a dental check-up when they visited the dentist in the past two years than were those who do not have dental insurance.

**Birth Control.** The 2004 Livingston BRFS included several questions related to birth control and pregnancy intendedness. These questions were only asked of men under age 60 and women under age 45 who were not currently pregnant or who had already had a hysterectomy. Interviewers described the most common ways in which individuals try to avoid pregnancy, including not having sex at certain times, using birth control methods such as the pill, implants, shots, condoms, diaphragm, foam, IUD, having their tubes tied, or having a vasectomy. Then interviewers asked these respondents whether they or their partner were doing anything to prevent pregnancy. Among all of these respondents, 65.3% said they were doing something, while 14.1% said they had no current partner or were not sexually active. Eight out of ten (79.2%) women in this age group reported doing something to prevent pregnancy compared to only 56.8% of men. This difference persists even when controlling for current marital status. Among those who are currently married, 83.8% of the females reported they or their partners are doing something to prevent pregnancy compared to only 69.1% of the males. Among those living as unmarried couples, all of the women but less than half (40.0%) of the men reported doing something to prevent pregnancy. And, among those single and never married and among those currently divorced or separated, the females were much more likely than the males to report doing something to prevent pregnancy while the males were more likely to report currently not having a partner.

The percentage of respondents and their partners doing something to prevent pregnancy tended to increase with age and with level of education. Those who have health insurance were somewhat (but not significantly) more likely than those without to be doing something currently to prevent pregnancy (66.3% vs. 55.3%).

Those who were doing something to prevent pregnancy were asked to indicate what method they were using. The distribution of responses both males and females gave were very similar. The most common method being used was a vasectomy (34.8%), followed by the pill

(27.6%), tubal ligation (13.1%), condoms (11.7%), the rhythm method (2.9%), the contraceptive patch (2.4%), hysterectomy (1.3%), withdrawal (1.2%), shots (1.1%), and miscellaneous other methods.

Interviewers asked those who said neither they nor their partner were doing anything to prevent pregnancy what the main reason is. Among this relatively small group of respondents, 43.1% said they either wanted to become pregnant or that it would be alright, 12.6% said they were already pregnant, 3.3% disliked birth control or the side effects of contraceptives, 36.6% were not doing something because they thought they could not become pregnant (e.g., just had a baby, were breast-feeding, too old) or did not expect to be sexually active, and 4.4% gave miscellaneous other reasons.

Interviewers asked all respondents in this age group who could still become pregnant how they felt about having a child now or sometime in the future. A third of these respondents (33.2%) said they want a child, 42.3% said they do not, and 24.5% said they are undecided. A third of those who said they do want to have a child said they would like to have a child within the next year, while 22.7% said they would like to have a child one to two years from now, 30.6% said two to five years from now, and 13.3% said more than five years from now.

Among those who are currently married in this group of respondents, roughly 80% who do not want a child are currently doing something to prevent pregnancy while 80% of those who do want a child are currently not doing anything to prevent pregnancy, and 62% of those undecided are and 38% are not doing anything to prevent pregnancy. Among those who are single, never married, roughly 83% of those who do not want a child, 75% of those who do want a child and 50% of those who are undecided are currently doing something to prevent pregnancy.

**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 2004 Livingston BRFSS included questions about both mammograms and about clinical breast exams.

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](http://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 2004 Livingston BRFSS 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, 93.5% of the female respondents 40 years old or older in Livingston County indicated that they had had at least one mammogram. Among the women in this age group who reported ever having had a mammogram, more than seven out of ten (72.3%) indicated they had

had a mammogram within the past year, 13.1% within the past two years, 5.8% within the past three years, 2.4% within the past five years, and the remainder had not had a mammogram for five or more years. That is, 79.5% of women in Livingston County age 40 or older reported having had a mammogram within the past two years.

Table 15 shows the percentages of women 40 or older who have had a mammogram within the past two years. The table indicates that:

There were no significant differences between the rural and the suburban areas of the county in the percentage of women 40 and over who reported having had a mammogram in the past two years.

Women 65 or older were somewhat less likely than those who were younger to have had a mammogram in the past two years, but the differences were not statistically significant.

There was no significant difference among women across levels of education, but women with high incomes and women with low incomes were more likely than their moderate income counterparts to have had a mammogram in the past two years.

Among the women 20 to 39 years of age, 23.0% had also had at least one mammogram and two-thirds of these (65.3%) reported that they had had one in the two past 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, 95.6% said they had had at least one clinical breast exam. Of these, 77.0% claimed to have had their most recent exam within the past year, 14.4% within the past two years, 3.2% within the past three, 2.3% within the past five, and for 3.0% it had been five or more years. Table 16 shows the percentages of women 20 or older who reported ever having had a clinical breast exam and the percent who had one within the past year among the various segments of women

Table 15. Percentage of Women 40+ Who Had Mammogram in the Past 2 Years,<sup>1</sup> by Demographic Characteristics

Demographic Characteristic		% Had Mammogram in Past 2 Years
Overall		79.5%
Area of County	Rural	80.7%
	Suburban	79.7%
Age	40-54	81.3%
	55-64	84.3%
	65-99	71.2%
Education	< High School	85.7%
	H.S. Grad.	76.0%
	Some College	76.6%
	College Grad.	87.2%
Income	< \$20,000	81.0%*
	\$20,000-34,999	60.6%
	\$35,000-49,999	69.6%
	\$50,000-74,999	88.6%
	\$75,000 +	87.1%

<sup>1</sup> Among all respondents, the percentage who responded "yes" to the question, "Have you ever had a mammogram?" and then indicated having done so within the past two years.

\* Statistically significant,  $p < .05$

in the county. The table indicates that:

Rural and suburban women were equally likely to have ever had a clinical breast exam, but rural women were less likely to have had one in the past year.

Older women were somewhat less likely to have ever had an exam and especially to have had one in the past year.

Women with less income were less likely to report having had a clinical breast exam in the past year compared to their more affluent counterparts.

Among the women who said they had some type of health care coverage, 83.0% of those 40 years old or older had had a mammogram within the past two years and 74.1% of those 20 years old or older had had a clinical breast exam within the past year compared to only 50.0% and 61.1% respectively of the women who had no health care coverage.

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 Livingston BRFs sample, 62.2% reported having done both within the past year. That means that 37.8% of 40+ year old women in the count had not had one or the other or both of the screening tests in the past year.

Table 16. Percentage of Women Who Ever Had Clinical Breast Exam<sup>1</sup>, Had in the Past Year,<sup>2</sup> by Demographic Characteristics

Demographic Characteristic		% Ever Had Clinical Breast Exam	% Had Breast Exam in Past Year (all women)
Overall		95.6%	73.3%
Area of County	Rural	95.5%	70.0%*
	Suburban	96.0%	76.0%
Age	20-34	100.0%	74.6%*
	35-54	97.5%	77.7%
	55-64	90.2%	74.0%
	65-99	89.8%	59.3%
Education	< High School	96.2%	60.0%
	H.S. Grad.	96.0%	72.7%
	Some College	93.5%	68.0%
	College Grad.	98.8%	84.5%
Income	< \$20,000	91.7%	58.3%*
	\$20,000-34,999	100.0%	75.6%
	\$35,000-49,999	88.2%	52.9%
	\$50,000-74,999	97.0%	80.3%
	\$75,000 +	98.1%	78.8%

<sup>1</sup> Among all respondents, the percentage who responded "yes" to the question, "Have you ever had a clinical breast exam?"

<sup>2</sup> Among all respondents, the percentage who responded "yes" to the question, "Have you ever had a clinical breast exam?" and then indicated having done so within the past two years.

\* Statistically significant,  $p < .05$

**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 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 2004 Livingston BRFSS 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 98.7% reported that they had. Table 17 shows the results for this question across age groups, levels of education, and levels of income. The table indicates that:

Nearly all women have had at least one Pap smear in their lifetime.

There were no significant differences between women in the rural and suburban parts of the county regarding having ever had a Pap test.

There were no significant differences among women of different age groups, levels of education, or levels of income on whether or not they had ever had a Pap test.

