

Martha's Vineyard

The Health Conditions and Health Status Report ~ August 15, 2006

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This 2006 Health Conditions and Health Status Report was created from data extracted from the 2004 Health Report of Martha's Vineyard publicly available on the Vineyard Gazette Web site http://www.mvgazette.com/features/documents/island_health_report.doc. For this 2006 update and extended report on health conditions, the original data were supplemented with information from the public health and medical literature and national data where available. Additional analyses were also performed. The survey for the original 2004 Health report was sponsored and conducted by the Foundation for Island Health. This updated report was created by its authors as a complement.

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THE HEALTH REPORT OF MARTHA’S VINEYARD
HEALTH CONDITIONS AND HEALTH STATUS ON MARTHA’S VINEYARD

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ORIGINAL PARTICIPATING ORGANIZATIONS AND CONTRIBUTORS

The 2004 Health Report of Martha's Vineyard was sponsored and carried out by the Foundation for Island Health. The following is a factual history of the development of the survey, implementation, and subsequent analyses. The original report resides currently on The Vineyard Gazette Web site and is referred to as the 2004 Health Report of Martha's Vineyard. Work on this commenced work in August of 2002. The Health Report Committee responsible for the design and implementation of the original survey consisted of representatives of the following agencies (alphabetical order): AIDS Alliance of Martha's Vineyard, Dukes County Health Council, Elder Services of Cape Cod and the Islands, the Foundation for Island Health, Hospice of Martha's Vineyard, Island Health, Inc., Martha's Vineyard Community Services, Martha's Vineyard Hospital, Martha's Vineyard N.A.A.C.P., Vineyard Health Care Access Program, Vineyard House, Vineyard Nursing Association, Visiting Nurse Service of Martha's Vineyard Community Services, Wampanoag Tribe of Gay Head (Aquinnah), Windermere Nursing and Rehabilitation, Martha's Vineyard Whole Health Alliance.

Since its inception, the Health Report Committee has consisted of (in alphabetical order): Diane M. Becker (Founding Chair 2002), Kerry Binder (Administrative Director), Catherine Brennan, Jacque Cage, Tad Crawford, Sandra Demel, Michael Dutton, Barry Fogel, Sandra Grymes, Louis Harris, Phil Hickey, Russell Hoxsie, (Chair 2002-2003), Ilene Klein, Christopher Knowles, Sarah Kuh, Steve London, Cynthia Mitchell, Patricia Worlock Moore (Chair 2004-2006), Ned Robinson-Lynch, Kathy Rose, Freddy Rundlet, (Chair 2002-present), Barbara Stelle, Joyce Steward, Charles Silberstein (Foundation for Island Health, Board Chairman 2002-2004), Barry Stein, Robert Tonti (Executive Director, 2003), Tim Walsh, and Susan Wasserman (2004-2006). Inaugural and continuing members of the Committee consisted of Catherine Brennan, Jacque Cage, Tad Crawford, Freddy Rundlet, and Charles Silberstein. This group was joined by Patricia Worlock Moore (Foundation for Island Health, Board Chair, and Executive Director, 2004-present) and Susan Wasserman (2004-present).

As noted in the 2004 Report, the original survey and related marketing was implemented fully by the Foundation for Island Health and a number of volunteers from almost all Island agencies. Kerry Binder served as the Administrative Director of all aspects of the original survey. Sandra Grymes directed the marketing campaign. Public relations for the survey was designed by Jane Lancelotti and Sally Herman (graphics design). Robert Tonti was responsible for the arranging the conduct of the Clinician's Survey (not reported here). Significant assistance was offered by the Martha's Vineyard Times, The Vineyard Gazette, WMVY, and the Oak Bluffs Elementary School. The 2003 public awareness campaign was written and directed by Jane Lancelotti with assistance for the radio campaign by Barbara Dacey of WMVY, Kate Taylor and Clarence "Trip" Barnes.

Glossary and Commonly Used Abbreviations

C.D.C.
Centers for Disease Control and Prevention

95% Confidence interval
This is the range of possible values in which a finding could have occurred with 95% confidence.

F.I.H.
Foundation for Island Health

Incidence rate
The number of *new cases* of a disease in a population over a period of time, usually a year. Often rates are reported per 100,000 people.

M.D.P.H.
Massachusetts Department of Public Health

Mortality rate
This is the same as the *death rate* and is usually expressed as the number of deaths in a population over a period of time, usually a year.

M.V.
Martha's Vineyard

N.I.H.
National Institutes of Health

P-value
This is the probability that what was observed occurred by chance alone. For example, if $p=0.05$, then the probability that what was found occurred by chance was only 5%. Alternatively, one could say that they were 95% confident that the finding was "real."

Prevalence
The number of people *with the disease or condition in the population at any given point in time*. In this Report, it is often expressed as a percent, or the number of cases per 100 people. Often rates are reported per 100,000 people. This includes new and old cases.

Introduction

The 2006 Health Conditions and Health Status Report of Martha's Vineyard has been designed by its authors to serve as an in-depth educational resource and as a source of easily accessible primary and supplementary data about health as it applies to the Island. It has been written for professionals, agencies, and the general public.

In 2003, a comprehensive mailed survey eliciting information about the health status of the population of Martha's Vineyard Island was conducted in collaboration with health care agencies and institutions on the Vineyard. The survey planning commenced in 2002 under the leadership of Dr. Charles Silberstein, then Chair of the Board of Directors of the Foundation for Island Health, and Dr. Ilene Klein, Chair of the Scientific Program Committee of the Foundation for Island Health. Ms. Kerry Binder managed all implementation components. The original survey protocol was submitted to the Johns Hopkins Institutional Review Board and declared exempt due to the anonymous nature of the survey.

This new 2006 Health Conditions and Health Status Report now presents a combination of the data from the original survey and a fully updated evidence-based background on specific health conditions and health status as reported by residents on the original survey. It also contains educational information and links to Web sites with additional resources, updated to June 2006 by Drs. Becker and Silberstein and our expert consultants.

Subgroup analyses of the survey data by age, sex, and town are easily accessible and in the public domain in the 2004 Health Report of Martha's Vineyard, provided courtesy of The Vineyard Gazette at http://www.mvgazette.com/features/documents/island_health_report.doc. Please note that tables in the original 2004 Health Report may differ slightly from this 2006 Health Conditions and Health Status Report because categories may have been amalgamated or new variables created for this summary. Some new analyses have also been performed. It is expected that in the future, the 2004 Health Report and the 2006 Health Conditions and Health Status Report will likely also reside on the Dukes County Web site at www.dukescounty.org.

The authors would like to encourage the use of this new synthesis by any organization, individual, or group to whom it might be useful in planning. We are enthusiastic about the extent to which this may be useful also for students and professionals as a beginning resource. Finally, the authors hope that the data contained in this synthesis and in the original report will be used for grant applications for health and prevention projects on the Island.

CHAPTER I. DESIGN AND SAMPLING

This report presents a summary of available findings from a large land-wide health survey, conducted January through April 2003 and concentrates only on health conditions and health behaviors. Additional components on health care utilization and clinician opinions are not included but data in these domains are present in the 2004 Health Report of Martha's Vineyard and can be viewed in the 2004 document on the Gazette Web site. Results were also released at a town meeting in August 2003, held at the Martha's Vineyard High School, co-sponsored by participating organizations and the Foundation for Island Health. Results from the town meeting were published. The original survey was modeled in part, with permission, on community health surveys designed by the First Nations Regional Longitudinal Health Survey, the National Aboriginal Health Organization (NAHO) http://www.naho.ca/firstnations/english/regional_health.php. Access to these instruments was arranged by Mr. Freddy Rundlet, then Health Director of the Wampanoag Tribe, and Chair of the Health Report Committee.

The 2004 Health Report of Martha's Vineyard was originally designed as a cross-sectional study of self-reported health and health care on Martha's Vineyard. The overall goal of the Report was to generate information to fill gaps in available knowledge about:

- Prevalent common health conditions
- Mental health and well-being
- Health care access and utilization
- Satisfaction with health care resources
- Clinician practices and opinions about health care

The 2004 Health Report was exclusively designed to approach adult health care. Addressing the unique needs of children, families, and Portuguese-speaking Brazilians, was considered beyond the scope of the original survey. This Health Conditions and Health Status Report focuses only on the first two categories above, common health problems and mental health.

The sample for the original population survey was drawn from publicly available voter and taxpayer records obtained from lists of all town clerks on Martha's Vineyard. A sample of the names of part-time tax-paying residents and of all full-time residents was randomly selected based on the number of people in each town and a mailing list was created.

The population survey was included many standardized items adapted from national studies (the National Health and Nutrition Evaluation Survey – NHANES, the Statewide Behavioral Risk Factor Surveillance Surveys – BRFSS, and the National Health Interview Survey-NHIS), with additional items crafted specifically for the survey and specific to the Island. The questionnaire was designed from October 2002 to January 3, 2003. The final questionnaire was mailed on Martha's Vineyard during January and February 2003. Surveys were returned in self-addressed stamped envelopes through April 2003. The mailing resulted in responses from well over 1000 full-time and nearly 700 part-time residents; 49% of full-time residents and 22% of the part-time residents sampled.

CHAPTER II. POPULATION AND DEMOGRAPHICS

2.1 Martha's Vineyard Health Survey Respondents: Comparison with U.S. Census Data

Overall, survey respondents were very similar to people surveyed for U.S. Census for Dukes County (excluding Cuttyhunk) in 2000 and to updated estimates in 2002. Full-time residents who responded to the survey adequately represented all levels of education, income, employment, age, and gender. There were no methods readily available to compare part-time residents with a representative sample of similar people in the United States.

The Health Report respondents, in the aggregate, were slightly better educated and had a slightly higher income than the average adult full-time resident of Dukes County. Overall, full-time residents in the survey are very similar to the population of Martha's Vineyard in general. The ages for respondents are shown in *Figure 1 A-B*. Most people were middle-aged among both full-time and part-time residents. Smaller towns had fewer respondents than the larger towns, as they were sampled based on town size. Aquinnah had 12 full-time and 22 part-time respondents, and Chilmark had 55 full-time and 87 part-time respondents. Tisbury had the most full-time respondents (272), and Edgartown had the most part-time respondents.

Figure 1 A. Full-time Respondents by Age Group N=1054

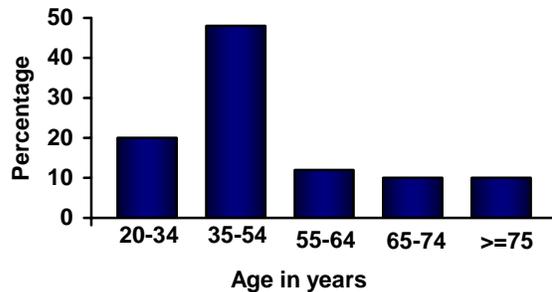
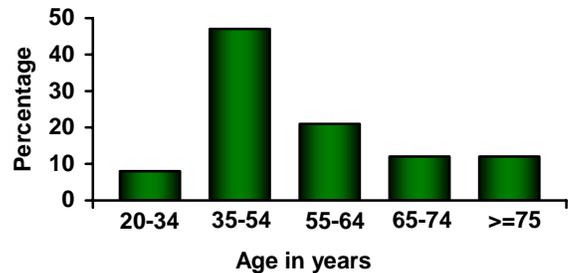


Figure 1B. Part-time Respondents by Age Group N=690



As noted above and as would be expected, part-time respondents were slightly better educated, had a higher income, and were more likely to be retired.

The Appendix contains more detailed information on demographics and health conditions by part-time and full-time status, and as noted this may also be found at:

http://www.mvgazette.com/features/documents/island_health_report.doc.

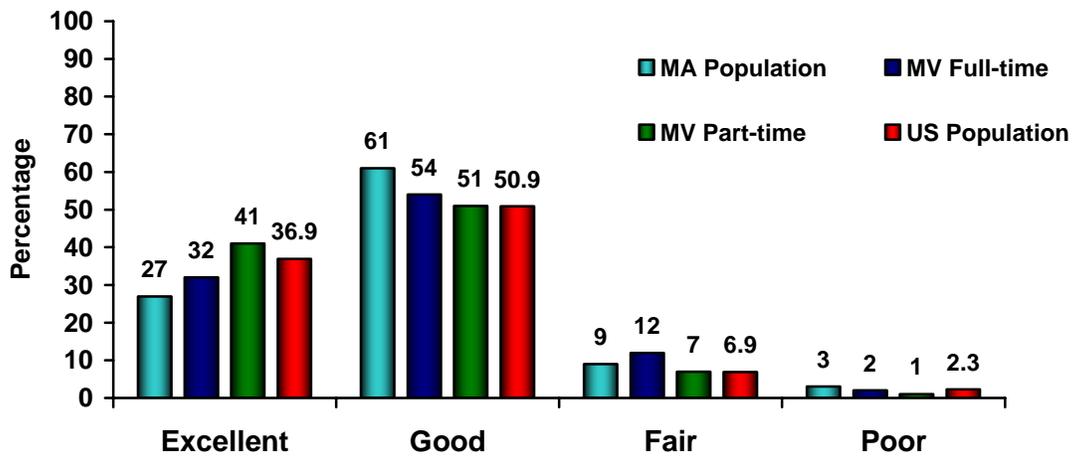
CHAPTER III. HEALTH STATUS, HEALTH CONDITIONS, AND RELATED BEHAVIORS

3.1 Self-Rated Health Status

SURVEY RESULTS

Vineyard residents were asked to provide a rating of their current state of health. *Figure 2* shows these ratings compared to the general population of Massachusetts and to the general population of the United States. The majority of people in Massachusetts, on Martha’s Vineyard, and in the United States rate their own health as excellent or good. Part-time residents, in spite of being somewhat older, report better health than full-time residents.

Figure 2. Personal Ratings of Health



MA = Massachusetts population, U.S. = General U.S. population

Source: National Center for Chronic Disease Prevention & Health Promotion Behavioral Risk Factor Surveillance System CDC National Center for Health Statistics
<http://apps.nccd.cdc.gov/brfss/>

3.2 Leading Health Problems

SURVEY RESULTS

The Prevalence of Health Conditions by Self-Report

Respondents self-reported whether they had been told by a doctor or a health care professional that they had any of the listed conditions. The overall data are presented in *Figure 3* below and *Table 1* on the following page and discussed in detail in the sections that follow. Table B.8 in the Appendix presents information on all health conditions elicited in the survey by full-time and part-time status. The most frequently reported conditions are often the same conditions that are generally reported in other population studies in U.S. communities, with the exception of Lyme disease. Interestingly, full-time and part-time residents generally have the same hierarchy of health concerns, with only subtle differences. Some of these concerns are not medical conditions diagnosed by a health care provider, but are symptoms, like headaches and back pain. Others, like hypertension and depression, are prevalent medical problems in the United States in general. Whether a problem is a medical diagnosis or is a symptom has little meaning relative to quality of life of individuals, so the fact that two of the most frequent concerns are symptoms does not diminish their importance to the Island's health or the need for particular kinds of health care.

Figure 3. Most Frequent Health Conditions Reported

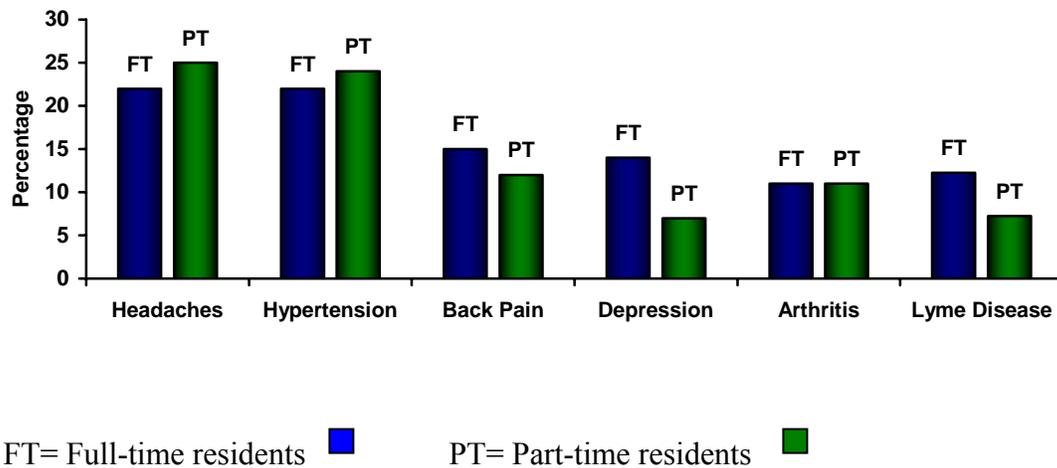


Table 1. Comparison of Martha’s Vineyard Health Problems with U.S. Population*

Lower Rates than the U.S.	Similar Rates to the U.S.	Higher Rates than the U.S.
Chronic bronchitis	Arthritis	Tick-borne diseases for both full-time and part-time residents
Chronic back pain	Migraines or tension headaches	
Cigarette smoking (current)	Asthma, emphysema (COPD)	Non-melanoma skin cancers (melanoma-only slightly more in part-time residents)
Obesity and overweight	Cataracts and glaucoma (adjusted for age)	
	Epilepsy and seizures	Depression in full-time residents (depending on U.S. reference source)
	Parkinson’s disease for FT residents	
	Alzheimer’s disease	
	Schizophrenia, manic depressive disorder, panic and anxiety disorders	Excess alcohol consumption
	Coronary heart disease	
	Heart failure	Inhaled allergies (hay-fever, rhinitis, conjunctivitis)
	Hypertension	
	Stroke-TIA,	
	Pacemakers and defibrillators	Cirrhosis in both full-time and part-time residents (modest)
	Gastrointestinal diseases	
	Diabetes	
	Most cancers	

* Sorted for their statistical significance between M.V. and U.S. data only when confidence intervals were known for the U.S. data. In some cases, differences from U.S. data are marginal and the confidence in the estimates is compromised by the small number of cases on Martha’s Vineyard.

3.3 Tick-Borne Diseases

Each section on tick-borne disease contains an initial overview of the problem, including excerpts of the most recent Web-based updates from the Massachusetts Department of Public Health, Centers for Disease Control, the American Lyme Disease Foundation, the Lyme Disease Association, Inc., and recent published clinical literature. Data are presented for the United States from the Centers for Disease Control. References for all Massachusetts data and for descriptive text can be found at the following site:

http://www.mass.gov/dph/cdc/epii/lyme/lymehp.htm#table_incidence.

References for the United States and for related descriptive text can be found at the following site: <http://www.cdc.gov/mmwr/PDF/wk/mm5254.pdf>. As of June 2006, the most up-to-date review information on all tick-borne diseases can be found on the Centers for Disease Control Web site at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5504a1.htm>.

For Lyme disease, the following site lists over 12,000 Web-based resources, many of which contain information about other tick-borne diseases:

<http://www.geocities.com/HotSprings/Oasis/6455/lyme-links.html>.

The diseases are all believed to be borne by ticks that attach themselves to white-tailed deer, rodents, raccoons, field mice, and other mammals found in woodlands and grasslands. Pets may also carry ticks. Birds are also thought to transport immature ticks to new sites where they are then able to attach to a host. An excellent discussion of tick ecology and Lyme disease can be found at a medical ecology Web site maintained by the Division of Environmental Health Sciences of the Mailman School of Public Health, Columbia University, New York: http://www.medicalecology.org/diseases/lyme/print_lyme.htm.

Early signs and symptoms of these illnesses are usually very much like a cold or the flu such as muscle aches, fever, and fatigue, and therefore the diseases are not easy to diagnose. It is crucial for people on Martha's Vineyard to use preventive opportunities wisely. If symptoms occur in the setting of a strong suspicion of exposure to ticks, then medical care should be sought. Unfortunately, few people who ultimately get these diseases remember a tick bite. These are not always benign diseases, so seeking care is extremely important.

Lyme Disease

In the Northeastern United States, Lyme disease is an infection caused by a spirochete, *Borrelia burgdorferi*, while other forms of this organism exist elsewhere in the United States. Deer and field mice are thought to be the primary carriers of these ticks on Martha's Vineyard. The animal is the host that harbors the disease, and the tick is the vector that transmits it from one animal to another through a bite. It is generally believed that a tick must be attached for at least 36 hours to transmit the organism to man, although it is possible that transmission might occur more quickly. Once a human is bitten by an infected tick, the organism spreads to a number of different tissues in the body and causes a flu-like illness. For infected individuals, Lyme disease occurs as an acute illness, and for some, it may also persist as a chronic multisystem disease. It often is associated with acute arthritis, occasionally

neurological symptoms, and sometimes with Bell's palsy, a paralysis of one side of the face. The Bell's palsy may be temporary or may persist. For most people, all symptoms will resolve, but health problems may persist in some individuals. It is not clear if continued symptoms represent a continued infection or an immune response to the infection, or both.

Lyme disease may begin with a typical skin rash (bull's eye rash) and may spread, if untreated, to joints, the nervous system, and other organs. Early treatment is thought to be quite effective in preventing more severe disease. Whether treatment begun at later stages in the disease is effective is still debated. Early treatment usually results in a complete cure, but the cure rate decreases as time passes from the tick bite. The three most common antibiotics currently used include tetracycline-like drugs, doxycycline, amoxicillin, and ceftin. For cases diagnosed later, a four-week course of oral doxycycline is possible, while some clinicians prefer intravenous agents such as ceftriaxone (Rocephin). There is little consensus and considerable controversy about treating longer-term cases. The treatment of Lyme disease is evolving, and no currently effective vaccine exists.

An exposure is believed not to convey immunity to subsequent disease in most people, so that people may be infected multiple times. There is some rudimentary evidence that a small number of people may develop a natural immunity once infected, but it is not possible to identify these individuals in advance. In addition, there is a paucity of long-term follow-up studies of people with Lyme disease, so that the full impact of the disease is not yet known. Information can be obtained from the American Lyme Disease Foundation, the Centers for Disease Control and the Lyme Disease Association, Inc.:

<http://www.aldf.com/Lyme.asp>

<http://www.cdc.gov/ncidod/dvbid/lyme/index.htm>

<http://www.lymediseaseassociation.org/ABCsLYME.pdf>

Lyme disease accounts for more than 95% of all reported tick-borne diseases. The number of new cases in the United States is greatest in the Northeast, mid-Atlantic, and upper-Midwest regions. In Massachusetts, the incidence rate (new cases) of Lyme disease in 2003 was 23.7 per 100,000 people, which is almost three times higher than the national average.

The number of Lyme disease cases has continued to increase in Massachusetts. A large number of cases occur on Cape Cod, in southeastern and western Massachusetts, and on the islands of Nantucket and Martha's Vineyard. Between 1990 and 2003, a total of 9,114 confirmed cases of Lyme disease were reported to the Massachusetts Department of Public Health, with a marked increase in new cases just between 2000 and 2004. Dukes County has the second highest rate in Massachusetts, after Nantucket. See *Table 2* on the following page.

Lyme disease appears to be a more serious emerging public health problem for which Martha's Vineyard has a particular affinity. A full report on Lyme disease in the United States has been prepared by the Centers for Disease Control and is available at <http://www.cdc.gov/ncidod/dvbid/lyme/lcscases90-2001.htm>.

Table 2. Lyme Disease Incidence Rates per 100,000 (actual cases) in Massachusetts

	2000	2001	2002	2003	2004
Barnstable	70.6 (157)	63.4 (141)	73.8 (164)	81.9 (182)	86.4 (192)
Berkshire	37.0 (50)	37.0 (50)	51.1 (69)	57.8 (78)	62.2 (84)
Bristol	14.0 (75)	23.4 (125)	26.0 (139)	18.5 (99)	21.3 (114)
Dukes	220.2 (33)	226.9 (34)	253.6 (38)	393.7 (59)	340.3 (51)
Essex	27.5 (199)	21.3 (154)	32.8 (237)	25.8 (187)	22.3 (161)
Franklin	11.2 (8)	12.6 (9)	12.6 (9)	18.2 (13)	21.0 (15)
Hampden	15.8 (72)	15.8 (72)	31.3 (143)	23.5 (107)	18.4 (84)
Hampshire	23.0 (35)	20.4 (31)	38.1 (58)	25.0 (38)	27.6 (42)
Middlesex	8.7 (127)	10.6 (155)	17.8 (261)	17.5 (257)	16.7 (244)
Nantucket	336.1 (32)	462.2 (44)	567.2 (54)	357.1 (34)	525.2 (50)
Norfolk	12.1 (79)	14.3 (93)	26.6 (173)	23.2 (151)	20.9 (136)
Plymouth	31.3 (148)	35.1 (166)	44.8 (212)	31.7 (150)	36.0 (170)
Suffolk	4.1 (28)	2.5 (17)	4.1 (28)	1.9 (13)	3.5 (24)
Worcester	12.0 (90)	13.6 (102)	27.2 (204)	18.0 (135)	18.9 (142)

Source: Massachusetts Department of Public Health 2005

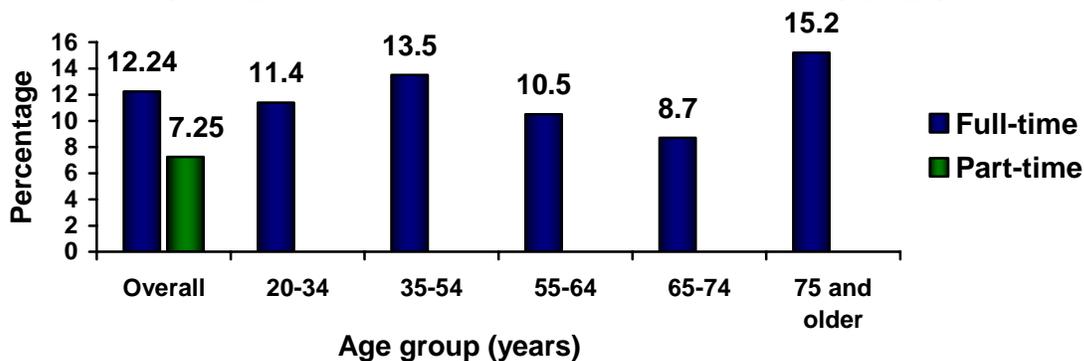
SURVEY RESULTS

Lyme Disease on Martha's Vineyard

The lifetime prevalence of Lyme disease represents the number people in the survey who reported that they were told by a doctor that they have ever had a case of Lyme disease.

Figure 4 on the following page shows the lifetime prevalence of Lyme disease on Martha's Vineyard at the time of the survey (2003). Overall, part-time residents had a lower reported prevalence. However, there is no pattern by age, suggesting that full-time residents are being exposed relatively early in life. The overall rates are high in all age groups. We were unable to assess how many episodes a person had experienced, or the age of their first infection.

Figure 4. Percent of Martha's Vineyard Survey Respondents Reporting Lyme Disease Any Time in Their Lifetime (by Age)

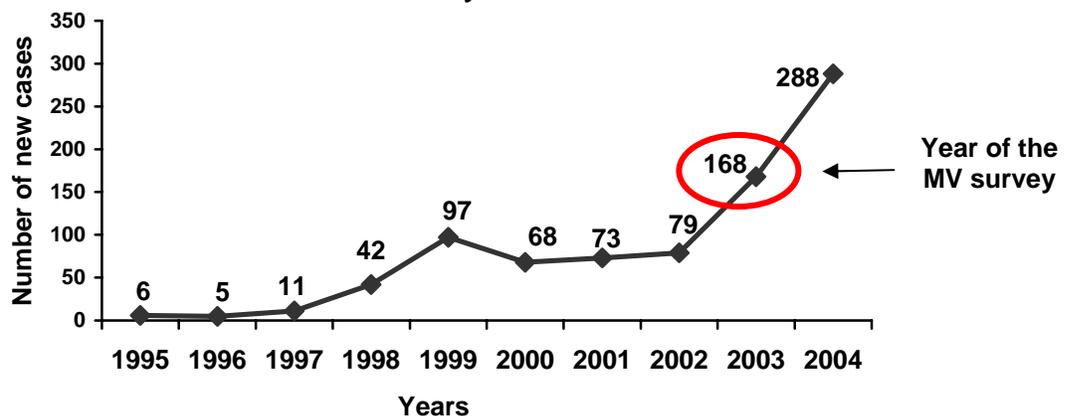


For a similar time period, the Centers for Disease Control reported a lifetime prevalence of Lyme disease for Massachusetts of 3.6% in adults. On the survey, 12.24% of full-time and 7.25% of part-time residents reported that they have ever had a diagnosis of Lyme disease. Compared to Massachusetts overall, the prevalence is nearly triple for full-time residents, and double for part-time residents. Among full-time residents, the lifetime prevalence of Lyme disease was found to be similar among men and women.

The incidence (new cases) of suspected and confirmed cases of Lyme disease in Dukes County (including Cuttyhunk) for the years 1995 through 2004 were prepared specifically for this Report by the Massachusetts Department of Public Health and are presented in *Figure 5*.

Because diseases are often under-reported, these numbers are possibly even lower than the number of true cases. Conversely, in an area that is very aware of Lyme disease, it is also possible that people over-report the disease. These data represent the best population-based estimates available and suggest that there is a notable increase in Lyme disease cases on Martha’s Vineyard over the nine-year period shown in *Figure 5*.

Figure 5. Number of New Lyme Disease Cases In Dukes County Reported to the Massachusetts Department of Public Health by Year*



Data in *Figure 5* were calculated by request for The Martha’s Vineyard Health Conditions Report by the Massachusetts Department of Public Health, July 2005

Identification of Factors Associated with Lyme Disease

A “multivariable” logistic regression analysis of several factors that have been associated with a history of Lyme disease in prior studies was performed by Drs. Bryan C. Bordeaux, Charles Silberstein, Diane M. Becker, and Lisa R. Yanek. This analysis was designed to examine each factor associated with Lyme disease, taking the other factors statistically into account at the same time. Results showed that residency in the three most rural island towns (West Tisbury, Chilmark, and Aquinnah) was 4.72 times as likely to be associated with Lyme disease (95% confidence interval, 3.37-6.62) independent of age, other major illnesses present, sex, and reported exposure to ticks. The time of Island residency in years was also positively and independently associated with a history of Lyme disease (p<0.002). The longer one lives on

the Island, the higher the probability that that individual will have had Lyme disease. These results are not a surprise and point largely to tick exposure as the main issue.

Importantly, however, in this statistical analysis of multiple factors, a history (self-reported) of a diagnosis of depression was independently associated with having Lyme disease. People with a history of Lyme disease were almost twice as likely to have a history of diagnosed depression (odds ratio, 1.72, 95%, confidence interval 1.11-2.68). This was independent of other comorbidity (symptoms and diseases), age, sex, place of residency, or the amount of time on the Island. The findings of this preliminary analysis suggest that Lyme disease is associated with depression on Martha's Vineyard, although this conclusion would have to be examined more extensively in a long-term, population-based study where people could be followed regularly and systematically after they had a case of Lyme disease. Unfortunately, the results only leave us knowing that depression is associated with a history of Lyme disease, but does not tell us which came first.

Studies with long-term follow-up of people with Lyme disease are planned for Nantucket and are already occurring on Block Island, Rhode Island. In May 2006, a major symposium on Lyme disease included a panel of experts in Lyme disease who presented to health care practitioners and responded to their questions. On the following day a public forum was held with the experts. This opened an important dialogue on Martha's Vineyard about the future of Lyme disease research, medical care, and public health efforts. More information about the symposium may be found on the Dukes County site at www.dukescounty.org, under "Of Interest to All."

Other Tick-Borne Diseases

Additional tick-borne diseases, including Rocky Mountain spotted fever, human granulocytotropic anaplasmosis (HGA, formerly known as ehrlichiosis), and babesiosis, have occurred on Martha's Vineyard in recent years. Although these diseases are still quite rare, they are being recognized more often. Tularemia may also be tick-borne but can also be transmitted through other ways outlined below.

Deer, field mice and other small mammals carry the ticks that in turn carry the similar organisms that cause Lyme disease, HGA (ehrlichiosis), and babesiosis. Thus, it is possible to contract more than one of these infections from a single tick bite, particularly in regions like Martha's Vineyard. In the Martha's Vineyard survey, 0.3% (3 in 1000) women and 0.15% (1.5 in 1000) men report having had co-infection with at least two of these diseases, although co-infection often goes unrecognized and is difficult to diagnose. However, most areas of the United States do not report any cases of these infections at all.

Human Granulocytic Anaplasmosis (HGA)

Human granulocytic anaplasmosis was formerly known as ehrlichiosis. Among people in New England, HGA is caused by *Ehrlichia chaffeensis*, first identified in 1987. The disease is also transmitted by infected ticks. There are several forms of this infection, ranging from somewhat benign to life-threatening. In New England, the small blacklegged deer tick (*Ixodes scapularis*) is the vector for the infectious agent, just as it is for Lyme disease.

HGA may have very general features that are hard to distinguish from other illnesses, again very flu-like in nature. Symptoms include fever, headache, fatigue, and muscle aches. Less often and depending on the site of the infection, nausea, vomiting, diarrhea, cough, joint pains, confusion, and occasionally rash may develop. Symptoms develop about five to 10 days following the tick bite. Some people who contract this organism may not develop very serious symptoms and, in fact, may never be symptomatic at all. If any flu-like symptoms occur after a tick bite, specific clinical signs plus laboratory testing will be used to identify this organism. Some people infected with HGA will develop a low white blood cell count, low platelet count, and increased liver enzymes. HGA is treated with antibiotics, usually doxycycline, or a tetracycline derivative.

On Martha's Vineyard, the deer tick also transmits *Borrelia burgdorferi* (the Lyme disease organism) as well as babesiosis, so that co-infection through the same tick is possible. Attempting to sort out mixed infections from a single infectious agent is important as it affects the choice of antibiotic. For example, amoxicillin can be used to treat early-stage Lyme disease, but it is not effective for HGA.

It remains unknown whether a single exposure to HGA infections confers any long-term protection against a recurrent infection. Some individuals have been shown to become reinfected, but there is also some evidence that reinfection rates are low.

Between 1998 and 2000, reports of 50 cases of HGA in humans were received by the Massachusetts Department of Public Health, most from along the southeastern coast, particularly Nantucket. The majority of cases occurred from June through August.

Babesiosis

Babesiosis is another tick-borne infection that can be caused by more than 100 different types of *Babesia protozoa*, all of which attack red blood cells. It is similar to malaria in some respects. The disease, while rare, has been found worldwide. In the Eastern United States, the responsible organism is generally *Babesia microti*, while other *Babesia* are responsible for disease elsewhere in the United States and Europe. The disease is generally worse when it occurs in Europe. In the United States, it may exist without any symptoms at all or might manifest itself as a severe and fatal disease. People who have depressed immune systems may be particularly susceptible to more severe cases of babesiosis. The incubation period after a tick bite is from about four days to a month.

Babesiosis commonly presents as a mild disease with generalized symptoms of an infection, including weakness, fever, gastrointestinal symptoms, headache, muscle aches, joint pain, cough, shortness of breath, and less commonly, dark urine. Like the other tick-borne diseases, it may have a flu-like presentation. In serious cases with complications, babesiosis may cause anemia requiring transfusions, acute respiratory distress syndrome, heart failure, clotting disorders, kidney failure, and shock. Babesiosis is known to continue to cause symptoms for months after the infection, and some researchers maintain that it may be found even years later if left untreated. Early treatment usually results in a rapid improvement. Blood tests are

used to make the diagnosis, along with the clinical features, particularly in areas like Martha's Vineyard where the ticks are known to harbor the organism.

Rapid recovery depends on early diagnosis and treatment. Treatment with the combination of quinine and clindamycin for up to 10 days is the usual treatment, but other regimens are being used commonly as well. (Reference: *American Academy of Physicians*, <http://www.aafp.org/afp/20010515/1969.html>)

Approximately 200 cases of babesiosis have been reported in the United States since the first human case was recognized on Nantucket Island in 1968. We had very few cases reported on the survey, which is what would be expected.

Rocky Mountain Spotted Fever

Rocky Mountain spotted fever is also transmitted by ticks and was reported in 1191 people in the United States in 2003 (*Centers for Disease Control*). This disease is caused by *Rickettsia rickettsii*, a species of bacteria that is spread to humans by ticks. The onset is accompanied by sudden fever, headache, and muscle pain, followed by development of rash in two to five days. The rash may not be present or may be very subtle initially. It starts as flat patchy pink areas on the wrists, forearms, and ankles. These spots generally do not itch. The rash becomes darker and more raised. Because the disease is serious, if someone is bitten by a tick and has suspicious symptoms, clinicians may treat the symptoms with appropriate antibiotics immediately. The disease can be difficult to diagnose in the early stages, and without prompt treatment it can be fatal (CDC, <http://www.cdc.gov/ncidod/dvrd/rmsf/>). Treatment in the first four to five days is with an antibiotic in the tetracycline class. Doxycycline is the drug of choice for patients with Rocky Mountain spotted fever. It is thought that a single infection with the disease confers immunity.

Over half of Rocky Mountain spotted fever infections are reported from the south-Atlantic region of the United States, but an increasing number of cases have been reported in Massachusetts (*Massachusetts Department of Public Health*). Between 1990 and 2000, 34 cases were reported in Massachusetts, most from Cape Cod and the Islands.

SURVEY RESULTS

Rocky Mountain Spotted Fever

On the Martha's Vineyard survey, nine respondents (0.2% to 1%), all full-time residents, reported having had Rocky Mountain spotted fever. This is a rather remarkable rate and exceeds that reported for Martha's Vineyard by the Massachusetts Department of Health. It is possible that individuals who report this have migrated from other areas of the country, or that the rates of disease are higher than reported previously. The latter explanation is deemed most likely, but until further long-term prospective studies are done, the true incidence on Martha's Vineyard remains unknown.

Tularemia

Tularemia is a rare bacterial disease that occurs in both animals and humans. There are about six different forms affecting different organ systems, depending on how it enters the body. The different ways of contracting tularemia include inoculation into skin or mucous membrane (a tick bite), inhalation, or ingestion. Inhalation forms are particularly infectious. The range of time from exposure to infection ranges from about one to 14 days. Symptoms include sudden fever, chills, headaches, diarrhea, muscle aches, joint pain, dry cough, progressive weakness, pneumonia, swollen lymph glands, swollen and painful eyes, ulcers in the mouth, and chest pain. The symptoms are diverse, making a diagnosis difficult. The disease can be fatal if it is not treated with the right antibiotics. Because there are many forms and the mode of infection may be different, there are different antibiotic regimens.