Table 17. Percentage of Women Who Ever Had Pap Test<sup>1</sup>, Had in the Past Year,<sup>2</sup> by Demographic Characteristics

Demographic Characteristic		% Ever Had Pap Test	% Had Pap Test in Past 2 Years (all women)
Overall		98.7%	81.6%
Area of County	Rural	98.9%	80.7%
	Suburban	98.0%	80.5%
Age	20-34	100.0%	92.4%*
	35-54	99.4%	86.6%
	55-64	98.0%	84.3%
	65-99	96.6%	53.4%
Education	< High School	100.0%	69.2%
	H.S. Grad.	98.0%	80.8%
	Some College	98.4%	80.6%
	College Grad.	100.0%	88.1%
Income	< \$20,000	100.0%	72.0%
	\$20,000-34,999	97.6%	76.7%
	\$35,000-49,999	100.0%	72.7%
	\$50,000-74,999	100.0%	88.1%
	\$75,000 +	99.0%	88.6%

<sup>1</sup> Among all respondents, the percentage who responded “yes” to the question, “Have you ever had a Pap smear?”

<sup>2</sup> Among all respondents, the percentage who responded “yes” to the question, “Have you ever had a Pap smear?” and then indicated having done so within the past 2 years.

\* Statistically significant,  $p < .05$

Among those women who said they had ever had a Pap test, 83.3% claimed to have had



the test within the past two years (70.4% in the past year alone). Another 7.0% claimed to have had the test two to three years ago, 2.9% three to five year ago, while 6.7% said it had been five or more years since they last had a Pap test.

We did not ask respondents whether the liquid-based Pap test was used (and they would probably not have known) or how many normal tests they have had in a row. Therefore, we have chosen to compare the percentage who last had their Pap smear within the past two years rather than just within the past year. Table 17 shows the percentage of women 20 years of age or older who ever had a Pap smear and had one within the past two years. The table shows that:

82.6 % of women had a Pap test within the past two years.

There were no significant differences in the percentages who had had a Pap test in the past two years between rural and suburban women, women of differing levels of education or women of differing levels of income

Women older than 64 were appreciably less likely than others to have had a Pap test in the past two years.

Interviewers did ask all female respondents whether or not they had ever had a hysterectomy. Overall, 20.0% 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 roughly 9% of those 35 to 54 said they had, compared to roughly 53% of those 55 to 64 and approximately 42% of those 65 or older.

Among the women who reported having had a Pap smear within the past two years, 15.7% said they have had a hysterectomy. Among those who said they had not had a Pap smear for more than two years, 37.5% said they have had a hysterectomy.

**Prostate Cancer Screening.** Prostate cancer is the most common form of cancer among men in Michigan. In fact, among men 40 years of age or older in the sample, 4.1% indicated that have been told by a doctor or other health care provider that they have prostate cancer. The two most common screening tests to detect prostate problems are the digital rectal exam and the Prostate-Specific Antigen test (PSA). For the most part, these screening tests are recommended to begin at age 40. The PSA test is the newer of the two, whereas the digital rectal exam is also used to identify potential colorectal cancer problems as well for both men and women.

The Livingston BRFSS included two questions for men older than 39. The first asked the men if they have ever had a PSA test. The second asked those men who have had the PSA how recently they have had the test. Table 18 shows the results for these two questions. The table indicates that 65.7% of the men aged 40 or older said they have had at least one PSA test. Of those who have had the test, 72.1% said they most recently had the test within the past year, 11.4% within the past two years, 8.0 within the past three, and 8.4% within the past five years. That is, 54.8% of the Livingston County males report having had a PSA test within the past two years.

Table 18. Percent of Men 40+ Who Have Had PSA Test, Digital Rectal Exam, and Rectency by Other Demographic Characteristics

		% Ever Had <sup>1</sup> PSA Test	% Had PSA <sup>2</sup> Test in Past Two Years	% Ever Had <sup>3</sup> Digital Rectal Exam	% Had DRE <sup>4</sup> in Past Two Years.
Overall		65.7%	54.8%	85.1%	61.9%
Area of County	Rural	56.6%	34.0% *	84.9%	57.4% *
	Suburban	65.0%	61.4%	85.0%	62.7%
Age	40 - 44	34.2%*	21.1%*	65.9%*	41.7%*
	45 - 54	60.9%	40.0%	85.5%	50.0%
	55 - 64	77.3%	70.4%	91.5%	80.4%
	65 - 74	84.0%	84.0%	100.0%	76.0%
	75 +	90.9%	90.9%	91.7%	87.5%
Education	< High School H.S.	100.0%*	90.0%*	100.0%*	91.3%*
	Grad.	63.5%	55.7%	77.6%	50.9%
	Some College	57.6%	41.4%	90.5%	56.2%
	College Grad	63.5%	52.1%	81.3%	65.2%
Income	< \$20,000	37.5%*	12.5%*	44.4%*	11.1%*
	\$20,000-34,999	81.8%	66.7%	91.4%	79.4%
	\$35,000-49,999	80.0%	68.4%	75.0%	65.2%
	\$50,000-74,999	70.0%	65.0%	93.0%	67.4%
	\$75,000 +	55.7%	50.0%	85.1%	60.5%

<sup>1</sup> Among all male respondents 40 years of age or older, the percentage who responded “yes” to the question, “Have you ever had a PSA test?”

<sup>2</sup> Among all male respondents 40 years of age or older, the percentage who responded “yes” to the question, “Have you ever had a PSA test?” and then indicated having done so within the past 2 years.

<sup>3</sup> Among all male respondents 40 years of age or older, the percentage who responded “yes” to the question, “Have you ever had a digital rectal exam?”

<sup>4</sup> Among all male respondents 40 years of age or older, the percentage who responded “yes” to the question, “Have you ever had a digital rectal exam?” and then indicated having done so within the past 2 years.

\* Statistically significant,  $p < .05$

The table shows that:

Men in the rural parts of the county were less likely to have had a PSA test within the past two years than men in the suburban parts of the county.

Older men were both more likely to have ever had a PSA test and to have had one in the past two years than younger men.

**Digital Rectal Exams.** Another of the screening exams for potential prostate cancer is the digital rectal exam (DRE). While this is also used to screen for colorectal cancer in both men and women, the Livingston BRFs interview asked this only of men older than 39. The interview included two questions on this test as well – whether or not the respondent had ever had a DRE

and, if so, how long it had been since he last had an exam. Table 16 also shows the results for these questions among men older than 39.

Table 18 indicates that 85.1% of these men claimed to have had at least one DRE and that 72.8% of these (or 61.9% of men 40 or older) reportedly had a DRE in the past two years.

Table 18 indicates that:

Men in the rural parts of the county were equally likely as their suburban counterparts to have had a digital rectal exam but were somewhat less likely to have had one as recently.

Generally, older men were somewhat more likely to have ever had a DRE and considerably more likely to have had one in the past two years.

While there were significant differences across levels of education and income, most of these differences result from the correlations among age and education, income, and having a digital rectal exam.

**Colorectal Cancer Screening.** In addition to DRE, both males and females are sometimes screened for colorectal cancer by a colonoscopy or sigmoidoscopy conducted by a physician, or a fecal occult blood stool test usually carried out at home by the patient with the sample returned to the physician for analysis. Both tests are typically given to men and women beginning in their 40's.

The Livingston BRFSS included two questions about blood stool tests, but the questions were only asked of respondents 50 years of age or older. The first concerned whether or not the respondent had ever done a blood stool test. Among those who had, the second question asked how long it has been since they last did the test at home with the special kit.

Table 19 shows the results for these two questions. It indicates that 47.0% of all respondents reported having ever done the blood stool test and that, of these, 42.7% claimed to have done so in the past year and 21.5% in the past two years, or 29.8% of persons 50 or older in the past two years.

The table indicates that:

There were no significant differences between rural and suburban residents or between males and females.

Older respondents were more likely to have taken the home blood stool test and to have done so more recently.

There were no significant differences across levels of either education or income regarding either having ever taken the blood stool test or having done so in the past two years.

Table 19. Percent of Adults 50+ Who Have Had Blood Stool Test, Colonoscopy/  
Sigmoidoscopy, and Recency by Other Demographic Characteristics

		% Ever Taken <sup>1</sup> Blood Stool Test	% Had Blood Stool <sup>2</sup> Test in Past Two Years	% Ever Had <sup>3</sup> Colonoscopy/ Sigmoidoscopy	% Had C/S <sup>4</sup> in Past Two Years.
Overall		47.0%	29.8%	68.1%	37.3%
Area of County	Rural	46.8%	35.1%	72.7%	39.0%
	Suburban	47.4%	29.5%	67.2%	37.9%
Sex	Male	48.5%	34.3%	71.9%	42.2%
	Female	45.9%	25.7%	64.7%	32.9%
Age	50 - 54	27.8%*	19.0%*	46.8%*	30.8%*
	55 - 64	51.0%	31.3%	73.2%	37.1%
	65 - 74	46.9%	26.6%	79.7%	46.9%
	75 +	72.1%	50.0%	79.5%	36.4%
Education	< High School H.S. Grad.	47.6%	31.0%	88.4%*	47.7%
	Some College	49.4%	29.1%	65.1%	33.3%
	College Grad	46.7%	34.8%	67.0%	36.2%
	College Grad	44.3%	23.0%	60.0%	36.7%
Income	< \$20,000	42.1%	26.3%	84.2%*	52.6%*
	\$20,000-34,999	58.9%	44.6%	69.6%	44.6%
	\$35,000-49,999	45.7%	27.8%	58.3%	22.2%
	\$50,000-74,999	44.1%	30.0%	52.5%	30.5%
	\$75,000 +	43.1%	25.9%	76.7%	48.3%

<sup>1</sup> Among all respondents 50 years of age or older, the percentage who responded “yes” to the question, “A blood stool test is a test that may use a special kit at home to determine whether the stool contains blood. Have you ever had this test using a home kit?”