Tularemia is relatively rare in Massachusetts. The Centers for Disease Control reported a total of 129 cases of tularemia in the United States in 2003, compared with an annual average of 120 cases for the preceding three years. Between 2000 and 2001, 21 cases of tularemia were reported to the Massachusetts Department of Public Health, with 19 of those cases occurring on Martha's Vineyard. These cases are thought to be the result of aerosolized materials from infected animals, but researchers have not ruled out tick bites as possibly causal.

In the summer of 2000, an outbreak of primary pneumonic (lung) tularemia occurred on Martha's Vineyard. The only previously reported outbreak of pneumonic tularemia in the United States also occurred on Martha's Vineyard in 1978. An investigation of the 2000 outbreak by the Epidemic Intelligence Service showed that lawn mowing and brush cutting were risk factors for contracting the disease. This is particularly important, since these are such common outdoor activities; 30% of people in the study reported mowing or cutting brush in the two weeks before being interviewed, and 48% reported these activities at some time during the summer. (*Feldman KA, et al. An Outbreak of Primary Pneumonic Tularemia on Martha's Vineyard, New England Journal of Medicine 2001; Volume 345:1601-1606.*)

Tularemia is not transmitted like the other tick-borne diseases. In Massachusetts, the common dog tick is thought to be most responsible for most tularemia. Humans can also become infected after touching, handling, or eating an infected animal. Animals most likely to be infected include rabbits and rodents. Less common means of spread include contact with water or soil that has been contaminated by an infected animal, being bitten by an infected animal, or breathing in contaminated particles. Tularemia is not spread directly from person to person. On The Vineyard, it has been proposed that most tularemia has occurred in people involved in landscaping. The proposed mode has been the aerosolization of the remains or droppings of infected animals when mowing grasslands or working in gardens. However, this has not yet been proven. The potential for this as the mode of transmission has made it important for people to consider wearing masks when working in these areas extensively. The full story of the most recent outbreak was published in The Martha's Vineyard Gazette and can be found at http://www.mvgazette.com/news/2001/09/18/tularemia_cases.php. Additional information about the 2000 outbreak can be found at <http://www.cidrap.umn.edu/cidrap/content/bt/tularemia/news/aug112004tularemia.html>

SURVEY RESULTS

Tularemia on Martha's Vineyard

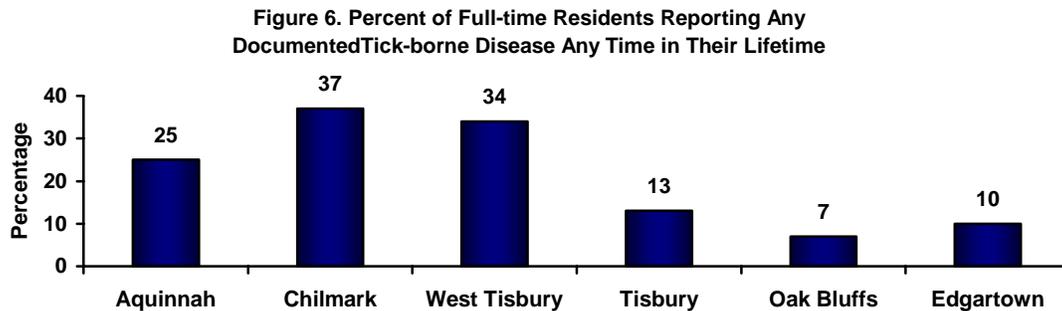
In the survey participants, 0.8% of full-time and 0.4% of part-time residents report having ever had tularemia in their lifetime. It is not clear how this compares with any national reference data, as the disease is so rare. The numbers are too small, but it is important to note that most surveys of this number of people would yield no reports of tularemia.

SURVEY RESULTS

Tick-Borne Disease Prevalence, Exposure to Ticks, and Preventive Practices on Martha's Vineyard

Prevalence by Town

The prevalence of all tick-borne diseases is considerably higher for the towns of Chilmark, Aquinnah, and West Tisbury, as noted in *Figure 6*. In Chilmark and West Tisbury, a third of survey participants reported having had a documented tick-borne disease in their lifetime. This rate was generally one-third of that or less in Edgartown, Tisbury, and Oak Bluffs.



Additional Information: *Tickborne Disease in Massachusetts: a Physician's Reference Manual* (PDF 1.4Mb). To request a copy, please call the Massachusetts Division of Epidemiology and Immunization at (617) 983-6800. Educational materials can be found at www.state.ma.us/dph/pubstats.htm#cdcfact, including materials in Portuguese. The Lyme Disease Foundation, Inc., (<http://www.lyme.org/>) offers excellent resources that include a tick removal kit for a charge of \$5.

Tick Exposures and Prevention

The majority of individuals in the survey report having found ticks on their skin while on Martha's Vineyard (*Table 3*). Most people also report receiving education about tick-borne diseases while on Martha's Vineyard. Nonetheless, there is considerable room for improvement among part-time residents (23% received no information). Most people report examining their skin for ticks after being in a wooded or grassy area. Only about half of the survey participants reported that they avoid these areas because of ticks. Particularly salient to the issue of tularemia outbreaks on Martha's Vineyard is the fact that only a small percentage of people (16% of full-time and 11% of part-time residents) report wearing a mask while doing landscaping or yard work. This is important because of the concern that tularemia is

transmitted via an aerosolized mode. All age and sex groups had similar patterns of preventive practices in further analyses.

Exposure to ticks occurs most widely in the up-island towns, where 90% or more survey participants report finding ticks on their skin. Exposure to ticks was similar between men and women and across all age groups, although lower for people 75 years of age or older. In the remainder of the United States, men generally report greater exposures.

Table 3. Tick Exposures and Preventive Practices by Town: Percentage of Survey Participants in Agreement with Statements

	Aquinnah	Chilmark	West Tisbury	Vineyard Haven	Oak Bluffs	Edgartown
I have found ticks on my skin while on M.V.	94	90	90	74	61	78
I examine my skin after I am in a wooded/grassy area.	93	88	91	90	85	91
I wear a mask when doing yard work or landscaping on M.V.	13	13	15	14	13	13
I often avoid grassy or wooded areas because of ticks.	44	46	34	50	54	51



Figure 7a. Image of an adult deer tick on a finger (*Ixodes scapularis*)

The American Lyme Disease Foundation, Inc.
<http://www.aldf.com/DeerTickEcology.asp>
photo reproduced with permission



Figure 7b. Lyme disease bull's-eye rash on an upper arm

Lyme Disease Association, Inc
<http://www.lymediseaseassociation.org>
photo reproduced with permission

Tick-borne Disease Prevention

1. A repellent like 20% to 30% DEET (for adults) or Permethin can be used. This is applied to socks and shoes, as well as pant legs. Long pants tucked into socks with DEET may be helpful, and light socks may make it easier to see a tick.
2. If a tick is embedded in the skin and engorged, medical care should be sought, as on Martha's Vineyard, there is a very high probability that ticks are infected.
3. Care should be sought for flu-like illnesses that occur during times of tick exposure.

A helpful local series on tick-borne diseases was recently authored by Dr. Russell Hoxsie in the Martha's Vineyard Times and can be found at

http://www.mvtimes.com/calendar/2006/05/04/off_north_road.php

http://www.mvtimes.com/calendar/2006/05/18/off_north_road.php

http://www.mvtimes.com/calendar/2006/04/20/off_north_road.php

Additional information from the June 2006 Lyme Disease Public Forum can be found on the Dukes County Web site, www.dukescounty.org under the heading, "Of Interest to All," where there is a link to "Tick Forum Questions and Answers."

Household Pets and Lyme Disease

The Lyme Disease Foundation, Inc., indicates that pets, including cats and dogs, may also contract Lyme disease (http://www.lyme.org/otherdis/ld_pets.html). Cats may have Lyme disease if they have been outdoors and show signs of lameness, fever, loss of appetite, fatigue, eye damage, unusual breathing, or heart involvement. Many cats do not show noticeable symptoms, despite being infected. Dogs with Lyme disease may develop lameness, a poor/loss of appetite, and a fever. Left untreated, dogs may develop kidney damage or failure, heart disorders, or neurologic involvement (aggression, confusion, overeating, seizures). Treatments for animals are similar to those for humans. Veterinarians on Martha's Vineyard are very familiar with this disease. Preventive treatments also exist for pets, but their efficacy is imperfect. A good discussion of tick-borne diseases in pets can be found at the Pet Center Web site, <http://www.thepetcenter.com/gen/lyme.html>.

We did not ask questions about pets in the survey and have no data to report about this, but this problem is noted by the veterinary practitioners on Martha's Vineyard and individuals with pets should be alerted to look for symptoms. .

3.4 Skin Cancer

Non-Melanoma Skin Cancer (Basal Cell and Squamous Cell)

Sources of information about skin cancer for the text include the National Cancer Institute, the American Cancer Society, and the American Academy of Dermatology.

<http://www.nci.nih.gov/cancertopics/types/skin>

http://www.cancer.org/docroot/PED/content/ped_7_1_What_You_Need_To_Know_About_Skin_Cancer.asp?sitearea=&level=

<http://www.aad.org/aad/searchresults.htm?q=skin%20cancer>

Over half of all new cancers annually are skin cancers. Most skin cancers are characterized as either basal cell or squamous cell. Although these skin cancers occur in large numbers of people in the general population, when detected early, cure rates are well above 95%. Nearly a million new cases of these skin cancers occur annually, about one new case occurring in about every 275 people in the United States. Basal cell carcinoma is the most common form and constitutes about 80% of all skin cancers. Basal cell cancers occur most commonly on sun-exposed areas, primarily the face, head, neck, hands, and arms. The second most common skin cancer is squamous cell carcinoma, making up about 16% of all skin cancers, and also more likely to occur on sun-exposed areas. There is a greater risk of spread for squamous cell cancers compared to basal cell cancers. Rates of both forms of skin cancers have been increasing steadily in the United States. Skin cancer is thought to be preventable to a large extent by protection from sun exposure.

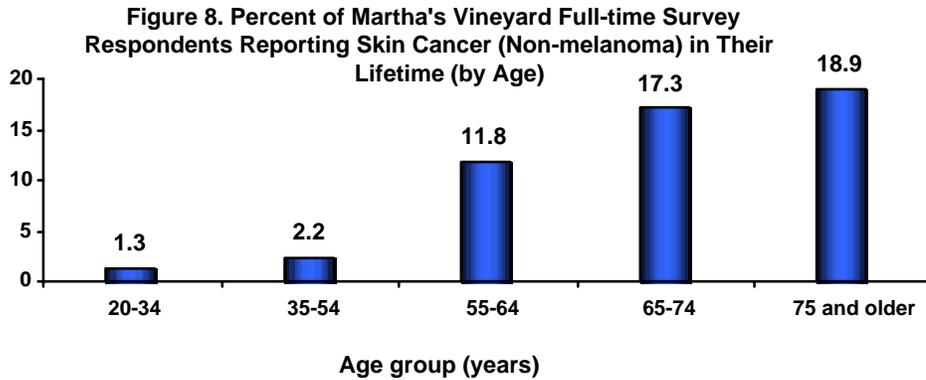
Risk factors include unprotected and/or excessive exposure to ultraviolet rays, a fair complexion, occupational exposure to radiation and some chemicals, and a family history of skin cancer. Growths that occur on the skin, called actinic keratoses, are sometimes precancerous and have an increased risk of becoming a basal cell carcinoma. People with a change in immunity are more likely to get a squamous cell cancer. Skin cancer rates always increase with age, likely the result of cumulative exposure to the sun, changes in skin texture, and possibly changes in immune protection.

Five or more intense sunburns more than double the risk of developing any form of skin cancer. These forms of skin cancer have a tendency to recur in the same individuals.

SURVEY RESULTS

Skin Cancers (non-melanoma) on Martha's Vineyard

The prevalence of a lifetime history of all skin cancers is significantly higher in both part-time and full-time residents of Martha's Vineyard compared to the U.S. population (*Figure 8*). Overall, 8% of full-time residents and 14% of part-time residents reported ever having these skin cancers, while the prevalence is around 2% in the general population, according to data from the National Center for Health Statistics for the same time period as the survey.



The higher rates seen in part-time residents on Martha's Vineyard are in part due to the fact that survey participants were generally older than the adult U.S. population. Nonetheless, the prevalence of this largely preventable health problem is high among Martha's Vineyard residents and shows marked increase with age, as would be expected. The prevalence was similar for men and women.

Melanoma

In contrast to basal cell and squamous cell skin cancers, melanoma is a particularly malignant form of skin cancer that can spread to other parts of the body. Melanoma is the most rare but also the most malignant of all skin cancers and accounts for 4% of all skin cancers. For 2002, the American Cancer Society estimated 53,600 new cases of melanoma in the United States and 7400 deaths from melanoma. Melanoma is generally about the sixth to seventh cause of all cancer deaths among both men and women, according to the American Cancer Society. About one in 70 people will get melanoma in their lifetime. In contrast to other skin cancers, the rates for melanoma reported by full-time residents on Martha's Vineyard are only slightly higher and possibly comparable to the national rates, although part-time residents report higher rates. Given that intermittent, intensive exposure to the sun may have an impact on the occurrence of melanoma, this is not surprising.

Sources of information used for this text and data include the American Cancer Society, the National Cancer Institute, and the American Melanoma Foundation.

www.cancer.org, <http://www.cancer.gov/cancertopics/wyntk/skin/page4>

<http://www.cancer.gov/cancerinfo/wyntk/melanoma>

<http://www.melanomacenter.org/basics/statistics.html>

<http://www.melanomafoundation.org/>

Melanoma is most commonly discovered between 45 and 55 years of age. However, 25% of all cases occur before 40 years of age. It can be particularly serious in young people and has been the leading cause of cancer death in women 25 to 35 years of age in recent years. (Source: Lotze MT, Dallal RM, Kirkwood JM, Flickinger JC. *Cutaneous melanoma*. In DeVita VT, Rosenberg SA, Hellman S. (eds.), *Principles and Practice of Oncology*, 6th ed. Philadelphia: Lippincott, 2001.)

Frequent and intense exposure to ultraviolet radiation (UV) from the sun, particularly if it is intermittent, is the major risk factor for melanoma. Individuals who are more susceptible to the damaging effects of UV radiation are also at greater risk for developing melanoma. Increased susceptibility is thought to occur in adults with excessive sun exposure in childhood and adolescence. Other possible causes include genetic factors and immune system deficiencies. People with particularly fair skin, light blonde or red hair, moles and pigmented skin lesions, sun-induced freckles, and sun sensitivity (inability to tan), are more likely to develop melanoma. Family history of melanoma suggests a genetic susceptibility and is an extremely important risk factor.

Table 4 lists the major risk factors for melanoma and the amount that they increase risk. Those risk factors related to sun exposure and that occur in the population of Martha's Vineyard may be important in recognizing the risk among people on the Island. (Rhodes AR, Weinstock MA, Fitzpatrick TB, *Risk factors for cutaneous melanoma*. JAMA 1987; 258:3146-54; Goldstein B, Goldstein A. *Diagnosis and Management of Malignant Melanoma*. Am Fam Physician 2001;63:1359-68, 1374.)

Table 4: Factors That Increase the Risk of Malignant Melanoma

Factors	Relative Risk*
Change in an existing mole or rapidly growing new mole	400 or more times
White Race	10-12
Regular Tanning Bed (before 30 years of age in particular)	8
Family History of Melanoma	3-8
Other Forms of Skin Cancer (basal cell or squamous cell)	3-5
Sun Sensitivity (tendency to sunburn)	2-5

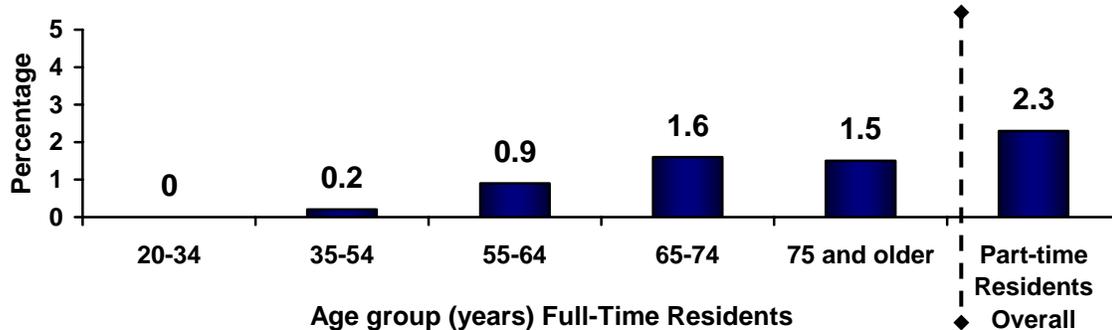
* The relative risk is the chance of developing a melanoma if the factor listed is present, compared to if it is absent. For example, people who use tanning beds when they are young have almost 8 times the chance of developing malignant melanoma compared to people who do not use tanning beds.

SURVEY RESULTS

Melanoma on Martha's Vineyard

The full-time population appears to have a somewhat lower prevalence overall compared to the part-time population. Knowing a bit about the possible etiology and risk factors helps in understanding this seeming paradox. *Figure 9* on the next page shows the age distribution.

Figure 9. Percent of Martha's Vineyard Residents Reporting Melanoma in Their Lifetime by Age*

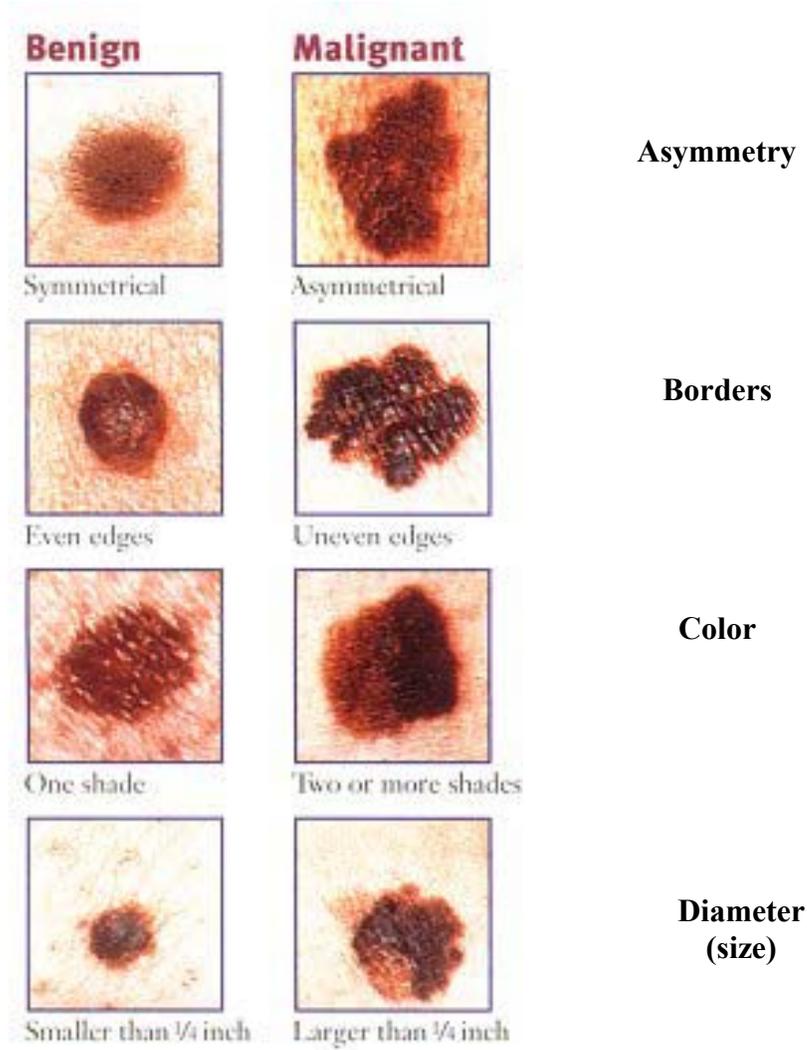


The increase by age for sun-exposure-related skin cancers is typical and was observed for melanoma in full-time residents (Figure 9). Starting at 55 years of age, there is a notably higher prevalence of melanoma. We did not ask questions about prevention activities, like the use of sun block and sun exposure.

Not surprisingly, there is an increase in the self-report of melanoma with age. The lifetime prevalence of melanoma on Martha's Vineyard among full-time residents was only marginally higher than the 0.05% to 1.5% reported for all U.S. residents by the Centers for Disease Control, National Center for Health Statistics. Overall, 1.4% of full-time and 2.3% of part-time residents reported having had melanoma at some time in their lives. Interestingly, based on the scientific literature, we speculate that the tendency for part-time residents to have a higher prevalence may be a function of more intensive intermittent sun exposure in recreational activities that result in sunburns and acute skin damage. Full-time residents have a fairly constant exposure. Intermittent exposure with an acute inflammatory response (sunburn) is believed to predispose to malignant skin changes.

Figure 10 on the following page presents photographs of benign versus malignant skin lesions, approved for our use by the Cancer Research Institute (NYC, NY). As noted, the border, color, size, and symmetry of suspicious moles or growths help determine the likelihood of a malignancy. When detected very early, the outcome for malignant melanoma is good.

Figure 10. Differences between a Benign and a Malignant Skin Lesion



Source: Photos available on the Cancer Research Institute (NYC, New York) Web site and permission to use them provided as a courtesy of the Cancer Research Institute.

<http://www.cancerresearch.org/melanomabook.html>. Photos provided to the Cancer Research Institute by Robert J. Friedman, M.D. The Web site contains an excellent educational manual about melanoma.

Educational materials and information about melanoma can be found in a booklet prepared by the National Cancer Institute, *What You Need To Know About™ Melanoma*, available from the website <http://www.cancer.gov/cancerinfo/wyntk/melanoma>.

3.5 Non-skin Cancers

This portion of the Report is less specific than the two prior sections, largely because the survey did not obtain detailed information about non-skin cancers. There were too many cancer sites and types to have done this successfully in a single questionnaire. Thus, we offer general information and summary aggregate data from the survey.

Information for this report and resources come from the following sources:

Cancer online:

<http://interscience.wiley.com/cancer/report2004>

Cancer Research Institute, Inc:

<http://www.cancerresearch.org/>

American Cancer Society:

<http://www.cancer.org>

Centers for Disease Control and Prevention (Division of Cancer Prevention and Control):

<http://www.cdc.gov/cancer>

Centers for Disease Control and Prevention (National Center for Health Statistics Mortality Report):

<http://www.cdc.gov/nchs/about/major/dvs/mortdata.htm>

National Cancer Institute:

<http://www.cancer.gov>

SEER Homepage (cancer statistics):

<http://www.seer.cancer.gov>

Report to the Nation slide series (PowerPoint) from The National Cancer Institute, National Institutes of Health:

<http://www.cancer.gov/cancertopics/understandingcancer/cancer>

General Cancer Statistics

Cancer statistics can be examined several ways:

- **Death rates** (the number of deaths from cancer in a population of a known size in a given time, usually a year),
- **Prevalence** (the number of cases of cancer who are living in the general population),
- **Incidence** (the number of new cases in a population in a given time, usually reported as within a year),
- **Survival rates** (the number of cancer cases still living in a population, usually reported 5 years after diagnosis).

Statistics on state-specific annual incidence data (new cases per year) for the last year are available from the Centers for Disease Control on the following Web site:

<http://apps.nccd.cdc.gov/uscs/>

For women, the major *incident* cancers in 2001 were breast, lung, colon, uterine, and melanoma (in that order). For men, the most common *incident* cancers were prostate, lung, colon, bladder, and melanoma (*Figure 11A*). However, these are not necessarily the leading causes of cancer deaths, as some cancers are more lethal than others (*Figure 11B*). For example, pancreatic cancer, though less frequent, is far more lethal than breast and prostate cancer.

Figure 11 A. Top Ten Cancers in Massachusetts for Women: Incidence Rates in 2001

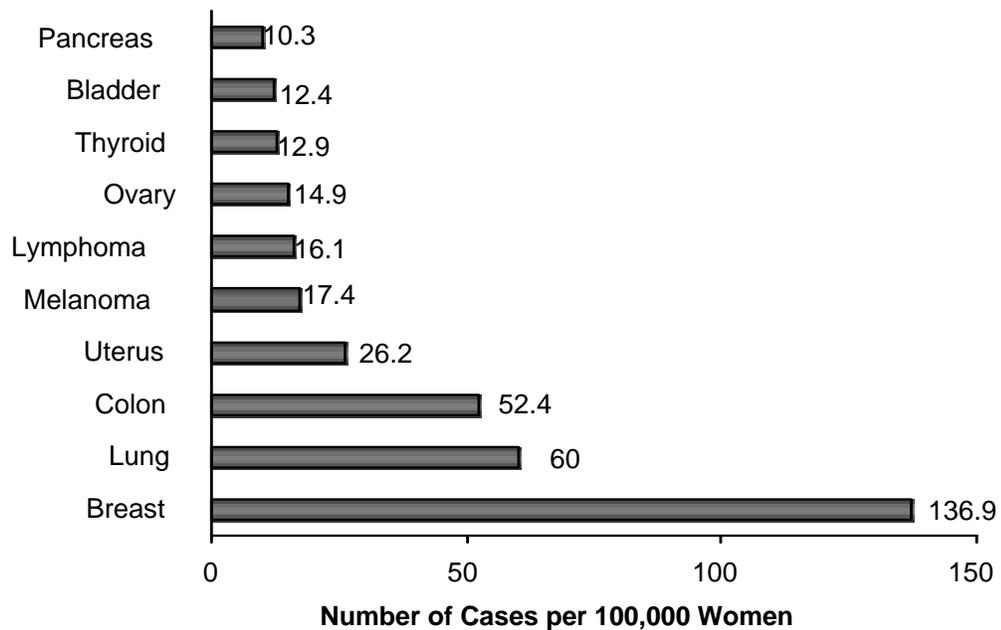
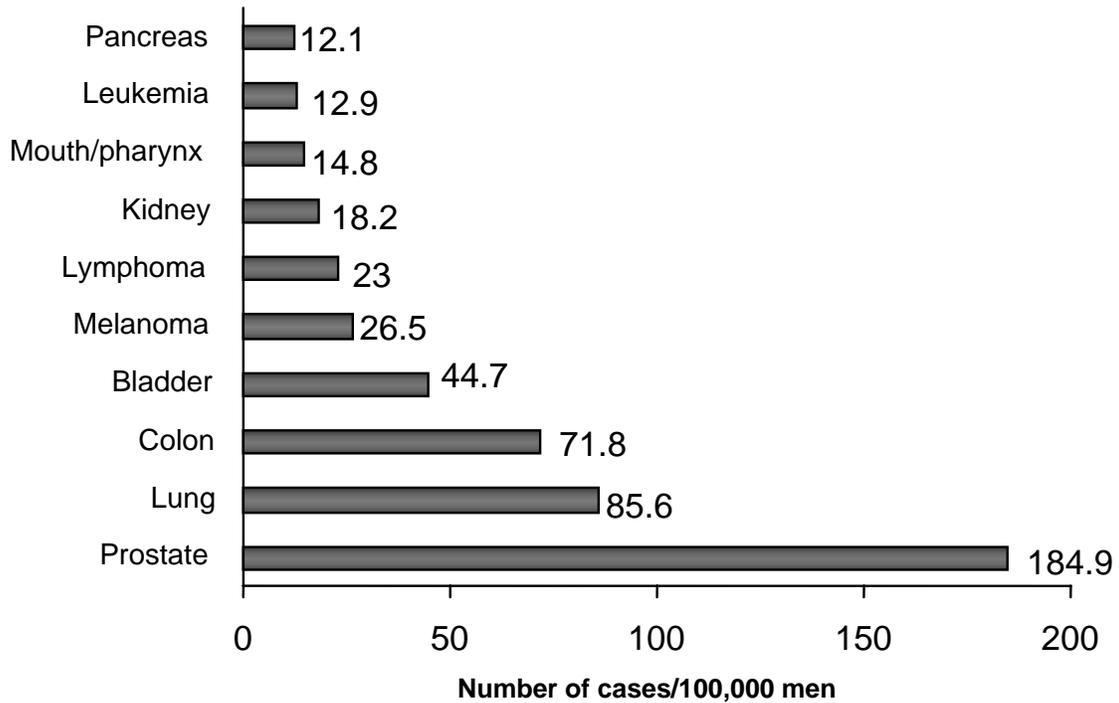


Figure 11 B. Top Ten Cancers in Massachusetts for Men: Incidence Rates in 2001



The absolute numbers of new cancers for Massachusetts are compared with the United States for the same year of the survey, 2003, in *Table 5*. As can be seen, breast, prostate, and lung cancers are also the most common incident (new cases in a year) in the United States as well as in Massachusetts.

Table 5. Estimated Number of New Major Cancer Cases in Massachusetts (MA) and the United States by Type for 2003

	Total	Breast	Cervix	Colon	Uterine
MA	32,700	4,700	200	3,700	900
U.S.	1,334,100	211,300	12,200	147,500	40,100

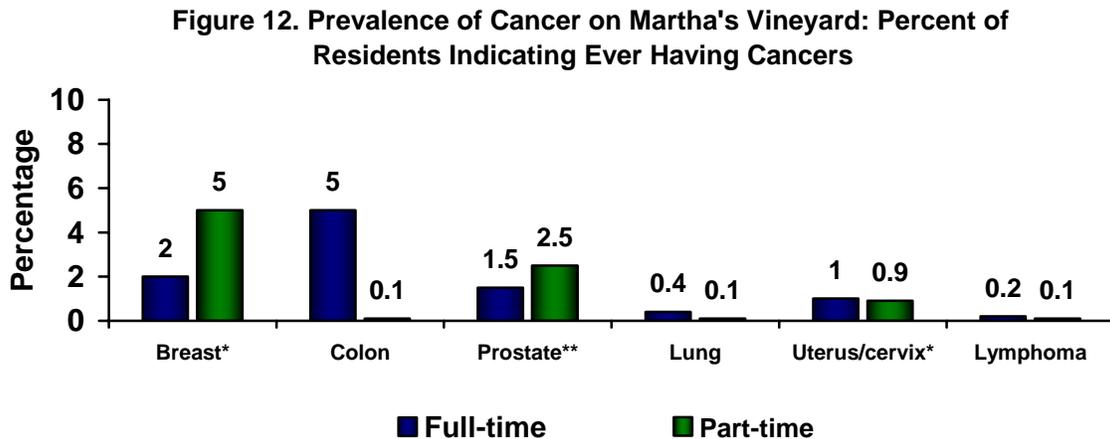
	Leukemia	Lung and Bronchus	Melanoma of the Skin	Non-Hodgkins Lymphoma	Prostate
MA	700	4,100	1,500	1,300	5,500
U.S.	30,600	171,900	54,200	53,400	220,900

Source: Centers for Disease Control and Prevention: National Program of Cancer Registries 2003

SURVEY RESULTS

Cancer on Martha's Vineyard

The original survey collected data on cancer prevalence on Martha's Vineyard and the number of people in the population who have had cancer in their lifetime (*Figure 12*). When there were no reports of any cases, it simply means that these cancers were less frequent or that there are few people with these cancers who are still living. Breast cancer is reported only in women. No cases were reported in men on the survey, although men do get breast cancer. Prostate cancer is presented only as the percent of men.



*adjusted to the number of women only

**adjusted to the number of men only

These cancers are similar in rank to what is reported in the United States and Massachusetts. Colon cancer is the most common cancer reported among full-time residents, with five in 100, or 5% of people reported having had this in their lifetimes. Cancers that occur largely in women were also more common. Among men, prostate cancer is prevalent. Lung cancer is not likely to be as prevalent in any population surveyed, because it is more lethal. Thus, fewer people will report ever having had it in their lifetime as they are no longer living. All people reporting cancer in the Martha's Vineyard Survey are survivors.

In additional analyses, breast cancer on Martha's Vineyard was reported primarily by women in the two oldest age groups (64 to 74 years of age, and 75 years of age and older). This is partially a function of the fact that women in these age groups had a longer period of time in their lives to have gotten breast cancer. Prostate cancer followed a similar age trend in men. Lung cancer was reported only in the two oldest age groups. Colon cancer was reported in the middle aged and older age groups. Other cancers were rarely reported in any age group.

3.6 Chronic Health Conditions

Common chronic health conditions addressed in the survey on Martha's Vineyard include arthritis, asthma and bronchitis, emphysema, coronary heart disease and heart failure, hypertension (high blood pressure), stroke, thyroid problems, diabetes, and gastrointestinal problems. Comparable data for most of these conditions were accessed from the Centers for Disease Control and Prevention, National Center for Health Statistics for the years closest to the survey (http://www.cdc.gov/nchs/data/series/sr_10/sr10_225.pdf). There is space only for a brief description of each problem, and only those that are particularly prevalent or serious on Martha's Vineyard are noted.

Arthritis

Arthritis is one of the most common conditions in the United States, diagnosed by a doctor in 2002 in about 21% of Americans. There are many more people in whom it has not been diagnosed but who suffer symptoms. It is the most common form of disability in the United States. There are many different forms of arthritis, but the most common is osteoarthritis. Osteoarthritis is caused by degeneration of the bone, most typically the weight bearing joints, like hips, knees, and back, although it does occur less commonly in other joints. Cartilage that cushions joints wears away and bony surfaces rub together. The joints become swollen and people often lose some mobility. Pain typically limits movement. Osteoarthritis is often worse after an episode of exercise and worse upon awakening in the morning. Injury, impact, and repeated use over time are common causes, in addition to family history, obesity, or overweight. Increasing age and osteoporosis are the most common risk factors. Osteoporosis is a decrease in bone mass and deterioration of bone tissue that occurs with age. This can occur in anyone but is most common in women after menopause. Data from the National Institutes of Health in 2005 (<http://www.niams.nih.gov/bone/hi/overview.htm>) indicate that osteoporosis has been diagnosed in 10 million Americans, and a total of 34 million more have low bone mass. Although the majority of people with osteoporosis are women, more than 2 million men also have it.

Educational and statistical sources for arthritis include:

The Arthritis Foundation

<http://www.arthritis.org/>

<http://www.arthritis.org/resources/arthritisoday/Default.asp> (journal for people with arthritis)

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

<http://www.niams.nih.gov/>

<http://www.niams.nih.gov/bone/hi/overview.htm>

Centers for Disease Control and Prevention, National Center for Health Statistics

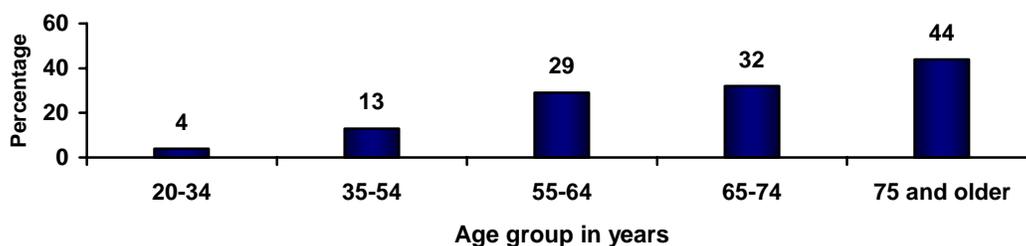
<http://www.cdc.gov/nchs/fastats/arthritis.htm>

SURVEY RESULTS

Arthritis on Martha's Vineyard

Self-reported arthritis shows a marked incremental prevalence with age and the data suggest that this is a very serious problem in a significant percentage of older full-time residents of Martha's Vineyard, just as it is in the U.S. population. The prevalence of any kind of arthritis on Martha's Vineyard is 11% in both part-time and full-time adults across the age ranges surveyed. Although it is a common problem on Martha's Vineyard, the prevalence is on the lower end of prevalent numbers reported nationally.

Figure 13. Percentage of Full-time Residents with Diagnosed Arthritis by Age Group



In our subgroup analyses, rates were similar in men and women who are full-time residents (19% and 23% respectively). Detailed information may be found in the original 2004 Report.

Respiratory Diseases

Asthma

According to the National Center for Health Statistics, asthma is a chronic respiratory disease characterized by episodes or attacks of inflammation and narrowing of small airways in response to “triggers,” like allergens, viral infections or flu, exercise, stress, tobacco smoke, and cold weather. Asthma attacks vary from mild to life-threatening and involve wheezing, cough, chest tightness, or a combination of these symptoms. Estimates of asthma prevalence diagnosed by a physician are about 7.2% in the United States, including children.

SURVEY RESULTS

Asthma on Martha's Vineyard

On Martha's Vineyard, 6% of part-time residents and 7% of full-time residents reported having asthma. Among full-time residents of Martha's Vineyard, rates were higher in the younger age groups (13%) and similar to the U.S. population across all other age groups. Among full-time women and men overall, the rate was 7%.

Bronchitis

Bronchitis is a condition that occurs when the linings of air passages to the lungs become infected and inflamed. Bronchitis often follows a cold or flu and is often part of emphysema. Some people appear to be particularly susceptible, suggesting both a genetic/and or environmental cause. Smoking is a major cause of chronic inflammation in the bronchi and of chronic bronchitis. In 2003, 8.6 million people were diagnosed with bronchitis in the United States, approximately 4% to 5% of the total population in 2003.

SURVEY RESULTS

Bronchitis on Martha's Vineyard

On Martha's Vineyard, chronic bronchitis was self-reported by 2% of men and 3% of women, and increased with age in our age group analyses. Until age 65, the prevalence was only 1% to 2% of full-time residents but increased to 4% to 5% of older residents. Rates are similar or slightly lower than in the United States in general.

Emphysema (Chronic Obstructive Pulmonary Disease, or COPD)

According to a report by the National Heart, Lung, and Blood Institute, emphysema or COPD is a progressive airway disease with a loss of lung function.