<sup>2</sup> Among all respondents 50 years of age or older, the percentage who responded “yes” to the question above and then indicated having done so within the past 2 years.

<sup>3</sup> Among all respondents 50 years of age or older, the percentage who responded “yes” to the question, “Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the colon for signs of cancer or other health problems. Have you ever had either of these exams?”

<sup>4</sup> Among all respondents 50 years of age or older, the percentage who responded “yes” to the question above and then indicated having done so within the past 2 years.

\* Statistically significant,  $p < .05$

The interview also included a question as to whether the respondent had ever had either a colonoscopy or a sigmoidoscopy. Again, this question was asked of both males and females who were 50 years of age or older.

Table 19 indicates that 68.1% of the respondents in this age group claimed to have had one of the two exams. Those who said they have had one of the exams were asked how recently it had been. Roughly a third, 34.5%, of these respondents said it had been within the past year, 20.5% said it was within the past two years, 31.0% within the past five years, 10.5% within the past ten years, and 3.5% said it had been ten or more years since they had the test. That is, 37.3% of Livingston County residents 50 or older have had either a colonoscopy or a

sigmoidoscopy within the past two years.

Table 19 indicates that:

There were no significant differences between rural and suburban residents or between male and female residents regarding either having ever had one of the two exams or having had one within the past two years.

Older respondents were somewhat more likely to have ever had one of the two exams while those 65 to 74 were somewhat more likely to have had one of the exams more recently than others, especially compared to those between 50 and 54.

Those at either the high end or the low end of the income scale were more likely to have ever had one of the two exams and to have done so within the past two years.

### **Health Risk Behaviors**

Another portion of the overall 2004 Livingston BRFs concerned respondents' activities that have fairly direct links to their risk of developing major cardio-vascular diseases, cancers, other diseases, or of sustaining significant injuries. These are collectively referred to as health risk behaviors and include tobacco use, alcohol consumption, level of physical activity, and dietary habits. The findings of the 2004 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, 19.0% of Livingston County adults are current smokers, 33.9% are former smokers, and 47.1% have never smoked. That means that 64.1% of those who have ever been smokers [ $33.9\% \div (19.0\% + 33.9\%) = 64.1$ : the Quit Ratio] have quit. The 19.0% current smoking rate is lower than the 23.9% prevalence reported by the Michigan BRFs for 2002 among the white population statewide. Projecting to the whole adult population of the county, we would estimate that there are currently 23,805 adults who smoke in Livingston County ( $\pm 3,670$ ). We would also estimate that there are 42,473 ( $\pm 4,429$ ) former smokers in Livingston County whose health risks from smoking are decreasing.

Table 20 shows the percentages of the Livingston County population that are current smokers, former smokers, never smokers, and the percentage 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 the 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. The percentages 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.

Table 20. Smoking Status<sup>1</sup> of Livingston County Respondents by Demographic Characteristics

Demographic Characteristic		Smoking Status (%)			Quit Ratio <sup>2</sup>
		Current Smoker	Former Smoker	Never Smoked	
Overall		19.0%	33.9%	47.1%	64.1%
Area of County*	Rural	26.4%	28.2%	45.4%	51.6%
	Suburban	16.2%	37.9%	46.0%	70.1%
Gender	Male	20.6%	34.8%	44.5%	62.8%
	Female	17.4%	33.0%	49.6%	65.5%
Age*	18-34	26.7%	21.6%	51.7%	44.7%
	35-54	17.6%	30.9%	51.5%	68.9%
	55-64	19.4%	42.9%	37.8%	68.9%
	65-99	10.2%	53.7%	36.1%	84.0%
Education*	< High School	18.2%	52.7%	29.1%	74.3%
	H.S. Grad.	25.9%	44.0%	30.1%	62.9%
	Some College	24.0%	29.2%	46.8%	54.9%
	College Grad.	5.8%	24.6%	69.6%	80.9%
Income*	< \$20,000	19.0%	40.5%	40.5%	68.1%
	\$20,000-34,999	18.3%	49.5%	32.3%	73.0%
	\$35,000-49,999	32.8%	35.9%	31.3%	52.3%
	\$50,000-74,999	21.7%	42.0%	36.4%	65.9%
	\$75,000 +	11.3%	24.3%	64.3%	68.3%

<sup>1</sup> Among all respondents, the percentage who responded "yes" to the question, "Have you smoked at least 100 cigarettes in your lifetime?" and responded that they currently smoked cigarettes every day or some days.

<sup>2</sup> The percentage of all respondents who said they have said they smoked at least 100 cigarettes in their life who said they do not smoke now.

\* Statistically significant,  $p < .05$

The table indicates that:

Rural residents were more likely than suburban residents to smoke currently even though both were about equally likely to have ever smoked, indicating that suburban residents were more likely to have quit smoking if they ever started than rural residents.

There were no significant differences in smoking status between males and females.

In general, younger respondents were more likely to be current smokers than were older respondents and quit ratios tended to increase with age.

Those with a college education were much less likely to be current smokers and more likely to have never smoked than other residents of the county.

Those with incomes between \$35,000 and \$50,000 were more likely than others to be current smokers while those with incomes of \$75,000 or more were least likely to have ever smoked compared to others in the county.

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, 51.8% said they had. There were no significant differences between the percentages of males and females who said they tried to quit, between rural and suburban, or among different age groups. Those in the middle levels of income were less likely to report having tried to quit smoking in the past year than those with lower or higher incomes.

More than six out of ten respondents in the county said they were currently employed either for wages (48.3%) or self-employed (14.1%). Of these, 50.4% (or 31.3% of all respondents) said they are employed within Livingston County. Interviewers asked all those employed what best characterized the smoking policy at their place of employment. Seven out of ten (71.7%) of these employed respondents said smoking is not allowed in any work areas, 10.4% said it is allowed in some work areas, 2.1% it is allowed in all areas, and 15.7% said their place of employment has no official policy regarding smoking. Those employed outside the county were somewhat more likely to say that smoking is not allowed in any of the work areas where they work (73.9%) than were those employed within Livingston County (68.8%) but the difference was not quite statistically significant.

Among these employed respondents, 14.4% of those who have never smoked said smoking is allowed in some work areas where they are employed (7.2%) or that there is no official smoking policy (7.2%). By contrast, 37.8% of the former smokers and 45.2% of the current smokers said smoking is allowed in at least some work areas or there is no official policy.

All respondents were asked what best describes the rules about smoking inside their homes. Nearly eight out of ten (77.3%) said smoking is not allowed anywhere in their homes, 9.6% said it is allowed in some places or at some times, 1.4% said smoking is allowed anywhere in the home, and 11.7% said there are no rules about smoking inside their home. While 88.5% of those who never smoked and 78.8% of those who are former smokers said smoking is not allowed anywhere inside their homes, 48.3% of the current smokers said it is not allowed anywhere in their homes also.

**Alcohol Consumption.** The 2004 Livingston BRFSS included several questions regarding alcohol consumption, frequency, and quantities. 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.

Based on this classification scheme, 8.2% of Livingston County adults were heavy drinkers. This is somewhat higher than the 6.1% prevalence rate reported for the white population of Michigan in 2002 and the 5.9% overall prevalence rate for Michigan in 2002. The 8.2% prevalence rate for heavy drinking would be projected to represent 10,274 adults ( $\pm 2,567$ ).

For summary purposes, we have created three drinking status classifications using an earlier BRFSS classification system, except that we have used the 2002 BRFSS classification for heavy drinking, and we have combined the former light and moderate drinking categories into one category. This produces three categories: abstainers (0 drinks in a month), light/moderate drinkers (greater than none but 2 or fewer per day for males or 1 or fewer per day for females), and heavy drinkers.