(http://www.nhlbi.nih.gov/health/public/lung/other/copd_fact.pdf)

Emphysema is the fourth leading cause of death in the United States. The most important risk factor by far is cigarette smoking, and in some people, exposure to large amounts of secondhand smoke. Pipe, cigar, other types of tobacco smoking, and passive exposure to cigarette smoke are also risk factors. Other causes of emphysema nationally and internationally include occupational exposures and air pollution. This progressive loss of lung function is not reversible. There are 3.1 million (2003) in the United States with emphysema, with a U.S. prevalence of 1.5%.

SURVEY RESULTS

Emphysema on Martha's Vineyard

On Martha's Vineyard, data for emphysema were similar to that for the United States, affecting 1.5% of full-time residents and 0.9% of part-time residents.

Heart Disease, Stroke, and High Blood Pressure

Cardiovascular diseases include an array of very common but extremely serious health problems in the United States and since 1900 have been the leading cause of death in men and women. In 2002, there were 1,400,000 deaths from heart disease. The American Heart Association estimates that 2,600 Americans die of cardiovascular disease every day. By far the most common form of cardiovascular disease is coronary artery disease, or the blockage of the arteries that supply the heart muscle and pumping chambers with nutrient-carrying blood. Coronary artery disease leads to heart attacks. Usually a heart attack is caused by a clot

that forms in coronary arteries that are already narrowed from build-up of plaque (fatty material and cholesterol) in the wall of the arteries over time. This is called “atherosclerosis” and many years ago was called “hardening of the arteries.” The current scientific evidence about the cause of atherosclerosis is that it is the result of chronic inflammatory changes in blood vessels over years, caused by the presence of risk factors that disrupt the vessel wall and cause an injury. Risk factors include high cholesterol, high blood pressure, high but normal blood sugar (100 mg/dl or over), overt diabetes, smoking, overweight, obesity, family history in a parent or sibling at a young age (under 65 for women and 55 for men), and lack of regular exercise. There is some evidence that mental stress may produce changes also. Usually coronary artery disease begins to appear in about the latter part of the sixth decade of life but most disease occurs in older ages. In general, when coronary disease occurs at less than 60 years of age, it is generally called “premature.” Premature coronary disease runs in families and likely has a powerful inheritance component.

Blockages can also form in the arteries leading to the legs, the kidneys, or to the brain. When a clot forms in a brain blood vessel, a stroke may result. There are other kinds of strokes as well, including those that cause brain hemorrhages. Many experts believe that most strokes in older people that are hemorrhagic are also the result of atherosclerosis.

Atherosclerotic vascular disease in all blood vessels may be largely preventable or able to be delayed by maintaining a normal blood pressure and cholesterol levels, not smoking, eating a healthy diet low in animal fat, staying at normal weight, and exercising regularly.

Other less common forms of cardiovascular disease include inherited abnormalities, heart valve problems, unexplained heart failure, heart rhythm irregularities (arrhythmias), acute problems like myocarditis (an inflammation of the heart muscle, often viral), and pericarditis (an acute inflammation of the membrane that covers and protects the heart, also usually viral).

Hypertension (high blood pressure) is also considered a form of cardiovascular disease. Although most of the time no cause can be found, overweight and obesity are very strongly related to the development of high blood pressure. Heredity also plays a role. Hypertension is strongly causally related to the development of stroke, heart failure, and kidney failure. It is treated primarily by lifelong medicines, diet, and weight control. In some instances, people are particularly sensitive to salt in the diet, and high blood pressure may be lowered by limiting the intake of salty foods. Not all people with hypertension are salt sensitive, however.

Educational guidelines for treatment and statistical sources for cardiovascular disease and stroke include:

The American Heart Association
www.americanheart.org

National Heart, Lung, and Blood Institute
<http://www.nhlbi.nih.gov/>

SURVEY RESULTS

Heart Disease, Hypertension and Stroke on Martha’s Vineyard

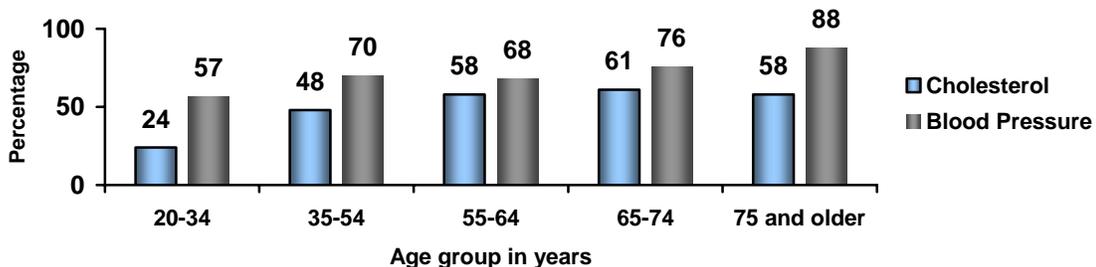
On Martha’s Vineyard, the lifetime prevalence of coronary artery disease was 4% in full-time and 5% in part-time residents. This is similar to the 3% to 4% overall in the U.S. adult population. The slightly higher rate on the Vineyard likely represents the slightly older age of the population on Martha’s Vineyard compared to data collected in the U.S. populations. Notably, survey data indicate that 17% of 65 to –74-year-old full-time residents have coronary disease, and 14% of people over age 75 have coronary disease. Among full-time residents, 9% of men and less than 4% of women have coronary disease. This difference by sex is common. Women are less protected, however, after menopause and as they age.

Similar to the remainder of the United States, the survey found hypertension to be quite common among residents of Martha’s Vineyard. Overall 22% of full-time and 24% of part-time residents have hypertension. This is similar to the 25% seen in the overall U.S. adult population. For full-time residents, 28% of men and 19% of women have high blood pressure.

As expected, rates of high blood pressure increase with age, so that 30% of people in the middle-aged group have high blood pressure, with an increase to 51% in full-time residents ages 65 to 74. Importantly, 71% of full-time residents indicated that they had their blood pressure screened within the past two years.

Cholesterol testing and treatment is important for preventing atherosclerotic diseases, like coronary disease and possibly stroke, as is controlling high blood pressure. As noted in *Figure 14* cholesterol testing occurred much less often in full-time residents than reported testing for high blood pressure, in every age group. Importantly, even among people 55 and older, a notable number reported that they have not had any preventive testing done in the past two years for either high blood pressure or high cholesterol. However, testing for both high blood pressure and cholesterol increased appropriately with age.

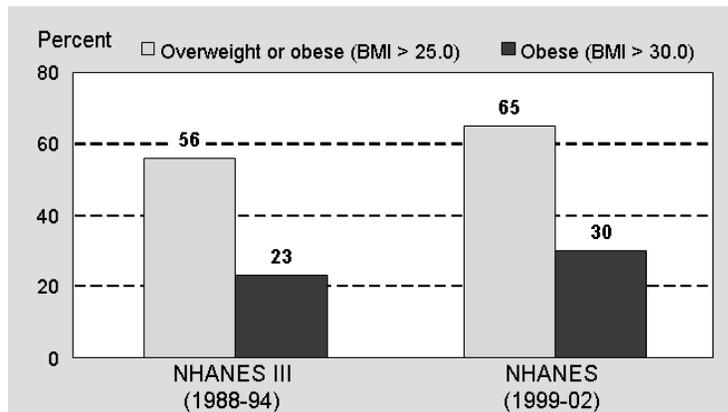
Figure 14. Percentage of Full-time Residents with Cholesterol and Blood Pressure Screening in the Past 2 years by Age Group



3.7 Overweight and Obesity

Nearly two-thirds of U.S. adults, or 129.6 million people, are overweight or obese (*Figure 15*). Obesity occurs in at least a third of U.S. adults, or 61.3 million people. Rates of obesity are escalating rapidly in the United States, along with obesity-related diseases, like diabetes. Obesity is the result of heredity, dietary, and exercise patterns over a lifetime. The health risks of obesity and being overweight include diabetes, high blood pressure, osteoarthritis, gout, complications of pregnancy, gastroesophageal reflux disease (GERD), gallstones, a tendency toward excess clotting, depression, and stress incontinence, to name a few. The marked increase in obesity is shown in the following table, as followed by the National Health and Nutrition Examination Surveys (NHANES), which track these trends in the United States.

Figure 15. Increase in the Prevalence of Overweight and Obesity in the United States 1988-2002 in Adults Ages 20 and Older



The extent to which someone is overweight or obese can be estimated using the body mass index, or BMI (*Figure 16*). The BMI is total body weight adjusted for height. Current guidelines use BMI as a guide. To calculate BMI, one can use the National Heart, Lung, and Blood Institute e-calculator at <http://www.nhlbisupport.com/bmi/> or use the tables that follow (*Figure 16*). Simply find your height in the column on the far left, locate your weight for that height, and follow it up to the top to find your BMI.

Figure 16. Body Mass Index (BMI) Categories Calculated by Height and Weight

	Normal						Overweight					Obese								Extreme Obesity												
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		
Height (inches)	Body Weight (pounds)																															
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229		
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237		
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245		
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254		
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262		
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270		
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279		
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288		
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297		
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306		
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315		
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324		
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334		
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343		
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353		
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363		
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373		
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383		
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394		

Source: Adapted from Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute

Educational information about overweight and obesity can be located from the following sources:

The National Heart, Lung, and Blood Institute, Obesity Education Initiative
http://hin.nhlbi.nih.gov/oei_ss/menu.htm (an excellent series of PowerPoint slide shows)

National Heart, Lung, and Blood Institute Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults
http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.htm
 The National Expert Panel Report

SURVEY RESULTS

Overweight and Obesity on Martha's Vineyard

Overall, full-time residents were significantly less overweight and obese compared to the national U.S. population (*Figure 17*). This difference persists in every age group. However, for overweight alone, men tended to be similar to the U.S. population. Women were still less likely to be overweight on Martha's Vineyard compared to U.S. women. For obesity, however, both men and women on Martha's Vineyard are notably less obese than the overall U.S. population (*Figure 18*). Again, these differences persisted when this was examined by age. Given that overweight and obesity are a major problem nationally, reaching epidemic proportions, this is a very positive aspect of health on Martha's Vineyard. Low rates of obesity result in lower rates of diabetes and obesity-related diseases.

Figure 17. Percent of Full-time Residents Compared to the US Population Overweight and Obese (BMI \geq 25)

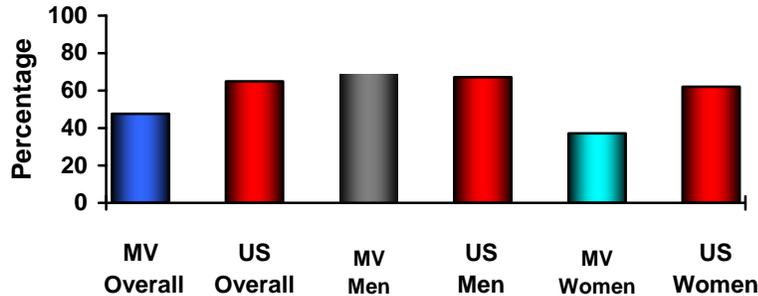
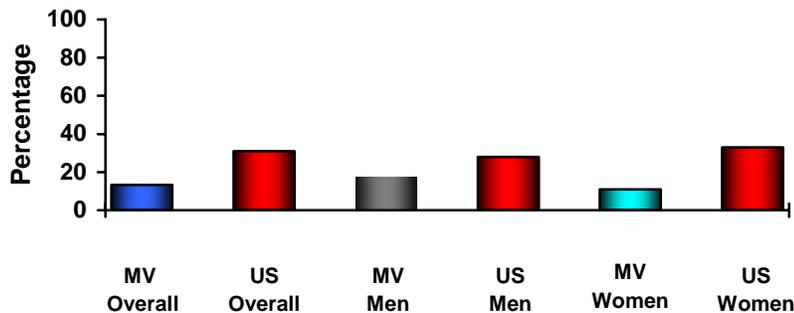


Figure 18. Percent of Martha's Vineyard Full-time Residents Compared to the US Population: Obese Only BMI \geq 30



Source: U.S. Comparison Data. CDC National Center for Health Statistics, National Health and Nutrition Examination Survey, 2002

<http://www.cdc.gov/nchs/products/pubs/pubd/hestats/obese/obse99.htm>

3.8 Alcohol and Tobacco Use

Alcohol Use

Alcohol use remains prevalent in the United States and has serious associated health and social consequences when consumed in significant quantities. Almost half of Americans age 12 or older reported being current drinkers of alcohol in the 2001 U.S. survey (48.3%). This translates to an estimated 109 million people. About 63% of adults drink some alcohol in a year's period. The U.S. Department of Agriculture: Dietary Guidelines for Americans, 2000, fifth edition, defines alcohol consumption categories based on self-report as follows: light drinkers: three drinks or fewer per week; moderate drinkers: more than three drinks and up to 14 drinks per week for men, and more than three drinks and up to seven drinks per week for women; heavy drinkers: 15 drinks per week for men and more than seven drinks per week for women. Approximately 14 million people (7%) in the United States meet the formal diagnostic criteria for alcohol abuse or alcoholism. Excess alcohol consumption, also referred to as heavy drinking, includes the consumption of five drinks or more on any one occasion once a month or more.

It is difficult to determine how much drinking is "too much." The National Institute of Alcohol Abuse and Alcoholism suggests that drinking is "too much" when it increases the risk of alcohol-related health and social problems and when it makes other health problems worse. Heavy drinkers are at a marked increased risk for any alcohol-related problem. Heavy alcohol use is defined in more detail from the following source: U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. <http://www.samhsa.gov/>.

Each year, nearly 20,000 people die from alcohol-related diseases, excluding accidents and homicides. Of these, 12,121 deaths are from alcohol-related cirrhosis (*CDC, National Center for Health Statistics and the U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration* <http://www.samhsa.gov/>.) Long-term use risks liver damage, pancreatitis, certain cancers, and literal shrinkage of the brain. Alcohol use is the second leading cause of dementia. In 1998, there were 15,935 alcohol-related deaths in vehicular crashes.

Educational Information

U.S. Department of Health and Human Services National Clearinghouse on Alcohol and Drug Information <http://www.health.org/>

Alcoholics Anonymous <http://www.aa.org/>

U.S. Department of Health and Human Services.
Substance Abuse and Mental Health Services Administration
Prevention Alert: The Binge Drinking Epidemic (Volume 5, Number 6 Ed.)
Washington, DC: U.S. <http://ncadi.samhsa.gov/govpubs/prevalert/v5/2.aspx>

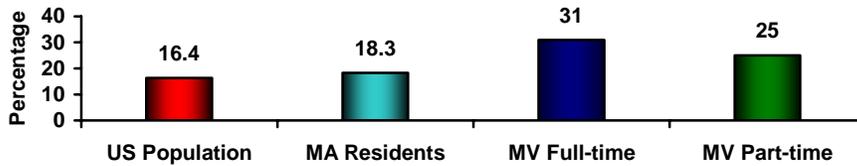
SURVEY RESULTS

Alcohol Consumption on Martha's Vineyard

Figures 19 A-C show how often full-time residents consume one or more drinks, by age groups. Note that there is a higher percentage of people who never drink in the older groups. Most people drink less than once a week in all age groups. However, 9% of people in the younger age group drank once a day or more, compared to 1% in the middle aged group and 4% in the oldest group reported here. There were such a small number of people who consumed alcohol in the group 65 years and older, that we do not report it here.



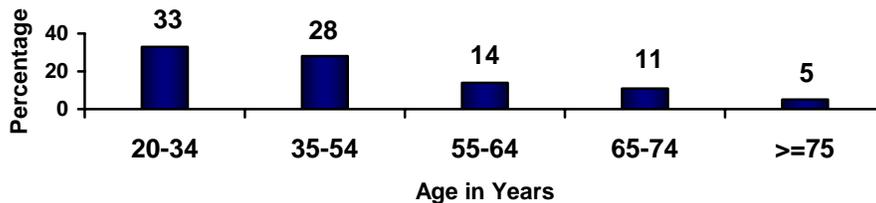
Figure 20: Comparison of Martha's Vineyard Excess Alcohol Consumption to Massachusetts and the US Population (5 drinks or more on one occasion)



Source: Comparison Data CDC National Center for Chronic Disease Prevention & Health Promotion Behavioral Risk Factor Surveillance System
<http://apps.nccd.cdc.gov/brfss/list.asp?cat=AC&yr=2003&qkey=7306&state=All>

As defined by the Centers for Disease Control, “excess alcohol consumption” is as least five drinks on any one occasion once a month or more in the past year. *Figure 20* shows that full-time and part-time residents appear to exceed rates of “excess alcohol consumption” for adults in the United States and in Massachusetts. The percent of people who drink to excess is highest in the youngest age groups (*Figure 21*).

Figure 21. Full-time Residents Excess Alcohol Consumption by Age Group (5 drinks or more on one occasion)



Drinking to excess occurs more frequently in the younger age groups. However, relative to “problem drinking,” only 1% of people age 20 to 34 and 6% of people age 35 to 54 indicated that they believed they had a problem with alcohol. Generally, about 1% to 4% in the three older age groups perceived a problem with alcohol.

Among the 35 to 54 age group, 8% reported having been treated for a problem with alcohol, while the percentage was half that in the older age groups, 4% in 55 to 74-year-olds and 2% in those 75 and older. Overall, only 12% to 15% of people in all age groups indicated that their health care provider discussed alcohol with them.

Frequency of Alcohol Consumption by Sex

We examined the extent to which excess drinking occurred in men or women. The overwhelming majority of women never drink to excess. Among men, 6% indicated excess alcohol consumption two to three times a week and 3% daily, a total of 9%, while among women this amount of excess consumption occurred in only 2.3%.

Men were more likely (6%) to believe they had a problem with alcohol and were more likely to have been treated in the past for a problem with alcohol (8%); 2% of women perceived a problem and 4% had been treated. More women than men reported never using excess alcohol (23%). Health practitioners were reported to have discussed alcohol with 21% of men and with 13% of women.

Educational level and town of residence were also associated with excess alcohol consumption. Among full-time residents with a high school education, 19% consumed excess alcohol once a month or more, while 14% of college graduates and 12% of people with a graduate education consumed excess alcohol at least monthly. Among people with a high school education, 8% had been treated for a problem with alcohol, and 5% of people with a college education had been treated. These differences, even though seemingly small, were significant when tested statistically, and were unlikely to have occurred by chance.

Alcohol Consumption by Town

We conducted an additional analysis of these data in 2006 to determine whether residing in a “dry town” (Tisbury, Chilmark, West Tisbury, and Aquinnah) versus a “wet town” (Oak Bluffs and Edgartown) was associated with excess drinking, taking into consideration age, sex, and educational level. *Figure 22* represents the percentage of people residing in dry or wet towns who drink to excess using the Centers of Disease Control definition of excess drinking.

Figure 22. Excess Alcohol Consumption by "Dry" of "Wet" Town

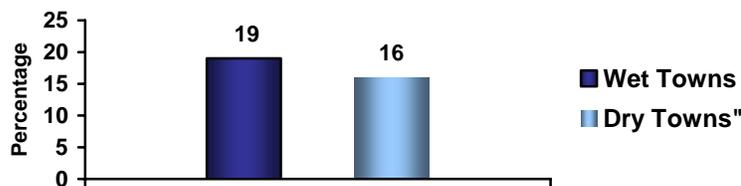


Figure 22 shows that living in a “wet town” is associated with a seemingly small increment in the percentage of people who drink to excess when it is examined with no additional information about other factors associated with excess drinking or town of residence.

However, many other factors may be responsible for this, so we conducted additional analyses to improve our understanding of the impact of town of residence on response to the question.

To determine the extent to which living in a dry or a wet town was important after controlling for other demographic and health behavioral factors that differ by town and that are known to be associated with excess alcohol consumption, a multivariable regression analysis was applied to look at each factor, while accounting for the others. Overall, these factors together accounted for a significant amount of excess drinking, suggesting that this finding is not a result of chance ($p=0.0001$), or there is greater than 99.9% confidence that these factors explain a considerable portion of excess drinking. In this analysis, men were 81% more likely to consume excess alcohol than women, even when taking educational level and town residency into account. People who did not graduate from college were more likely to consume excess alcohol compared to individuals who completed college.

Most importantly, this analysis showed that people residing in a wet town were 18.9% more likely to consume excess alcohol, independent of the percentage of the town that was male or that had less than a college education, the two most important factors in excess alcohol consumption.

Tobacco Use

The serious health consequences of cigarette smoking have been well known for decades. More than 40 years have passed since the first U.S. Surgeon General's Report highlighted the consequences of smoking. Almost 20% of all deaths in the United States are attributable to a smoking-related disease. Although smoking rates have declined and smoking is prohibited in many places, it is still a major cause of death and disability. Smoking remains legal in the United States, but it is notable that each year, more deaths are still caused by smoking than by HIV/AIDS, alcohol use, automobile accidents, homicides, and illegal drug use combined (*Sources: CDC. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995–1999. Morbidity and Mortality Weekly Report 2002;51(14):300–303; McGinnis J, Foege WH. Actual causes of death in the United States. Journal of the American Medical Association 1993; 270:2207–2212*).

Smoking damages just about every organ in the body. Just a few examples of the proven impact of smoking on health include the fact that the chances of dying from lung cancer are 12 to 22 times higher for smokers compared with non-smokers; heart attacks occur at four times the rates in smokers compared to non-smokers; and smokers have a 1000% increase in the risk of dying from emphysema compared to people who do not smoke. Smoking even affects the fate of babies born of smoking women because there is an increased risk of premature birth, low birth weight, stillbirth, and sudden infant death syndrome.

The Surgeon General has noted that the following diseases are caused by smoking, in part, and increased in smokers: bladder cancer, cervical cancer in women, kidney cancer, cancer of the larynx and esophagus, leukemia, and mouth and stomach cancer. Stroke rates are markedly higher in smokers, as are rates of poor circulation in the legs and amputations. Even cataracts, periodontitis, and stomach ulcers appear to be causally related to smoking.

Secondhand smoke increases the chances that people will develop some of these diseases, and increases illnesses, particularly asthma and respiratory diseases and infections, in the children of people who smoke. For women, the chances of developing osteoporosis and early bone fractures are much greater for smokers. Premature aging of the skin and wrinkles are more common in people who smoke (*Source: U.S. Department of Health and Human Services. The Health Consequences of Smoking: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking or Health, 2004;The Office of Tobacco or Health*) http://www.cdc.gov/tobacco/sgr/sgr_2004/).

The health effects of both smoking and exposure to secondhand smoke are staggering. It is important, however, to note that rates of smoking are decreasing, particularly with the decline in the number of places where people can legally smoke.

Cigarettes contain 2% to 4% nicotine that comes from the leaves, tar, and many legal additives that prolong shelf life of a cigarette and make it taste better to consumers. There are over 600 additives allowed by law. Once burned, the smoke from cigarettes contains thousands of complex chemicals, many of which are toxic. When someone smokes, they not only inhale but they produce side-stream smoke that is released into the air, producing a gas that contains carbon monoxide, ammonia, nitrosamines, formaldehyde, cyanide, and other harmful chemicals, some of which are radioactive. Some of these have been directly shown to cause cancer (*Source: Action on Smoking and Health [ASH]* <http://www.ash.org.uk/html/factsheets/html/fact12.html>).

In addition, at least one component — nicotine — has been shown to be strongly addictive, making it very difficult for smokers to quit even when they are highly motivated. Often they are without significant symptoms when they are diagnosed with a catastrophic disease, like a heart attack or stroke, and at that point only 50% of smokers quit. For other illnesses like emphysema, the smoking quit rates are even lower.

According to the Centers for Disease Control, in the same year as the survey (2003), there were 45.4 million adults smoking in the U.S. population, about 21.6%. Smoking rates have dropped dramatically over the past 20 years, and for the first time, the number of people who have ever smoked who are former smokers outnumber the people who continue to smoke. About 40% of all smokers have tried to quit for at least one day in the past year (*Source: Trosclair A., Caraballo R, Malarcher A, Husten T, Pechacek, T. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.; CDC. Health United States, 2003, With Chartbook on Trends in the Health of Americans. Hyattsville, MD: CDC, National Center for Health Statistics; 2003*).

Additional sources of information and educational resources can be found at the following:

National Cancer Institute:

<http://www.cancer.gov/cancertopics/factsheet/Tobacco/cancer>

CDC Office on Smoking or Health:

http://www.cdc.gov/tobacco/sgr/sgr_2004/

CDC Guide to Quitting:

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

SURVEY RESULTS

Smoking on Martha's Vineyard

Based on survey results, it is possible that smokers were less likely to respond to the survey. Studies in the past have shown that smokers are less likely to respond to questionnaires about health. It is also possible, however, that Martha's Vineyard has very low rates of smoking compared to the U.S. population. Compared to the 21% of adults who smoke in the United States, only 14% of full-time and 5% of part-time residents reported being current cigarette smokers. Among women, the rates of current smoking were 15% for full-time residents, slightly more than men (11%). Unfortunately, rates were much higher for younger people. Among full-time residents 20 to 34 years of age, 29% were smokers.

Only 25% of full-time residents and 22% of part-time residents reported being former smokers, and rates were the same for men and women. Among smokers, about 25% of full-time and 26% of part-time residents perceived any health problem related to smoking. Most full-time residents (78%) indicate a desire to stop smoking and to get help in doing so. About 79% indicated that they had received advice to quit smoking by their physician, and almost half have tried using nicotine replacement in the form of the gum or patch to help with the withdrawal symptoms associated with smoking cessation. The evidence that smokers on Martha's Vineyard are interested in quitting is supported by the fact that 22% of full-time residents and 29% of part-time residents indicate that they have ever tried prescription drugs (such as bupropion) to quit.

Importantly, most smokers indicate that smoking helps them cope with stress (77% of full-time and 69% of part-time residents who smoke indicated this), and most indicate that smoking increases their energy levels (62% for younger smokers to 80% to 100% for older smokers). This, in addition to the potent addictive component, provides at least a partial explanation for why smoking may continue to be a desirable activity when the health consequences are so serious.

3.9 Mental Illness

Mental Illness and Diagnosed Mental Health Disorders

The survey focused on mental health from four perspectives: 1) diagnosed mental illness, such as schizophrenia, major depressive disorder and bipolar disorder, 2) the experience of mental health concerns as reported by people themselves using standardized items from questionnaires designed to determine mental health status (the General Well-Being Schedule), 3) “stress” as it is experienced in everyday life, and 4) utilization of mental health services. Sufficient information on non-alcoholic substance abuse was not available in this survey to enable a detailed analysis of this problem. Police records and other sources indicate that substance abuse exists on the Island.

We used the First Report of Surgeon General’s Report on Mental Health completed in 1999 (*U.S. Department of Health and Human Services. Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health, 1999*) as an important source of information. This is available online using the following Web addresses:

<http://www.surgeongeneral.gov/library/mentalhealth/pdfs/front.pdf> or

<http://www.surgeongeneral.gov/library/mentalhealth/home.html>.

We used updates on diagnosed mental illness from a recent journal focused on data from a national survey (*Kessler RC, Bergland P, Demler O, Jin R, Walters EE. Lifetime Prevalence and Age of Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication, Archives of General Psychiatry 2005; 62: 593-602*).

Having a mental illness in no way indicates that an individual is weak or cannot cope with life. Many mental illnesses remain undiagnosed and untreated when people fail to seek care for fear of labeling and being stigmatized. Mental illness generally refers to diagnosed disorders and is recognizable by patterns of change in thinking, mood, or behavior, or combinations of these. Most often these problems are biological in nature, and most of these disorders are thought to be at least in part hereditary. Even such disorders as post-traumatic stress disorder and the adjustment disorders that are the result of an environmental stressor may be catalyzed by a genetic predisposition. Other psychiatric diseases may manifest themselves only under certain circumstances or in interaction with the person’s environment. In this case, we would call this a gene-environment interaction. Examples of mental illness are schizophrenia, bipolar disorder (manic-depressive disorder), panic disorder, generalized anxiety disorder, and depression, although there are others. Often there are stigmas associated with these diagnoses or some element of “blaming the victim” when they are just as biological in nature as something like diabetes or cancer.

In addition, it is well recognized that there are serious mental health problems, some situational, some biological, that are not of sufficient intensity or duration to meet the criteria for a defined mental illness. Some symptoms are the result of physical illnesses that affect

organ systems, and pain can be emotionally debilitating. These mental health disorders are also important and treatable.

Questions were asked in the survey in ways that would allow us to examine the relative distribution of different kinds of mental problems among residents of Martha's Vineyard. In a small way, the report continues the landmark work of Dr. Milton Mazer as published in *People and Predicaments*, Harvard University Press, 1979. Dr. Mazer's study of mental health on Martha's Vineyard resulted from the work of the Island Counseling Center, a part of Martha's Vineyard Community Services.

Mental illness and mental disorders have been divided into broad groups that were assessed in the survey. Given that it was not possible to use any validated diagnostic methods, the survey depended on self-report of a diagnosis as well as symptoms that were elicited using standardized questions.

Anxiety

Anxiety is one of the most common sets of mental health disorders. Although everyone has anxiety in certain situations, often appropriately, anxiety as a mental health disorder involves excessive or inappropriate expression of anxiety, like phobias, panic disorder, obsessive compulsive symptoms, and generalized anxiety.

Phobias occur when intense anxiety is evoked by objects or situations that are tangible, like snakes, or situational, like highway driving or public speaking. Some people have bridge phobias, height phobias, flight phobia, or social phobia. Usually the anxiety causes people to avoid the situation that causes it.

Panic disorder is a form of anxiety where there are very intense episodes of anxiety that often occur without a clear precipitant. The attacks are often accompanied by a feeling of dread and desire to escape, as well as physical symptoms like a fast heart rate, shortness of breath, nausea, sweating, flushing, and acute distress.

Generalized anxiety is often experienced as a continued sense of unease with excessive worrying, restlessness, and tension that does not go away. Many times people have combinations of these forms of severe anxiety. Some people even become agoraphobic, or withdraw to places they identify as "safe," like home or a constrained geographical area. This is an avoidance pattern that may accompany any serious form of anxiety.

Obsessive compulsive disorder is thought to be part of the complex of anxiety disorders, although this is debated. People become obsessed with a thought that is related to an intense fear, sometimes unrecognized, and then carry out behaviors or compulsions to avoid what is frightening. A common example is that many individuals with obsessive compulsive disorder have an intense fear of contamination. This fear leads to obsessive thoughts about the risk of being contaminated. Sufferers often respond to the obsessive thought by compulsively washing their hands. As a

result their skin may become red, chapped, and cracked, but the behavior continues. It is believed that the behavior of obsessive compulsive individuals is driven by abnormal regulation of anxiety.

Post-traumatic stress disorder (PTSD) is the result of a potent event that was life-threatening or induced intense fear. People with PTSD re-experience the event in various forms, such as nightmares, flashbacks, intrusive thoughts, and distressing and vivid memories. They also experience symptoms of emotional numbing and hyperarousal, such as exaggerated startle responses, rage episodes, and disturbed sleep. Symptoms may last weeks to months, or in chronic PTSD, symptoms may last a lifetime.

Anxiety symptoms are common but when they are severe enough to represent a disorder, they can include sudden, short-term, unexplained feelings of dread or imminent death, restlessness, shaking, muscle tension, an increased heart rate or palpitations, lightheadedness, cold sweaty hands and feet, twitches, and a feeling of shortness of breath in situations where there are no clear precipitants. Some people consume excess alcohol or other drugs simply to suppress symptoms. Treatment is available, and there is evidence that these disorders can respond well to medications. A complete “cure” is often difficult to attain. However, it is possible to get most of these symptoms under control. There is a strong hereditary component to these disorders. Left untreated, maladaptive behavior, like avoidance, can result and is more difficult to treat if it occurs over many years. Many of these disorders can be evident as early as childhood; most have their onset during young adulthood.

Psychosis (Schizophrenia, Mania)

An extreme impairment in thinking and perceptions is the main characteristic of psychosis. Typical psychotic symptoms include sensory misperceptions such as auditory hallucinations (hearing voices) and visual hallucinations. Psychosis is also characterized by delusions or false beliefs. Examples of delusional thinking include paranoid beliefs, such as a person’s unfounded belief that someone or some group is trying to harm one, or the belief that one is being talked about, often by strangers. Thinking in psychotic disorders is often chaotic, disorganized, and illogical and may lead to bizarre behaviors. Many people suffering from psychosis have periods of agitation but may also have periods of very flat affect. The most common disorder that is characterized primarily by psychosis is schizophrenia, but other serious disorders can also have a psychotic component. The manic phase of bipolar disorder, for example, is often accompanied by psychosis. There are many different patterns of psychotic disorders. These disorders are treatable but may cause difficulties with relatives, friends or other community members.

Mood Disorders (Depression and Bipolar Disorders)

Mental health problems that result in mood disorders are usually either a sad or overall emotionally depressed feeling or a feeling of heightened elation or excitement (mania). All patterns exist; in some, depression is dominant; in others, there are characteristic patterns of mood swings over a sustained period of time (bipolar disorders). The symptoms commonly

associated with depression include despair, sleep disturbances, a decreased or increased appetite, a decline of interest in activities of daily life, inability to complete even simple tasks, apathy or irritability, and often poor self-esteem or feelings of worthlessness. Depressed people may also have suicidal thoughts. People with mania may have an abnormal elevation of mood, at times are inappropriately euphoric (overly and unrealistically happy), or in other situations are intensely irritable. They may have grandiose ideas about themselves or ventures, sleep less than usual, are usually easily distracted, and may have poor judgment and poor impulse control. They may also have very rapid thoughts and speak very quickly.

Being depressed appears to be a reduction in many brain functions and even physical functioning, while a manic state is accompanied by heightened activity of all elements of moods. Depressed people may not be able to motivate themselves to do anything at all, while manic people may be enormously active with inappropriate actions, like impulsively spending large amounts of money. Not all depressed people or people with bipolar disorder will experience symptoms this severe.

Both depression and mania are serious problems and, if left unchecked, are likely to interfere with a normal life and can lead to severe lifelong dysfunction. Both major depressive disorder and bipolar disorder are associated with a shorter life expectancy. There is often no situational cause, and again, these problems are associated with both biological and hereditary abnormalities. These disorders, though often not curable, are treatable. Treatment is particularly effective when started early in the course of the illness.

Other Mental Health Disorders

While the above problems are the most common, there are many other mental disorders that may impair an individual's ability to function normally. For some, it is an increased sensitivity to physical symptoms or impairment of impulse control. Some mental health problems are not so easily categorized, and treatment focuses on symptom relief.

In the United States, a standard manual to diagnose mental disorders is used. It is called the Diagnostic and Statistical Manual of Mental Disorders (DSM). This is revised periodically, with the last major update in 1994 (*American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders DSM-IV-TR (Text Revision), 1994*).

The Scope of Mental Disorders in the United States

The last major report on all mental illnesses in the United States was published in the 1999 Surgeon General's Report, although some updates on specific problems are available. In 1999, it was estimated that about 20% of the U.S. population had been affected by mental disorders in any given year. National surveys estimate that in any year, about 44 million people have a diagnosed mental health problem (*U.S. Department of Health and Human Services. Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental*

Health, 1999). All national data in this section of the Health Report are culled from this document for comparison. It should be noted that definitions of various mental illnesses differ by survey and may not be directly comparable, or if they use different populations, may not be entirely applicable. We have approximated national norms as much as possible.

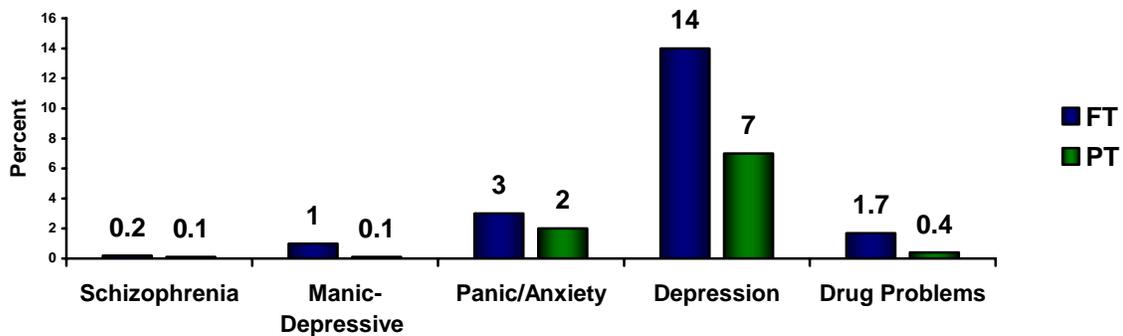
Based on an analysis of major national and worldwide mental health surveys, Dr. Ronald Kessler and colleagues from the Department of Health Care Policy, Harvard Medical School, estimate that about half of Americans will meet the criteria for a DSM IV mental health disorder during their lifetime (*Kessler RC, Bergland P, Demler O, Jin R, Walters EE. Lifetime Prevalence and Age of Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication, Archives of General Psychiatry 2005; 62: 593-602*). The first onset is often in adolescence or childhood. For this reference, it is noted that the most common major disorders reported over the course of a person’s lifetime include depressive disorders (17%), alcohol abuse (13%), and anxiety disorders (29%). More than a quarter of people had two or more disorders diagnosed in their lifetime.

SURVEY RESULTS

Mental Illness on Martha’s Vineyard

The diagnoses of mental illnesses reported by respondents are presented in the next graph, *Figure 23*.

Figure 23. Percent of Part-time and Full-time Residents Reporting Ever Having a Mental Illness by Diagnosis: Lifetime Prevalence



While these items were self-reported, they do offer at least an idea of the magnitude and nature of diagnosed mental illnesses on Martha’s Vineyard. The item on panic disorder and anxiety was not asked in such a way that would allow direct comparison with any national data, but serious anxiety disorders appear in general to be lower than in the U.S. population.

Nationally, estimates of depression range from 6% to 10% when questions are asked similar to the ones we asked in the survey. These are not taken from medical records, but from population studies that are used to estimate the prevalence of depression. The rate of 14% we observed in full-time residents exceeds most reports of depression in the United States in

epidemiologic studies. In more medically oriented studies that have actually used DSM classifications and physician assessment, however, rates may be as high as 17%.