Table 21 shows the results of this analysis for rural and suburban parts of the county and for categories of sex, age, education, and income. The table indicates that 26.8% of Livingston adults are classified as abstainers. This is projected to represent 33,578 adults county wide ( $\pm 4,144$ ). The table also indicates that:

Rural residents were somewhat more likely than suburban residents to be either abstainers or heavy drinkers whereas suburban residents were more likely than rural to be light or moderate drinkers, but the differences were not quite statistically significant.

Females were somewhat more likely than males to be classified as heavy drinkers.

Older respondents were more likely than younger respondents to be abstainers, while those 35 to 54 were more likely to be heavy drinkers than respondents in other age groups.

Those who had less education were more likely than those who had more education to be abstainers.

Those with greater incomes were less likely than their lower income counterparts to be abstainers and somewhat more likely to be heavy drinkers.



Table 21. Drinking Status<sup>1</sup> and Prevalence of Binge Drinking, Driving Drunk Among Livingston County Respondents by Demographic Characteristics

Demographic Characteristic		Drinking Status (%)				Drove After Drinking Too Much <sup>3</sup>
		Abstainer	Light/ Moderate	Heavy	Binge Drank <sup>2</sup>	
Overall		26.8%	65.0%	8.2%	22.7%	1.8%
Area of County	Rural	32.0%	57.1%	10.9%	24.4%	2.3%
	Suburban	25.1%	66.7%	8.1%	22.7%	1.6%
Gender	Male	25.0%	69.6%	5.4%*	24.4%	2.7%
	Female	28.5%	60.7%	10.8%	21.0%	1.1%
Age	18-34	16.5%	76.7%	6.8%*	44.1%*	2.8%
	35-54	22.0%	66.8%	11.2%	22.3%	1.7%
	55-64	46.9%	46.9%	6.1%	8.2%	2.0%
	65-99	38.5%	57.8%	3.7%	1.8%	0.9%
Education	< High School	38.2%	58.2%	3.6%*	19.6%	0.0%
	H.S. Grad.	35.8%	52.3%	11.9%	19.5%	2.6%
	Some College	23.6%	67.9%	8.5%	23.9%	1.6%
	College Grad.	18.3%	76.4%	5.2%	25.7%	2.1%
Income	< \$20,000	64.3%	31.0%	4.8%*	11.9%	0.0%
	\$20,000-34,999	23.7%	72.0%	4.3%	15.1%	0.0%
	\$35,000-49,999	28.6%	65.1%	6.3%	20.6%	4.7%
	\$50,000-74,999	26.4%	60.4%	13.2%	27.3%	2.8%
	\$75,000 +	17.9%	74.7%	7.4%	24.6%	1.8%

<sup>1</sup> The percentage of respondents who reported not drinking alcohol at all in the past month (abstainers), an average of 2 or fewer drinks per day for males or 1 or fewer drinks per day for females (light/moderate), or an average of more than 2 per day for males or more than 1 per day for females (heavy).

<sup>2</sup> The percentage of all respondents who said they had 5 or more drinks in a single occasion one or more times in the past month.

<sup>3</sup> The percentage of all respondents who said one or more times in response to the question "During the past 30 days, how many times have you driven when you've had perhaps too much to drink?"

\* Statistically significant,  $p < .05$

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.

The 2004 Livingston BRFSS found that 22.7% of all 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 28,441 ( $\pm 3,919$ ) adults in the county binge drinking at least once in a month. This is a considerably higher rate than the 16.8% reported statewide by the Michigan BRFSS for

2002 (17.1% among only whites).

Among those who reported having done so at least once in the previous month, the average number of times they reported binge drinking in the month was 2.9, with the median being 2.

Table 21 shows the percentage of respondents who reported having engaged in binge drinking at least once in the previous month. The table indicates that:

Rural and suburban residents did not differ in the prevalence of binge drinking.

Males and females were about equally likely to report having engaged in binge drinking at least once in the past month.

Younger respondents were much more likely to have engaged in binge drinking than were older respondents. For example, nearly half of those ages 18 to 34 reported binge drinking at least once, compared to only about one in seven of those ages 35 to 64, and only about one in fifty of those 65 or older. However, those between 35 and 64 reported having done this more times in the previous month than did those younger than 35 or older than 64.

There were no significant differences in the prevalence of binge drinking across levels of education or levels of income in Livingston County.

It is also the case that respondents who are single or living with someone as a couple were two to three times more likely to report binge drinking in the previous month than were respondents who are married, separated, divorced or widowed. More than half (54.9%) of those are single (never married) reported binge drinking at least once, as did 22.7% of those living with someone as an unmarried couple, compared to 19.4% of those who are married, 17.5% of those who are divorced or separated, and 0% of those who are widowed.

Also, 88.7% of those classified as heavy drinkers reported binge drinking at least once in the previous month, compared to 24.2% of those classified as light or moderate drinkers.

Those who reported binge drinking at least once were asked if they drove a motor vehicle, such as a car, truck, or motorcycle during or within a couple of hours after this occasion. Of those who reported binge drinking, 6.3% (or 1.4% of all respondents) said they had driven shortly after drinking 5 or more drinks the more recent time they binge drank in the previous month.

Interviewers asked respondents how many times in the past month they had driven when they had had too much to drink. Among all respondents, 1.8% said they had done this at least once. Table 21 shows the percentage who reported doing this for each of the demographic groups in the Livingston County sample. The table indicates that there were no significant differences among the various categories.

**Physical Activity.** 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, 19.3% were inactive. This is somewhat lower than the 22.7% reported for the white population of the state in 2002 by the Michigan BRFs. Table 22 indicates that:

There were no significant differences in the percentages who were inactive between residents of the rural and the suburban parts of the county.

Females were equally as likely as males to be inactive.

Older residents were more likely to be inactive than were their younger counterparts.

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

Generally, those with more income were less likely to be inactive than were those with less income.

Those classified as obese were somewhat more likely to be physically inactive (22.0%) than were those classified as overweight (18.3%), and those classified as not overweight/acceptable (16.5%).

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) for at least ten minutes at a time. Nearly 94% of all respondents reported some type of moderate exercise for 10 minutes at a time at least once per week. More than three quarters of all respondents (76.0%) said they participate

Table 22. Percentage Inactive, by Demographic Characteristics

Demographic Characteristic		% Inactive <sup>1</sup>
Overall		19.3%
Area of County	Rural	22.9%
	Suburban	18.8%
Gender	Male	18.0%
	Female	20.5%
Age	18-34	9.6%*
	35-54	18.9%
	55-64	24.7%
	65-99	31.5%
Education	< High School H.S. Grad.	41.8%*
	Some College	31.1%
	College Grad.	14.5%
	College Grad.	6.8%
Income	< \$20,000	38.1%*
	\$20,000-34,999	39.8%
	\$35,000-49,999	25.0%
	\$50,000-74,999	18.8%
	\$75,000 +	6.5%

<sup>1</sup> Among all respondents, the percentage who responded “no” to the question, “During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?”

\* Statistically significant,  $p < .05$

in moderate physical activities for ten or more minutes at a time three or more days a week and more than half (51.1%) said they do so five or more days per week.

There were no statistically significant differences between respondents in the rural and the suburban parts of the county in the percentages who engage in moderate physical activity three or more days a week, or who engage in moderate activity five or more days a week. Females were more likely than males to report engaging in this level of moderate physical activity 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 eight hours, but the median length of time they reported was 33 minutes (with the average being 64.5 minutes). Those who were overweight reported exercising for a similar length of time each time they participated in moderate physical activity (71 minutes) as did those who were not overweight (67 minutes) and those who were obese (54 minutes).

Interviewers asked respondents whether or not they engage 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) for at least 10 minutes at a time in a usual week. Nearly six out of ten respondents (58.8%) said that they do. Nearly a third (32.1%) said they engage in vigorous physical activity for at least ten minutes at a time three or more days per week, while 10.7% reported participating at this level of activity five or more days a week.

There were no significant differences between the rural and suburban respondents, but males, younger respondents, those with more education, and those with greater incomes tended to be more likely to engage in vigorous physical activity and more often than their counterparts. Those classified as obese were less likely than those who are overweight or who are in the acceptable weight range to participate in vigorous physical activity this often.

Among those who reported participating in vigorous activities, the amount of time respondents claimed they did these activities per occasion again varied from ten minutes to eight hours, but the median length of time they reported is 60 minutes (with the average being 62 minutes). Those who are not overweight and those who are overweight reported exercising for a longer time each time they participated in vigorous physical activity (63 minutes and 68 minutes respectively) than did those who are obese (49 minutes).