Independent of whatever source is used; the rates of depression among full-time residents appear somewhat high, while in part-time residents they appear similar to the national average. (*U.S. Department of Health and Human Services. Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health, 1999; Kessler RC, Bergland P, Demler O, Jin R, Walters EE. Lifetime Prevalence and Age of Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication, Archives of General Psychiatry 2005; 62: 593-602*).

Depression is clearly the most important overall mental illness and mental health problem on the Vineyard according to the data reported in the survey, and it is either slightly higher or close to the national rates in full-time residents. Major psychiatric illnesses, schizophrenia, and bipolar disorder were also reported in ranges generally seen in the United States, depending on the source of information and the way the data are collected.

Importantly, however, when one examines mental illness on the Vineyard by age group, a pattern that is also seen in national data emerges. Younger adults experience higher rates of all of these problems. These are presented in the following graphs, *Figure 24 for depression, and Figure 25 for anxiety*.

Figure 24. Percent of Martha's Vineyard Full-time Residents Reporting a Depression Diagnosis by Age

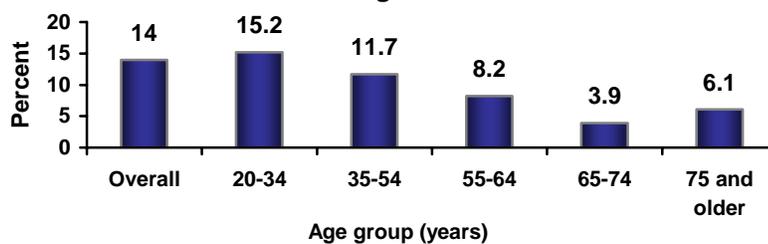
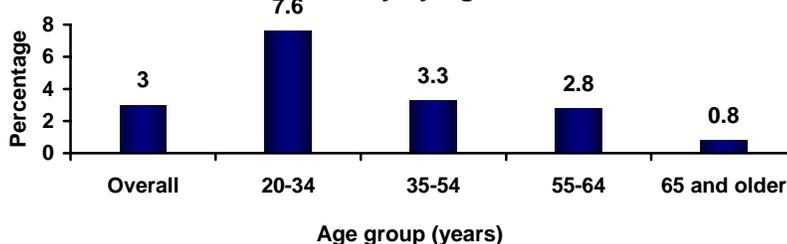


Figure 25. Percent of Martha's Vineyard Survey Reporting a Diagnosis of Panic Disorder/Severe Anxiety by Age



In addition, the survey data also show that women were significantly more likely to report depression (17% compared to 10% of men), although they had similar rates of the other major mental health disorders compared to men.

SURVEY RESULTS

Other Mental Disorders

A suicide attempt was reported in only one part-time and one full-time resident responding to the survey, making the rates too low to examine. Both cases were in the youngest age group, and both were in men. This number is likely under-represented in the survey because of the tendency with very serious mental health problems not to complete a survey.

A “problem with a habit-forming drug” was reported by 3% of all people ages 20 to 34, by 2% of those ages 35 to 54, and by only 1% in the next two age groups. After 75 years of age, no one reported any problem with drugs. Although the percentage seems small, three in every hundred people or 30 of every 1000 people in the 20 to 34-year age range report having a drug problem. This is not an insignificant number. Substance abuse is also likely to be under-reported in surveys

3.10 Mental Health, Life Experiences and Stress

Additional mental health and well-being information was collected in a series of questions that represented people’s thoughts about their own well-being, rather than a diagnosis of a mental illness. Questions were also asked about stressful life experiences and the extent to which people had sought assistance or care. These items were designed to offer an insight into the extent to which mental health issues influence quality of life. These data are not presented for comparison with “norms” but rather provide an insight into the state of mental well-being among people who reside full-time and part-time on Martha’s Vineyard.

Questions used in the survey were adopted from a standardized questionnaire from the General Well-Being Schedule (McDowell I, Newell C. *Measuring Health - A Guide to Rating Scales and Questionnaires, Second Edition. Oxford University Press. 1996. pages 206-213* and from the Rand Corporation Medical Outcomes Study (MOS) SF-12 (Sugar CA, Sturm R, Lee TT, Sherbourne CD, Olshen RA, Wells KB, Lenert LA. *Empirically Defined Health States for Depression from the SF-12 Health Services Research, Vol. 33, No. 4, 1998, pp. 911-928*). Some items are similar in both instruments, offering an opportunity to examine issues using multiple items.

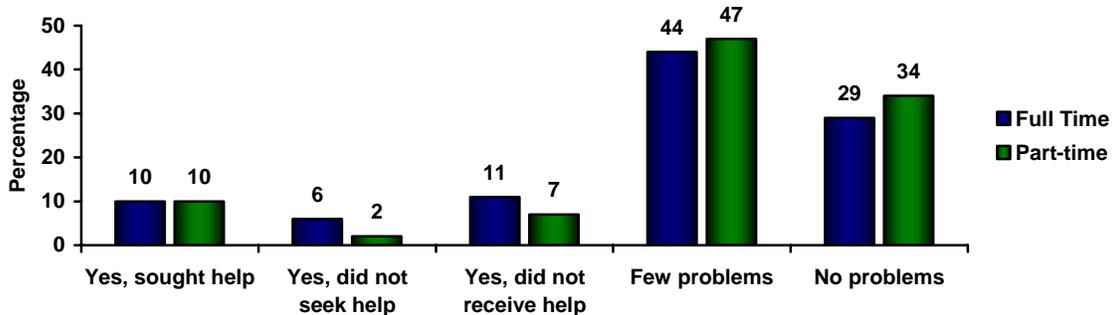
The information gained from the survey offers insight into the nature of the problems people face, as well as what constitutes mental “well-being.” It is easy to see that although one may not have a diagnosed illness, there are individuals with problems serious enough to influence their lives significantly.

SURVEY RESULTS

General Emotional and Mental Well-Being on Martha’s Vineyard

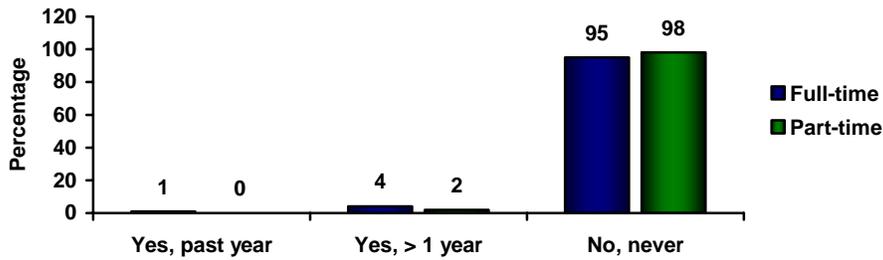
The following series of mental health items presents comparisons for full-time and part-time residents. Usually, these addressed the time framework of within the past month. Where this is not the case, it is noted in the title or text. Specific issues for people by age and sex are discussed under each graph, *Figures 26 to 30*.

Figure 26. Emotional Problems Needing Help



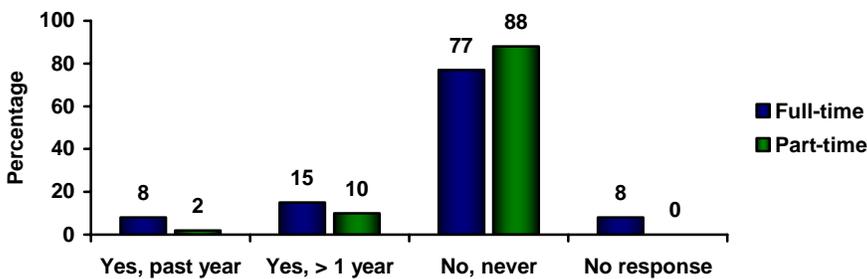
The responses to this item in the survey were similar by age group, although slightly more people in the younger age groups indicated that they had a problem. The percent with few or no problems, however, was similar by age group.

Figure 27 A. Ever Had a “Nervous Breakdown”



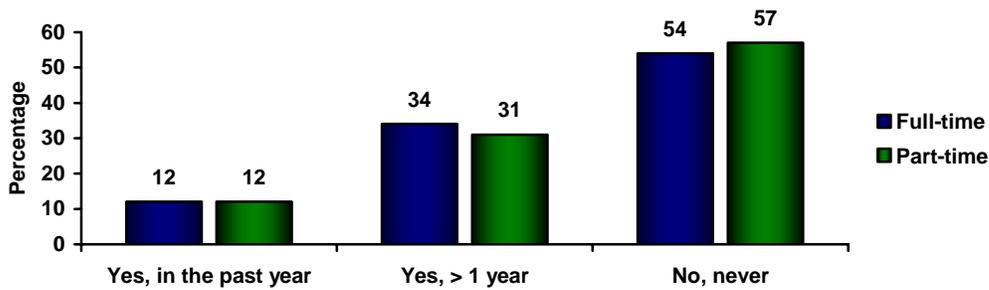
Having a “nervous breakdown” was not common in the perception of the individuals responding to the survey. Although this term is not defined technically as a mental illness of any specific form, it suggests the possibility that over 100 full-time residents per year may fall into this category. Most people indicated that this had never happened to them. The percentage that had been affected was fairly similar across age groups.

Figure 27 B. Ever Felt Close to a “Nervous Breakdown”



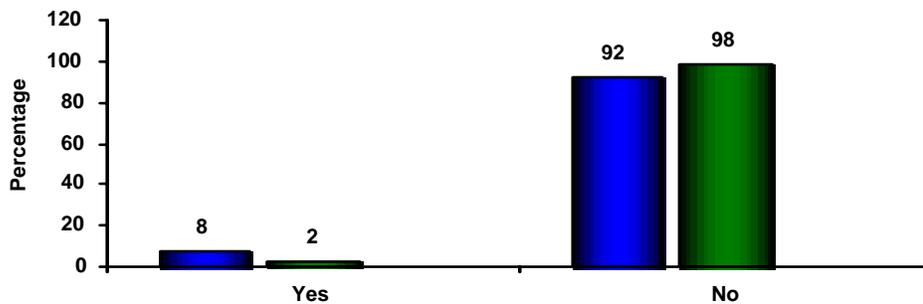
While this feeling was not very common in either full-time or part-time residents, there is significant variation by age. Among full-time residents 20 to 34 years of age, 13% indicated that they had experienced this in the past year, while only 2% to 4% of people 65 years of age or older had experienced this feeling. Interestingly, more than 90% of people 65 years of age and older indicated that they had never experienced this, while only 70% of people less than 54 years of age (including people ages 20 to 34) said they had never had this feeling. Thus, while the majority of people have not experienced this feeling, about 30% of young and middle-aged people had felt close to a nervous breakdown at some time in their lives.

Figure 28. Ever Seen a Psychiatrist, Psychologist, or Psychotherapist about Personal, Emotional, Behavioral or Mental Problems



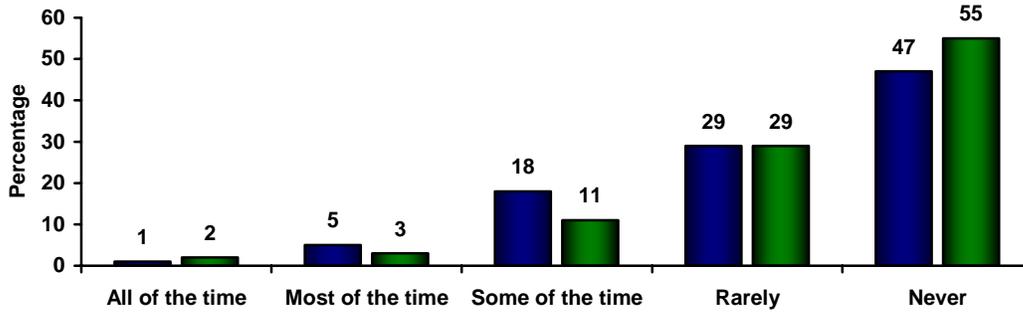
A large number of people had sought professional counseling. This was remarkably similar for both full-time and part-time residents. Regarding age, 52% of full-time residents between 20 and 34 had seen a therapist for care (14% within the past year). Among full-time residents 35 to 54 years of age, rates were higher, with 55% having sought care from a therapist, 15% within the past year. In contrast, among full-time residents 65 and older, the number who had sought therapy was 32%, with only 5% in the past year. Thus, among full-time residents, a large number had sought care for a mental health problem, strongly suggesting that this is a prevalent problem, even in the absence of a high prevalence of diagnosed mental illnesses. It appears to be a problem among part-time residents as well. It is likely that this is similar to what would be found in the general population in the United States, although exact comparison data are not available.

Figure 29. Attended Any 12-Step Program in the Past 2 Years



More full-time residents than part-time residents had used a 12-step program, although no information specifically on the nature of the program was elicited. There was no particular pattern by age.

Figure 30. Physical or Emotional Problems Interfered with Social Activities



A quarter to a third of people had problems, either physical or emotional, that interfered with their social activities. There was no specific pattern by age and was equally prevalent in older and younger people, although the reasons may have differed markedly by age. Thus, at any given time, the social lives of many people are affected by lack of well-being, either physical or emotional.

SURVEY RESULTS

Life Experiences and Stress in the Past Two Years

Common stressors were examined to determine the extent to which they occur in the Martha’s Vineyard population.

Life events are presented in *Figures 31* and *32*. These were identified from items that are generally considered life stressors, and many of these items are associated with poor mental and physical health. They were listed by respondents as events that affected their personal lives. It should be noted that the individual might not be the person directly involved, but that these events affected their own personal lives in some way.

Figure 31. Stressful Life Experiences within the Past 2 Years: Full-time Residents

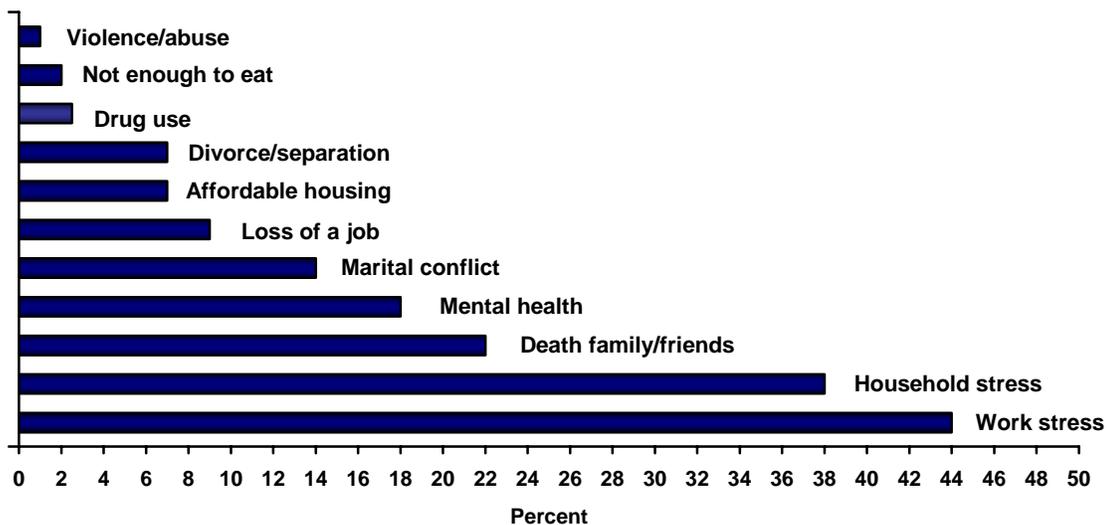
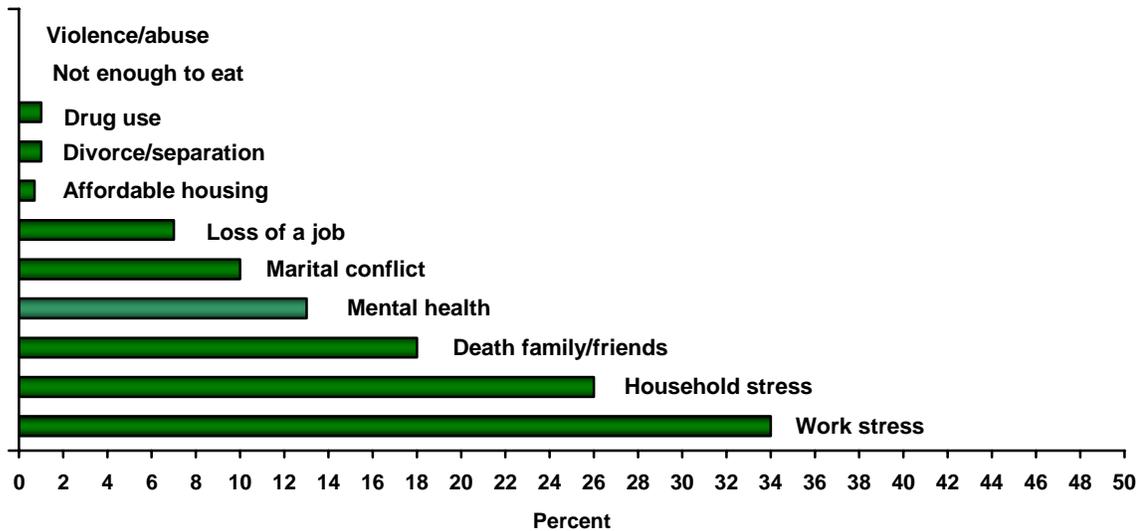


Figure 32. Stressful Life Experiences within the Past 2 Years: Part-time Residents



Among full-time residents, work and household stress are the most common, and each affects close to one-third of the full-time population. Importantly, mental health problems ranked fourth, suggesting that there are issues that are common but that may not fit within a diagnosis of mental illness provided by a doctor or people may not have sought care. Problems listed are not unique to Martha’s Vineyard. Although there are no direct national comparisons, this information suggests that there are many stressful experiences that affect the lives of a great many people living full-time on Martha’s Vineyard.

In general, the prevalence of all life stresses was markedly lower among part-time compared to full-time residents, as noted in *Figure 32*. It is also notable that these concerns maintain the same ranking in both full-time and part-time residents. The relative ranking for the various stresses was similar. Violence and concern about enough to eat were not problems among part-time residents in the survey. Divorce or separation concerns were much lower, as were concerns about affordable housing. Mental health concerns, however, still ranked number 4 among life stresses.

SURVEY RESULTS

Summary: Life Experiences and Stress

While a significant portion of full- and part-time residents have suffered from a mental illness (particularly depression), emotional stress, and distress, there are insufficient data to suggest that there are higher or lower rates of mental illness on the Vineyard compared to the nation. We simply cannot determine this easily. The one exception to this is that there appear to be higher rates of excessive drinking on Martha’s Vineyard as noted in another section.

Although full-time residents are significantly more likely than part-time residents to experience mental illness and stressful events, many full- and part-time residents have issues

that are similar. A large portion of the population is stressed by work and home life, and a smaller but significant portion of the population is concerned about filling basic needs, such as finding enough food to eat and finding affordable housing. Although large portions of the population have suffered from mental health problems, this is also a population that has sought help. The majority of individuals between the ages of 20 and 54 reported seeing a psychiatrist, psychologist, or psychotherapist about personal, emotional, behavioral, or mental problems. Also, the younger population is more likely to have received help from a mental health facility (clinic or hospital).