Half (50%) of those who participate in any moderate or vigorous physical activity said they spend the time walking, while 33% said they garden or do yard work, 17% do housework, 14% bike, 11% jog or run, 11% lift weights, 5% do aerobics, and the remainder to miscellaneous other types of activities.

To get a more concise estimate of the prevalence of getting adequate or inadequate amounts of physical activity for cardiovascular health, we must combine individual's answers across these several different questions about physical activities. BRFSS defines adequate exercise or physical activity as engaging in 30 minutes or more of moderate physical activity five or more days per week, or at least 20 minutes of vigorous activity three or more days per week. Inadequate physical activity is any amount less than this.

Using this criterion, 56.3% of the respondents in Livingston County engaged in adequate levels of physical activity, 43.7% did not. This 56.3% engaging in adequate levels of physical activity is somewhat greater than the 51.8% reported among the white population of Michigan in 2002 by the Michigan BRFSS.

Table 23 shows the prevalence of inadequate levels of physical activity among the various demographic groups in the Livingston BRFSS sample. The table indicates that:

There was no difference between rural and suburban residents of the county regarding the percentage of residents who report inadequate levels of physical activity.

There were no differences between males and females in the percentages who engaged in inadequate levels of physical activity.

Those 35 or older were appreciably more likely than those younger than 35 to participate in inadequate levels of physical activity.

Those with a high school education or some college were more likely to engage in inadequate levels of physical activity than their counterparts.

There were no statistically significant differences in the prevalence of inadequate physical activity across levels of education or income.

Table 23. Percentage Inadequate Physical Activity, by Demographic Characteristics

Demographic Characteristic		% Inadequate Physical Activity <sup>1</sup>
Overall		43.7%
Area of County	Rural	43.8%
	Suburban	43.8%
Gender	Male	47.2%
	Female	40.3%
Age*	18-34	29.9%
	35-54	48.2%
	55-64	48.8%
	65-99	49.0%
Education *	< High School	35.7%
	H.S. Grad.	48.2%
	Some College	48.8%
	College Grad.	35.5%
Income	< \$20,000	56.8%
	\$20,000-34,999	30.9%
	\$35,000-49,999	44.4%
	\$50,000-74,999	40.3%
	\$75,000 +	42.9%

<sup>1</sup> Percent who did not engage in either 30 minutes or more of moderate physical activity five or more days per week, or at least 20 minutes of vigorous activity three or more days per week.

\* Statistically significant,  $p < .05$

**Nutrition and Diet.** The 2004 Livingston BRFs included several questions designed to assess (partially) the nutrition and dietary intake of adults. Part of the reason is to see the extent to which adults consume the recommended numbers of servings of certain types of foods, particularly fruits and vegetables. Interviewers asked respondents how many servings of fruits and vegetables they typically consume daily.

Table 24 shows the average number of servings of all fruits and vegetables typically consumed daily as reported by the respondents. It also shows the percentage of respondents whose responses indicated that they consume five or more fruits and vegetables per day as recommended.

The table indicates that the mean number of servings per day respondents in Livingston County reported is 3.1, while only 17.9% reported consuming five or more. The 17.9% figure is somewhat lower than the 22.3% reported for the statewide white population in the 2002 Michigan BRFs, although the 2002 Michigan BRFs result was based on six, more detailed questions and included fruit juices in the total.

The table indicates that:

In general, older respondents were more likely to report eating five or more fruits and vegetables than were their younger counterparts.

Table 24. Mean Number Servings of Fruits and Vegetables per Day and Percent Consuming Five or More Daily, by Demographic Characteristics

Demographic Characteristic		Mean Number Servings Fruits-Veg./Day <sup>1</sup>	% Consume 5 or More Daily <sup>2</sup>
Overall		3.1	17.9%
Area of County	Rural	3.2	20.8%
	Suburban	3.1	16.9%
Gender	Male	2.7*	13.8%*
	Female	3.6	22.4%
Age	18-34	2.7*	11.4%*
	35-54	3.0	14.8%
	55-64	3.4	25.0%
	65-99	4.0	29.8%
Education	< High School	3.3	14.5%
	H.S. Grad.	2.9	15.7%
	Some College	3.1	17.7%
	College Grad.	3.3	21.3%
Income	< \$20,000	3.0*	18.9%
	\$20,000-34,999	3.0	15.2%
	\$35,000-49,999	2.8	14.5%
	\$50,000-74,999	2.9	11.6%
	\$75,000 +	3.5	20.50%

<sup>1</sup> Median number of servings of fruits and vegetables reported based on two questions: one about fruit and one about vegetables.  
<sup>2</sup> Percent who reported consuming fruits and vegetables five or more times per day.  
\* Statistically significant, p < .05

There were no significant differences across levels of education or income in the percentage who consumed the recommended numbers of fruits and vegetables daily.

Additionally, those whose BMI scores for height and weight put them in the acceptable weight range were no more likely (18.1%) than those who were overweight (16.7%) and those who were obese (14.7%) to report consuming five or more vegetables per day.

Interviewers also asked respondents how many servings of soda, pop, juice or fruit flavored drinks they drink each day. Overall, the average number of such drinks reported was 1.6 with the median being 1. Three out of ten (30.0%) reported drinking no such drinks on a daily basis and 27.4% reported drinking only one. Males, younger respondents, those with less education and those with lower incomes tended to drink more such sugar drinks each day than

their counterparts. Similarly, those who are obese reported drinking more sugar drinks per day (2.0) on average than those who are not overweight (1.6) and those who are overweight (1.6).

**Excess Sun Exposure.**

According to the National Cancer Institute, skin cancer is the most common form of cancer in the United States ([www.nci.nih.gov/cancerinfo/pdq/prevention/skin/patient/](http://www.nci.nih.gov/cancerinfo/pdq/prevention/skin/patient/)). Reducing exposure to Ultra-violet light has been shown to decrease the incidence of non-melanoma skin cancers, and preventing sunburns, especially during childhood and adolescence, appears to decrease the incidence of melanoma, the more serious type of skin cancer. To assess the prevalence of risk for skin cancer in the population, the interview included two questions regarding exposure to the sun. The first asked respondents whether or not they had had a sunburn in the past year. For those who had, the second asked how many times they had been sunburned. Nearly half (48.2%) of the respondents said they had been sunburned in the past year. Among those who had, 33.8% said they were sunburned only once, 28.3% said they were sunburned twice, and 37.2% said they were sunburned three or more times during the year.

Table 25 shows the prevalence of sunburns in the past year for various demographic groups in the county. The table indicates that:

Table 25. Prevalence of Sunburn in the Past Year, by Demographic Characteristics

Demographic Characteristic		% Had 1 or More Sunburns in Past Year <sup>1</sup>
Overall		48.2%
Area of County	Rural	44.2%
	Suburban	51.1%
Gender*	Male	53.3%
	Female	43.3%
Age*	18-34	52.5%
	35-54	57.0%
	55-64	35.1%
	65-99	27.5%
Education*	< High School	48.2%
	H.S. Grad.	44.8%
	Some College	41.4%
	College Grad.	60.2%
Income*	< \$20,000	33.3%
	\$20,000-34,999	45.7%
	\$35,000-49,999	39.7%
	\$50,000-74,999	57.6%
	\$75,000 +	59.6%

<sup>1</sup> Percent responding “yes” to the question, “Have you had a sunburn with the past 12 months, including anytime that even a small part of your skin was red for more than 12 hours?”

\* Statistically significant, p < .05

There was no significant difference between rural and suburban residents regarding the percentage of respondents who reported having been sunburned in the past year.

Males were more likely to have been sunburned than are females.

Younger respondents were more likely to have been sunburned than were their older counterparts.

Those with a college education were more likely to have been sunburned than were

those with less education.

Those with higher incomes were more likely to report having been sunburned than were those with lower incomes.

### **Other Health Concerns**

The 2004 Livingston BRFSS included questions on several additional health related topics as well. These other topics included questions regarding air quality induced health problems, firearms, difficulties meeting basic needs, access to prescription drugs, assistance with daily living, and caregiving responsibilities. The results of these will be summarized in this section of the report.

**Air Quality and Health.** Interviewers asked all respondents if, in the past twelve months, they have had an illness or symptom that they think was caused by something in the air inside a home, office, or other building. Respondents were told that this did not refer to illnesses they catch from other people, such as a cold. Interviewers then asked respondents if they have had an illness or symptoms in the past twelve months they think were caused by pollution in the air outdoors. Overall, 21.2% of respondents said they had been affected in this way by indoor air quality and 11.5% said they had been affected by outdoor air pollution.

Roughly 21% of those employed for wages, 27% of those self-employed, and 27% of homemakers said they thought they had a health problem in the past year caused by something in indoor air. That homemaker are as likely to report this experience as those employed suggests that this is not peculiar to paid work environments.

Table 26 shows the percentages of respondents who experienced these problems among the various demographic groupings of respondents. The table indicates that:

Rural respondents were nearly twice as likely as suburban respondents to report health problems from indoor air quality.

Females were much more likely than males to report health problems from indoor air quality and outdoor air pollution.

Generally, younger respondents were more likely than older respondents to report each of these types of health problems.

Those with some college education were more likely than those with either less or more education to report health problems from indoor air quality and outdoor air pollution.

Generally, those with lower incomes were more likely than their more affluent counterparts to report health problems from each of these types of poor air quality.



Current smokers, former smokers, and those who have never smoked were about equally likely to report having had health problems from each of these in the past year.

Table 26. Prevalence of Health Problems from Air Quality, Pollution in the Past Year, by Demographic Characteristics

Demographic Characteristic		% Had Health Problem from Poor Indoor Air Quality in Past Year <sup>1</sup>	% Had Health Problem from Outdoor Air Pollution in Past Year <sup>2</sup>
Overall		21.2%	11.5%
Area of County	Rural	30.3%*	10.5%
	Suburban	16.5%	12.4%
Gender	Male	17.2%*	8.1%*
	Female	25.0%	14.8%
Age	18-34	29.4%*	11.9%*
	35-54	20.7%	11.3%
	55-64	22.7%	18.6%
	65-99	7.5%	5.7%
Education	< High School	12.7%*	8.9%*
	H.S. Grad.	13.0%	9.9%
	Some College	33.3%	18.9%
	College Grad.	16.3%	4.3%
Income	< \$20,000	36.6%*	19.0%*
	\$20,000-34,999	30.4%	15.1%
	\$35,000-49,999	14.3%	14.3%
	\$50,000-74,999	17.5%	10.5%
	\$75,000 +	15.3%	2.7%

<sup>1</sup> Percent responding “yes” to the question, “Things like dust, mold, smoke, and chemicals inside the home or office can cause poor indoor air quality. In the past 12 months have you had an illness or symptom that you think was caused by something in the air inside a home, office, or other building?”

<sup>2</sup> Percent responding “yes” to the question, “Things like smog, automobile exhaust, and chemicals can cause outdoor air pollution. In the past 12 months have you had an illness or symptom that you think was caused by pollution in the air outdoors?”

\* Statistically significant,  $p < .05$

**Firearms.** Injuries from firearms are quite common, but most of these injuries could be prevented if firearms and their ammunition were stored properly, especially so children could not get access to them. To assess the potential for such problems, interviewers asked respondents if there are any firearms kept in or around their home. Respondents were told to include weapons such as pistols, shotguns, and rifles, but not BB guns, starter pistols, or guns that cannot fire. They were also told to include those kept in a garage, outdoor storage area, or motor vehicle.

Among all Livingston County BRFSS respondents, 46.2% said they do have firearms in or around their homes. Those with firearms were asked if any of them are currently loaded. Roughly one in nine respondents with firearms said at least some of the firearms are now loaded. Those with loaded firearms in or around their homes were then asked if the loaded weapons are locked up. Roughly a third (37.1%) of those with loaded firearms said they are not locked up. This represents 2.0% of all respondents. Respondents with children under age 18 in the

household were no less likely to have firearms around the home than those who do not have children in the household, and those with children were no more likely to have the firearms unloaded, or the loaded weapons locked up than were those who do not have children in the household.

Table 27 shows the percentages of respondents in the various demographic categories who have firearms and have them stored safely (i.e., stored unloaded or, if loaded, locked). The tables indicates that:

Rural and suburban residents were equally likely to have firearms around the home and to store them safely.

Table 27. Percent of Respondents Who Have Firearms Around Home, Stored Safely or Not, by Demographic Characteristics

Demographic Characteristic		% Have Firearms In or Around the Home <sup>1</sup>	% Have Firearms** Stored. . .	
			Unloaded or Locked	Loaded, Unlocked <sup>2</sup>
Overall		46.2%	41.9%	2.0%
Area of County	Rural	42.7%	39.5%	0.6%
	Suburban	47.4%	43.8%	1.3%
Gender	Male	54.0%*	47.5%*	3.3%
	Female	38.6%	36.9%	0.6%
Age	18-34	38.6%	34.1%	1.8%
	35-54	49.0%	46.4%	1.0%
	55-64	53.3%	4.7%	4.7%
	65-99	44.0%	3.1%	3.1%
Education	< High School	60.0%	56.4%	3.6%
	H.S. Grad.	43.9%	41.2%	1.7%
	Some College	46.7%	41.2%	2.2%
	College Grad.	43.7%	39.4%	1.7%
Income	< \$20,000	19.5%*	17.5%	0.0%*
	\$20,000-34,999	57.8%	56.8%	0.0%
	\$35,000-49,999	50.0%	44.1%	3.4%
	\$50,000-74,999	52.8%	45.7%	1.6%
	\$75,000 +	47.5%	41.9%	3.7%

<sup>1</sup> Percent responding “yes” to the question, “The next questions are about firearms. We are asking these in a health survey because of our interest in firearm-related injuries. Please include weapons such as pistols, shotguns, and rifles; but not BB guns, starter pistols, or guns that cannot fire. Include those kept in a garage, outdoor storage area, or motor vehicle. Are any firearms kept in or around your home?”

<sup>2</sup> Percent responding “yes” to the question, “Are any of these firearms now loaded? And “yes” to the question “Are any of these loaded firearms also unlocked. By unlocked, we mean you do not need a key or combination to get the gun or to fire it. We don’t count a safety as a lock.”

\* Statistically significant,  $p < .05$

\*\* Percentages in these two columns do not sum to the percentage in the previous column because of “don’t know” and refusal responses to one or both of these two questions.

Males were more likely than females to report the presence of firearms in or around the home, but they were also more likely to report the firearms are stored in a safe manner.

There were no differences in the prevalence of firearms in the home across respondent age groups or across levels of education.

There were significant differences in the presence of firearms in the home across levels income but the pattern was not clear; those with incomes above \$35,000 were less likely than their lower income counterparts to store the weapons in a safe manner.

**Difficulties Meeting Basic Needs.** Interviewers asked respondents to the 2004 Livingston BRFSS how hard it is for them to pay for the very basics like food, housing, medical care, and heating. Among all respondents, one in fifteen (6.5%) said it is very hard, 26.9% said it is somewhat hard, and two-thirds (66.6%) said it is not very hard at all.

Respondents were then asked if they have been concerned about having enough food for themselves or their family in the past 30 days. One in twenty-four (4.1%) said they had.

Then interviewers asked respondents if they believe their current housing situation poses a health or safety risk to themselves or other residents? Interviewers indicated examples of such risks are a failing well or septic system, a leaky roof, poor electrical wiring, heating problems, broken stairs, or other risks. Among all respondents, 3.2% said they thought their current housing poses a health or safety risk.

Table 28 shows the percentages of respondents indicating they have each of these problems meeting basic needs. The table indicates that:

Rural respondents were more likely than suburban respondents (46.8% vs. 27.7%) to indicate they have a very or somewhat difficult time paying for basic needs.

Female respondents were somewhat more likely than males to indicate being concerned about having enough food for themselves or their family in the past month.

Those under age 35 (38.3%) and those 65 or older (36.8%) were more likely than those between 35 and 64 to indicate having at least some difficulty paying for basic needs, but those 55 to 64 and those under 35 were more likely to say they have a very hard time paying for basic needs. These same groups were more likely than others to say they have had concerns about having enough food for themselves or their families in the past month.

Generally, those with less education were more likely than their counterparts to report difficulty paying for basic needs, while those with some college were more likely than others to report having been concerned about having enough food in the past month.

Table 28. Percent of Respondents Who Difficulty Paying for Basics, Concerns About Having Enough Food, Have Unsafe Housing, by Demographic Characteristics

Demographic Characteristic		% Difficulty Paying for Basics <sup>1</sup>		% Concerned in <sup>2</sup> Past Month About Having Enough Food	% Believe <sup>3</sup> Current Housing is Health Risk
		Very Hard	Somewhat Hard		
Overall		5.7%	26.9%	4.1%	3.2%
Area of County	Rural	8.1%	38.7%*	5.1%	1.7%
	Suburban	5.8%	21.9%	3.5%	3.7%
Gender	Male	4.2%	27.9%	2.0%*	3.3%
	Female	8.7%	25.8%	6.3%	3.3%
Age	18-34	9.7%	28.6%*	8.1%*	4.5%
	35-54	4.1%	25.4%	2.2%	3.0%
	55-64	13.1%	19.0%	6.0%	3.5%
	65-99	2.1%	34.7%	1.0%	2.1%
Education	< High School	5.5%	47.3%*	1.8%*	3.6%
	H.S. Grad.	4.8%	33.7%	3.0%	4.2%
	Some College	10.2%	27.9%	8.1%	3.7%
	College Grad.	4.2%	12.0%	0.6%	1.2%
Income	< \$20,000	29.7%	32.4%*	12.9%*	0.0%*
	\$20,000-34,999	13.9%	41.8%	8.6%	4.9%
	\$35,000-49,999	18.4%	29.6%	11.1%	3.7%
	\$50,000-74,999	0.0%	32.6%	0.0%	0.8%
	\$75,000 +	0.5%	9.7%	0.0%	0.5%
Marital Status	Single, Never Married	3.9%	27.6%*	1.4%*	9.2%*
	Married	2.3%	26.5%	0.5%	0.9%
	Widowed	0.0%	42.3%	3.6%	0.0%
	Divorce, Separated	35.8%	22.6%	24.1%	16.4%
	Member Unmarried Couple	31.8%	27.3%	31.8%	0.0%
Have Children	Yes	7.2%	26.1%	5.1%	1.8%
	No	5.8%	27.6%	3.4%	4.6%

<sup>1</sup> Percent responding to the question, "How hard is it for you to pay for the very basics like food, housing, medical care, heating?"

<sup>2</sup> Percent responding "yes" to the question, "In the past 30 days, have you been concerned about having enough food for you or your family?"

<sup>3</sup> Percent responding "yes" to the question, "Do you believe your current housing situation poses a health or safety risk to you or other residents? Examples of such risks are a failing well or septic system, leaky roof, poor electrical wiring, heating problems, broken stairs, or other risks."

\* Statistically significant,  $p < .05$

Predictably, those with lower incomes were much more likely than their more affluent counterparts to report difficulties paying for basic needs, having been concerned about having enough food, and about the safety of their current housing.

Those who are divorced, separated, or members of unmarried couples were much more likely than others to report financial difficulties and concerns about having enough food.

Nearly all of the respondents reporting concerns about the safety of their current housing were either divorced or separated individuals or single individuals who have never been married.

There were no differences on any of these between those respondents in households with children under age 18 and those without children.

**Access to Prescription Drugs.** The affordability of prescription drugs has been widely discussed over the past several years. Congress has made changes in the Medicare system to try to improve affordability for senior citizens, but many individuals continue to be concerned about the costs and even to seek lower cost alternative sources of the same medications.

To explore this, the 2004 Livingston BRFSS included several questions regarding prescription drugs. Interviewers asked respondents whether paying for prescription medications in the past year has been a major problem, minor problem, or not a problem at all. Among all respondents, 5.4% said this has been a major problem, while another 16.3% said it has been a minor problem.

Interviewers asked respondents approximately how much they have had to spend out of their own pocket per month for medications over the past year. A little more than a quarter (27.6%) said they paid less than \$10 per month, 38.2% said they paid between \$10 and \$50 per month, 18.6% said they paid between \$50 and \$100 per month, and 15.7% said they paid \$100 or more per month for prescription medications in the past year. In general, the more respondents had to pay, the more likely they were to indicate that paying for medications was a problem.

Many health insurance policies do not cover prescription drugs so it is, perhaps, not surprising that there was no significant difference between those with health insurance and those without regarding how much of a problem it is paying for prescription drugs. Those with insurance were somewhat more likely to report paying smaller amounts of money out of pocket per month for medications than those without insurance.

Interviewers asked respondents how concerned they are about their ability to pay for needed prescriptions in the next two years. Among all respondents, 17.7% said they are very concerned, 30.8% said somewhat concerned, 22.7% said they are not very concerned, and 28.7% said they are not concerned at all.

Another way to assess the extent to which the cost of medications is a problem for individuals or the depth of their concern about being able to afford medications is to examine the lengths they have gone to reduce the costs of their medications or to be able to afford them. Interviewers asked all respondents if, in the past year, they had taken each of six different actions because of the costs of medications. One in eight respondents (12.6%) said they had delayed getting a prescription filled because they did not have enough money at the time, 7.9% said they took less of a medication than was prescribed in order to make it last longer, 3.3% said they cut back on other items such as food, fuel, or electricity to pay for prescription drugs, 20.9% said they ordered prescription drugs by mail or through the internet to reduce costs, 10.9% said they did not

fill a prescription at all because of the cost, and 2.1% said they traveled to Canada to get a prescription filled at a lower cost. Altogether, 30.1% of respondents took at least one of these steps.

Table 29 shows the percentages of respondents giving various responses to these questions among the different demographic groupings of respondents. The table indicates that:

Being able to afford prescription drugs was more of a problem for rural than suburban respondents, for older respondents compared to younger respondents, for those with less than a high school education, for those with lower incomes, and for those who have no children in the household.

The monthly out of pocket expenses for prescription drugs were greater for rural respondents, for respondents 55 years of age or older, for those with less than a high school education, and for those with incomes between \$20,000 and \$50,000.

Concerns about being able to afford medications in the next two years were greater among rural respondents, among females, among older respondents, among those with less education, among those with lower incomes, and among those with no health insurance.

Females, older respondents, those with less than a high school education or some college, those with lower incomes and those who have health insurance were more likely than their counterparts to have taken one or more of the six steps to try to reduce the cost of medications or to afford them.

The respondents who indicated that they were having a hard time paying for basic needs were much more likely than other respondents to report being able to afford prescription drugs was a major problem, to be concerned about being able to afford medications in the next two years, and having taken steps to deal with high drug costs. Nearly a third (32.5%) of those who said being able to pay for basic needs is very hard described paying for prescription drugs as a major problem, compared to 6.2% of those who said paying for basic needs is somewhat hard, and 2.3% of those who said it is not very hard at all.

Those who said paying for basic needs is very hard were somewhat more likely (48.7%) to report monthly drug costs of \$50 or more this past year than were those who said paying for basic needs is somewhat hard (43.0%) and those who said paying for basic needs is not very hard at all (28.6%).

Six out of ten of the respondents (61.5%) who said paying for basic needs is very hard said they were very concerned about their ability to pay for prescription over the next two years compared to 28.6% of those who said paying for basic is somewhat hard and 9.2% who said paying for basic needs is not very hard at all.

Seven out of ten (71.8%) of those who said paying for basic needs is very hard reported taking at least one of the six actions listed because of the cost of drugs compared to only 45.7% of

Table 29. Percent of Respondents Who Have Problems Affording Prescriptions, Pay Various Amounts per Month, Are Concerned About Costs, Have Taken Steps to Make Drugs Affordable, by Demographic Characteristics

Demographic Characteristic		How Much a Problem Affording Medications <sup>1</sup>		% Monthly Cost of Drugs <sup>2</sup>			% Concerned <sup>3</sup> About Affording Drugs Next 2 Years		% Took <sup>4</sup> 1 or More Steps to Afford Medications in Past Year
		% Major Problem	% Minor Problem	<\$10	\$10- <\$50	\$50+	Very	Some- what	
Overall		5.4%	16.3%	27.6%	38.2%	34.2%	17.7%	30.8%	34.5%
Area of County	Rural	3.4%	22.4%*	32.0%	29.0%	39.1%*	21.7%	33.3%*	30.7%
	Suburban	6.0%	13.9%	25.8%	42.0%	32.2%	16.0%	29.8%	36.0%
Gender	Male	4.6%	17.4%	25.6%	42.9%	31.6%	13.4%	32.5%*	29.5%*
	Female	6.3%	15.2%	29.6%	33.4%	36.9%	22.1%	29.0%	39.6%
Age	18-34	5.8%	14.2%*	44.8%	52.2%	13.0%*	12.3%	21.9%*	27.1%*
	35-54	4.1%	12.5%	25.2%	40.1%	34.7%	20.6%	32.4%	30.6%
	55-64	11.8%	25.9%	12.0%	36.1%	51.8%	25.9%	23.5%	48.8%
	65-99	3.1%	22.4%	18.0%	29.2%	52.8%	11.3%	47.4%	44.9%
Education	< High School	5.4%	33.9%*	19.6%	33.9%	46.4%*	16.1%	42.9%*	58.9%*
	H.S. Grad.	3.0%	12.0%	36.5%	32.7%	30.8%	22.3%	30.1%	23.5%
	Some College	9.7%	18.1%	27.1%	39.5%	33.3%	20.4%	34.7%	41.5%
	College Grad.	2.4%	11.8%	22.4%	43.0%	34.5%	10.7%	21.9%	28.0%
Income	< \$20,000	26.3%	34.2%*	18.9%	48.6%	32.4%*	42.1%	31.6%*	55.3%*
	\$20,000-34,999	4.9%	35.4%	25.0%	23.8%	51.3%	20.7%	47.6%	45.1%
	\$35,000-49,999	20.0%	18.2%	24.1%	24.1%	51.9%	31.5%	24.1%	46.3%
	\$50,000-74,999	0.8%	12.4%	23.0%	44.4%	32.5%	15.5%	39.5%	27.1%
	\$75,000 +	1.5%	7.7%	27.3%	43.3%	29.4%	9.2%	22.6%	27.6%
Have Insurance	Yes	5.3%	15.4%	26.5%	39.5%	34.0%*	15.4%	31.9%*	35.7%*
	No	7.1%	28.6%	42.5%	20.0%	37.5%	50.0%	16.7%	19.0%
Have Children	Yes	4.3%	11.9%*	30.0%	36.6%	33.3%	18.0%	27.0%	31.8%
	No	6.1%	20.0%	25.5%	39.5%	35.0%	17.6%	34.0%	36.7%

<sup>1</sup> Percent responding to the question, "In the past 12 months, has paying for prescription medications been a major problem, a minor problem, or not a problem for you?"

<sup>2</sup> Percent responding to the question, "In the past 12 months, approximately how much have you spent each month, out of your own pocket for prescription drugs?"

<sup>3</sup> Percent responding to the question, "How concerned are you about being able to afford the cost of needed prescription drugs over the next two years?"

<sup>4</sup> Percent responding "yes" to at least one of six questions regarding delaying filling a prescription, not filling a prescription,

\* Statistically significant, p < .05

those who said paying for basic needs is somewhat hard and 26.4% of those who said it is not very hard at all.

It is instructive to look at which particular actions those struggling to afford basic needs reported taking. Table 30 shows the percentages of respondents who reported taking each of the six actions because of drug costs among the three groups of respondents based on their difficulty paying for basic needs. The table indicates that:

Those who said paying for basic needs was very hard were much more likely than their counterparts to not get a prescription filled at all, to have delayed filling a prescription because they could not afford it at the time, to take less of the medicine than prescribed so it would last longer, and to cut back on other basic expenses such as food, fuel and electricity to afford the medicine.

Table 30. Percent of Respondents Who Took Selected Actions Because of Cost of Prescription Drugs, by Difficulty Paying for Basic Needs

Action	Difficulty Paying for Basic Needs		
	Very Hard	Somewhat Hard	Not Hard At All
1. Delayed filling* prescription	64.1%	19.8%	5.0%
2. Taken less medicine* than prescribed	35.9%	12.3%	3.3%
3. Cut back on other* basics to afford medicine	17.9%	5.6%	0.8%
4. Ordered medications by mail/internet	10.3%	26.1%	20.1%
5. Did not fill a needed* prescription	56.4%	13.0%	5.3%
6. Went to Canada to* get medicine cheaper	0.0%	4.9%	1.3%
	(n=39)	(n=162)	(n=394)

\* p < .05

They were somewhat less likely than others (but not significantly) to purchase medications through the mail or the internet.

They were less likely than others to have gone to Canada to get prescriptions filled at a lower cost.

**Assistance with Daily Living.** The 2004 Livingston BRFs included several questions about receiving assistance with daily living activities. Interviewers asked respondents if, due to an impairment, they need assistance from another person with their personal care needs, such as eating, bathing, dressing, or getting around the house. Among all respondents, only 1.0% said that they did. This is probably an underestimate since many of those who require this level of assistance would, most likely, be unable to respond to a telephone interview request. The 1.0%, projected to the total county adult population, would represent 1,253 ( $\pm$  992) adults that need assistance with personal care needs daily. Virtually all of these respondents indicated that another family member usually provides the care they need.

Interviewers also asked respondents if, due to an impairment, they need some assistance from another person with their routine needs, such as everyday household chores, shopping, or getting around for other purposes. Among all respondents, 3.8% indicated that they need such



assistance. Nearly nine of ten of these respondents (87.4%) indicated that another family member provided this assistance, while a paid helper was indicated for 3.9% of these respondents.

Some of the individuals requiring personal care assistance are the same as those requiring assistance with routine needs. Among all respondents, 3.9% needed some assistance.

Those 55 to 64 years of age (7.1%) and those 65 or older (8.2%) were more likely than those 35 to 54 (2.2%) and those 18 to 34 (1.9%) to need one of these types of assistance. Those with incomes below \$20,000 were more likely (16.2%) to need assistance than those with greater incomes. Those who are widowed (17.9%) or divorced or separated (10.9%) were more likely to need such assistance than were those who are single (5.3%), those who are married (1.9%) and those who are members of unmarried couples (0.0%).

**Caregiving Responsibilities.** Interviewers also asked respondents if they provide care for a family member with a disease or disability. One in nine respondents (11.6%) said that they do. It is likely that some of those for whom the respondents provide care are children, but for we assume

that nearly all are adults. Projected to the total county adult population, the 11.6% would represent 14,534 individuals ( $\pm 3,192$ ) being provided care by family members.

Virtually all of the respondents providing care for someone else are different individuals from those who required assistance themselves. Combining these together allows us to get a better measure of the numbers of county residents who require extra care assistance because of an impairment or illness. Overall, 14.9% of residents – projected to equal 18,668 county residents ( $\pm 3,549$ ) – receive assistance from primarily family caregivers.

Table 31 shows the percentages of respondents in the various demographic categories who are involved in providing caregiving to family members. The table indicates that:

Rural residents were more likely than their suburban counterparts to be involved in caregiving.

Table 31. Percent of Respondent Providing Care to Other Family Member, by Demographic Characteristics

Demographic Characteristic		% Providing Care <sup>1</sup>
Overall		11.6%
Area of County	Rural	16.6%*
	Suburban	9.7%
Gender	Male	10.8%
	Female	12.2%
Age	18-34	14.8%
	35-54	12.9%
	55-64	9.4%
	65-99	5.1%
Education	< High School	19.6%*
	H.S. Grad.	7.2%
	Some College	14.7%
	College Grad.	8.9%
Income	< \$20,000	0.0%*
	\$20,000-34,999	14.6%
	\$35,000-49,999	16.7%
	\$50,000-74,999	7.8%
	\$75,000 +	5.1%

<sup>1</sup> Percent responding “yes” to the question, “Do you provide care for a family member with a disease or disability?”

\* Statistically significant,  $p < .05$

Those with less than a high school education and those with some college were more likely to be involved in caregiving responsibilities than those with a high school education or those who completed college.

Those with incomes between \$20,000 and \$50,000 were more likely to be involved in caregiving than those with lesser or greater incomes.

Those who are widowed were less likely than those who are married ( 3.6% vs. 9.4%) to be involved in caregiving for another family member, while married respondents were less likely than those who are single and never married (15.8%), divorced or separated (20.4%), or members of an unmarried couple (27.3%).

Interviewers asked those who do provide care for another family member with a disease or disability if there are times when they need to take a break from their caregiving activities. More than half (54.3%) of these respondents said that there are such times.

Regardless whether respondents said they sometimes need a break from caregiving, interviewers asked respondents who care for other family members whom they would call if they needed to take a break. Over half of these respondents (57.2%) said they would call other family members, 6.9% said they would call a friend, the remainder mentioned a variety of other possible sources of assistance.

## CONCLUSION

The 2004 Livingston County BRFSS was conducted to produce prevalence rates for a variety of health conditions and health risk behaviors. Most of these are associated with the leading causes of mortality and morbidity. In the report, we have tried to demonstrate among which groups of residents various conditions or risk behaviors are more common or less common. Such information can be used by public health officials and healthcare providers to target interventions intended to reduce risk behaviors or improve health conditions.

The prevalence estimates can also be used as baselines against which to compare prevalence estimates of the same behaviors and conditions at some time in the future in order to judge the effectiveness of intervention efforts.

It is to the designing of interventions that the focus of county health officials and planners can now turn.