Of particular concern, the younger population appears to already have more of a “lifetime” prevalence of mental health issues than people who have lived a lot longer. This suggests that perhaps young people today may be living in a particularly stressful era. Given the large numbers of individuals on Martha’s Vineyard who have suffered from mental health issues, the community may benefit from further research into the causes and solutions to these problems. Some explanations may be environmental, but others may be the result of families migrating to the Island simply because coping on the mainland maybe difficult. The survey was unable to ascertain any causality. Early interventions among youth and younger adults may present a particular opportunity to prevent the development of more serious disorders in the future.

3.11. Vision Care

As the U.S. population grows older, recent data (2004) from the National Eye Institute of the National Institutes of Health suggest that the loss of vision is becoming a much more serious health problem. Low vision or blindness affects over 3 million people in the United States, most over 40 years of age, and that number is expected to increase to 5 million by 2020. The most common causes of low vision or loss of vision are age-related macular degeneration (AMD), glaucoma, cataracts, and diabetic retinopathy. The National Eye Institute stresses the importance of yearly comprehensive eye examinations in people over 65 years of age and in people with diabetes.

We have summarized information about the most common eye problems, although the survey only asked about glaucoma and cataracts. Data for this section was provided by the National Eye Institute at <http://www.nei.nih.gov/health/>.

Age-related macular degeneration damages central vision and is the most common cause of blindness in older people. It rarely affects people under 60 years of age. Although there are no definitive treatments, laser therapy can help reduce the chance of total blindness for some forms of AMD discovered early enough. National Eye Institute research has recently shown that a combination of zinc, vitamins C and E, and beta-carotene may reduce the risk of developing serious AMD by 25%.

Cataracts are clouding of the lens of the eye that is normally clear. They are associated with aging. Smoking, diabetes, and excessive sun exposure are related to cataracts. About 20.5 million people in the United States have cataracts, and by age 80, more than half of all people will develop cataracts. Surgical treatment can prevent loss of vision from cataracts, particularly if detected early enough.

Glaucoma is less common, affecting about 2.2 million people in the United States. It causes damage to the optic nerve over time and interferes with information carried from the eye to the brain. Because it is a progressive disorder, about half of people with glaucoma are unaware that they have it. If detected early, blindness from glaucoma may be prevented.

Diabetic retinopathy occurs in 50% of people with diabetes. The blood vessels to the retina can be damaged by diabetes and can result in blindness in diabetics of all ages. However, the risk increases with age and duration of diabetes. Laser surgery and other procedures may be very helpful in treating this if it is detected early enough. Research into pharmaceutical treatment options is continuing.

The National Eye Institute provides an excellent resource for eye education as part of its National Eye Health Education Program. This can be found at <http://www.nei.nih.gov/nehep/index.asp>. The Foundation for Fighting Blindness is also an excellent source of information and acts as a clearinghouse and distributor of self-help programs and can be located at <http://www.blindness.org/>.

SURVEY RESULTS

Vision Care on Martha's Vineyard

There were modest data in the survey on problems with vision. However, we did examine the data on glaucoma and/or cataracts as shown on *Table 6*.

Among full-time residents, 8% had cataracts or glaucoma, with a similar prevalence (9%) among part-time residents. As would be expected, this number increased markedly with age, with a third of people 75 years of age and older affected.

Table 6. Percent of Full-time Residents with Cataracts and Glaucoma by Age Group

Age in years	20-34	35-54	55-64	65-74	≥ 75
Cataracts or glaucoma	0	1	5	19	33

Of all people 75 years of age or older living full-time on Martha's Vineyard, 79% have had a full eye examination within the past year, and 18% within the past two to five years. For people ages 65-74, 69% had a comprehensive eye examination in the past year, and 29% within the past two to five years.

3.12 Dental Health

The National Oral Health Surveillance System (NOHSS) assists public health programs to monitor the oral diseases and the use of health care as well as water fluoridation on a state and federal level. NOHSS tracks eight indicators, about half of which apply to adult health and some apply to dental care. Basic oral health surveillance indicators are its main focus. The data for NOHSS are available from multiple national surveys, including the statewide Behavioral Risk Factor Surveillance System for the Commonwealth of Massachusetts. Oral health problems can be painful, costly, and largely preventable.

Oral diseases range from periodontitis (infection of the gums at the base of the teeth) to cavities and cancer of the mouth that may not be detected any way other than through dental visits. Tooth decay is a serious problem for U.S. adults. The Centers for Disease Control suggests that about a quarter of all adults over age 60 have lost all of their teeth, primarily because of tooth decay. Advanced gum disease occurs in about 25% of the population. These problems pose serious health issues that may be related to mouth infections and may contribute to poor nutrition if people lose too many teeth. In addition, annually nearly 28,000 people are diagnosed with oral cancers, and more than 7000 people die of oral cancer (Centers for Disease Control, Preventing Cavities, Gum Disease and Tooth Loss, 2005, <http://www.cdc.gov/nccdphp/publications/aag/oh.htm>).

SURVEY RESULTS

Dental Health on Martha's Vineyard

The Martha's Vineyard survey primarily addressed dental health primarily from the perspective of services accessibility and utilization. However, 4% of full-time residents reported needing urgent dental care. No data were collected on the nature of any oral diseases.

Only one item on the original survey elicited any information about the current state of dental health. *Table 7* on the following page details the dental issues identified by both full- and part-time residents. Approximately 80% indicated that they had some dental needs at the time they completed the survey. Among both full-time and part-time residents, the majority indicated that they needed at least maintenance performed, including cleaning. A notable percentage indicated that they needed cavities filled or other restorative work. Urgent problems, while rare, were evident in a small percent of the population.

Table 7. Percent of Full-time and Part-time Residents Who Indicated They Needed Dental Care

	Percent Full-time	Percent Part-time
None	20	21
Cavities filled or other restorative work (fillings, crowns, bridge)	35	27
Maintenance (check-ups or teeth cleaning)	69	71
Extractions (taking teeth out)	6	2
Periodontal (gum) work	10	8
Orthodontic work (braces)	1	0.6
Urgent (dental problems requiring immediate attention-such as infection, pain)	4	1

Chapter IV. The Public Health Perspective

This 2006 Health Conditions and Health Status Report provides a fruitful template for immediate health planning. The 2004 Health Report was the first large Island-wide survey of health status and health conditions on Martha's Vineyard for both part-time and full-time residents. The original survey sampling was successful in that the full-time participants closely approximate the characteristics of the full-time adult residents of Martha's Vineyard, thus offering generalizability, with the exception of youth and recent immigrant populations. It is time to begin to use these data actively.

Projections can now be approximated for the existing Island population to form an estimate of what the true extent of various health problems are in terms of actual numbers. Knowing the scope may help apportion plans for specialists, primary care, and preventive care. Thus, the survey provides a general framework that all organizations can use to create a blueprint for new and responsive services. We have generated a reasonable general plan of simple steps for each of the three identified potentially very serious problems.

Tick-Borne Diseases-Public Health Action

- Further public-expert dialogue as well as pilot testing of ways to reduce the environmental vectors needs to be initiated. A formal study of these diseases to determine the behavioral, biological, and environmental substrate for these diseases is critical for the Island.
- An aggressive prevention program designed collaboratively by Island residents, infectious disease and public health experts would improve public awareness and encourage the use of appropriate preventive behaviors.
- Vineyard physicians recognize and treat these diseases very well. However, early recognition of symptoms among residents and access to a specialized resource for urgent care may be particularly helpful in improving the effectiveness of current therapeutic options.
- Because tick-borne diseases are also highly prevalent among part-time residents and Island visitors, ways to transfer information about these diseases to off-island primary care clinicians caring individuals after they leave the Island would be very important. This may be done using an aggressive information program for visitors and part-time residents and providing a professional information hot line.
- There is little information about the long-term health and well-being consequences of tick borne diseases, particularly Lyme Disease. Establishing a registry and cohort study of people who develop Lyme Disease would enrich our understanding of the disease trajectory, not only locally, but nationally. The Vineyard would benefit from formal links to existing programs of population-based research elsewhere.

Skin Cancer- Public Health Approaches

- Youth are likely to be unaware of the risks that are encountered by sun exposure at a young age. A school-based health education program that focuses on prevention may be particularly helpful.
- Risk self-assessment questionnaires and programs are available free-of-charge from several national organizations. Widespread sustainable programs that distribute materials on The Vineyard may assist people to reduce their risk.
- Older adults would particularly benefit from education about how to identify high risk skin lesions. Elder care centers are an excellent place to begin such an educational program.
- Regularly available low-cost or free screening programs for skin cancer have been instituted in many venues nationally and may be helpful on the Vineyard.

Excess Alcohol Consumption—Public Health Implications

Although the survey was able to discern that this remains a problem, there was not sufficient information garnered to formulate any specific program. Except for gender, town of residence, age, and education, we do not know the factors that predispose or enable this on the Island. This is a fruitful area for further intensive study, and for dialogue about the Island's role in addressing this systematically through availability of care, prevention programs for youth, and environmental considerations that address availability of alcohol. For example, policy issues, such as extending alcohol availability into other towns may be influenced by recognition of the extent to which excess alcohol consumption is associated with probably proximity and access. While individual approaches to treating and preventing alcohol abuse may be helpful, from the population perspective, societal and policy interventions are more likely to alter the milieu in which alcohol abuse is accepted.

Long-term Health Monitoring on Martha's Vineyard- The Public Health Perspective

This 2006 Health Conditions and Health Status Report may serve as a baseline for periodic examination of health conditions on the Island. Using a template such as the *Surgeon General's Goals for the Nation's Health (2010)*, Martha's Vineyard agencies could collectively define specific public health goals for the Island and monitor them over time. A tripartite structure (community, experts, and local government representatives) would likely serve this mission best, so that a shared plan can emerge. Dialogue is important, but not at the expense of meaningful apolitical action to improve the health of the Island.

**APPENDIX:
SURVEY METHODS AND SUBGROUP ANALYSES FOR PART-TIME
AND FULL-TIME RESIDENTS**

Appendix A: Detailed Methods

Survey Development

The 2003 population survey was constructed of quantitative items that were replicated from other major studies, including the National Health and Nutrition Evaluation Survey (NHANES), the Statewide Behavioral Risk Factor Surveillance Surveys (BRFSS), and the National Health Interview Survey (NHIS). Additional items were constructed to address Island-specific issues. All items were reviewed by the Health Report Committee. The protocol was submitted to the Institutional Review Board (IRB) of the Johns Hopkins Medical Institutions and was granted an exemption because the survey was anonymous.

Exclusions

The 2004 Health Report of Martha's Vineyard focused on adult health conditions in the general population and does not include children and youth or special immigrant populations. This first effort was designed to gather data on the general prevalence of common health conditions. Efforts to collect similar data on special populations have already begun.

Sampling Framework

The original population sample was drawn from voter records and taxpayer records obtained from all town clerks. Tisbury, Edgartown, Oak Bluffs, West Tisbury, Chilmark, and Aquinnah all provided lists updated to the most current year. The lists included name, address (on- or off-Island), age for some, and sex.

The programmer assigned a number to each person. For each number assigned, gender, part-time versus full-time status, and town of residence or home ownership was also coded. This yielded a database of all taxpaying and voting Islanders by town, gender, residency status, name, and address.

Statistical Analysis Systems (SAS, Carey, NC) was used to select a random sample stratified by town, based on the proportion of people that each town contributed to the entire Martha's Vineyard population. An equal number of men and women were sampled, and a 10% sampling framework of residents was created. .

Once the sample names and addresses were selected, a mailing list was created. Where present, for addresses on Martha's Vineyard, a mailbox address was used rather than a street address because of the small number of household mail deliveries. Identification numbers linking individuals to a survey were destroyed so that there was no way to link an individual to any response. Thus, this is a fully anonymous survey.

Data Entry and Data Management

Surveys were logged in at the Foundation for Island Health by Ms. Binder and then sent to Baltimore for data entry by the SOSIO Corporation. Prior to data entry, each questionnaire

was examined by a professional data analyst for clarity and given a number so that raw data could be examined after data entry to correct any errors in the electronic database.

At the time of data entry, each questionnaire was double entered and range checks were included. Thus, any possible data entry errors could be checked against the original questionnaire and corrected. Data were transferred electronically from SOSIO to the programmer, and a template for analysis for each was created by Dr. Becker and a professional community epidemiology team. Data were then transferred to SAS for both analyses and management.

Data Analyses

All continuous or interval data were examined for distributions, normality, skewedness, and kurtosis using standard methods (the Wilk-Shapiro and the Kolmogorov-Smirnov tests were used to test for normality). Data that were Gaussian (normal Bell-shaped curve) were summarized as means plus or minus one standard deviation, with a range from minimum to maximum. All complete data with these distributions are on file and summarized with a data dictionary in the FIH Offices. Usually only the mean values are reported without standard deviations. Most continuous variables (age, for example) were normally distributed. Categorical data were analyzed using simple frequencies and percentages. Bivariate analyses used multiway contingency table arrays, and statistical significance was tested for some variables using the χ^2 statistic. In some instances, where there was particular interest in the impact of multiple factors on an outcome, multivariable linear or logistic regression analyses were used. For the most part, simple descriptive data were presented. Ordinal data are presented as categorical.

Thus, data for the 2004 Health Report were all quantitative and summarized directly from the responses to the scientifically sampled mailed survey. In many cases, for this 2006 Report on Health Conditions and Health Status, categories were amalgamated to create more robust distributions for graphic representation. The sample is reasonably comprehensive, and the population sampled is similar to the overall full-time residency of Duke's County. Data are often in tables that contain mutually exclusive categories. These should add to 100% but may be ± 1 (99 or 101) due to rounding bias. Several items appear in the appendix that do not appear in the Chapters. There may be some minor variance among numbers in different tables and some variance with the graphs in the text, as some items were not answered by everyone and the denominators were adjusted to reflect this in analyses used for this 2006 document.

Availability of Additional Data

Data are presented by full-time and part-time residency status. Data on all items by gender, age, age, education, and town were analyzed and are maintained in SAS output form in binders at the Foundation for Island Health. Contact may be made with the Foundation for further information about access to these data. A detailed preliminary version of the full extensive overall data from the 2004 Health Report and the general items used on the questionnaire is available on The Vineyard Gazette Web site and can be viewed at http://www.mvgazette.com/features/documents/island_health_report.doc, provided courtesy

of the Vineyard Gazette. Additionally, data on health services utilization can also be found in the 2004 Report on The Vineyard Gazette Web site. Some tables in the original Report may differ slightly from the data presented here because of variations in analyses and arrangement of summary data.

Additional Sources of Information Used in the Health Conditions Report

American Brain Tumor Association
American Cancer Society
American Lung Association Statistics
American Heart Association (AHA)
Statewide Behavioral Risk Factor Surveys
Food and Drug Administration
National Center for Health Statistics
National Cancer Institute (SEER Data)
National Health Interview Study (NCHS) 2000
National Heart, Lung, and Blood Institute
National Institute of Aging
National Institute for Allergy and Infectious Disease
National Institute for Digestive Diseases and Kidney Diseases
National Institute of Mental Health

Appendix B: Selected Data Tables by Residency Status

Table B.1. Dukes County, Massachusetts, U.S. Census 2000 and 2001 Estimates

	Dukes County	Massachusetts
Population, 2001 estimate	15,402	6,379,304
Population percent change, April 1, 2000 to July 1, 2001	+2.8%	0.5%
Population, 2000	14,987	6,349,097
Population, percent change, 1990 to 2000	+8.8%	5.5%
Persons under 5 years old, percent, 2000	5.5%	6.3%
Persons under 18 years old, percent, 2000	22.7%	23.6%
Persons 65 years old and over, percent, 2000	14.4%	13.5%
Female persons, percent, 2000	51.1%	51.8%
White persons, percent, 2000	90.7%	84.5%
Black or African American persons, percent, 2000 (a)	2.4%	5.4%
American Indian and Alaska Native persons, percent, 2000	1.7%	0.2%
Asian persons, percent, 2000 (a)	0.5%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	
Persons reporting some other race, percent, 2000	1.5%	3.7%
Persons reporting two or more races, percent, 2000	3.2%	2.3%
Persons of Hispanic or Latino origin, percent, 2000	1.0%	6.8%
White persons, not of Hispanic/Latino origin, percent, 2000	90.0%	81.9%
Foreign-born persons, percent, 2000	6.3%	12.2%
Language other than English spoken at home, pct age 5+, 2000	8.2%	18.7%
High school graduates, percent of persons age 25+, 2000	90.4%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	38.4%	33.2%
Housing units, 2000	14,836	2,621,989
Homeownership rate, 2000	71.3%	61.7%
Housing units in multi-unit structures, percent, 2000	6.3%	42.7%
Median value of owner-occupied housing units, 2000	\$304,000	\$185,700
Households, 2000	6,421	2,443,580
Persons per household, 2000	2.30	2.51
Per capita money income, 1999	\$26,472	\$25,952

*Data from the U.S Census and Updates

Table B.2. General Demographic Comparisons with the Duke's County Census Data

	Full-time (FT):	Part-time (PT)
Number of respondents	1054	690
Mean age in years	54.3 ± 15	59.3 ± 12
Median age in years	53	56
Dukes County – U.S. Census FT Only	41	unknown
Mean years affiliated with M.V.	28.2 ± 19	25.1 ± 17
Average household size (mean number of residents)	2.2 ± 1	2.3 ± 1
Mean weeks/year on M.V. for PT residents	11.2 ± 7	11.2 ± 7
Percent Male	36	41

Table B.3. Number of Respondents per Town

	FT (N*)	PT (N)
Aquinnah	12	22
Chilmark-Menemsha	55	87
West Tisbury	238	81
Tisbury/Vineyard Haven	272	84
Oak Bluffs	225	188
Edgartown	252	228

Note: The total may not be equivalent to the total in the survey, as some individuals did not complete this information.

*N=the number of people, rather than a percent.

Table B.4. Percent Marital Status

	Duke's County (DC) Census Data FT Only %	FT %	PT %
Married	53	61	83
Widowed	5	7	6
Separated	2	2	1
Divorced	13	14	5
Never married	27*	11	3

* Note: The U.S. census assessed marital status over age 15, so it has a much larger percentage of people who were never married, which likely does not apply then to the HR survey sample. Percents will not add up to 100, as there are other categories (not married, living with another person as married, for example).

Table B.5. Education Comparison with the Dukes County Census Data 2000

	Duke's County Census %	FT%
% with < high school graduation	7	1
% High School graduates (no baccalaureate)	37	40
% College or University (four year) graduate	35	38
% Graduate education and degree	21	21

Table B.6. Percent of Total Sample in Each Household Income Group

	FT %	PT %
Less than \$15,000.	4	1
\$15,000. to \$30,000.	13	3
\$31,000. to \$50,000.	24	7
\$51,000. to 100,000.	37	22
\$101,000. to 150,000.	13	23
\$151,000. to 200,000.	3	12
More than \$200,000.	5	31

Table B.7. Percent and N in Each Employment Category in 2000

	DC Census %	FT%	PT%
Employed full-time year round		50	41
Employed part-time year round		17	14
Seasonal work (4-6 months per year or less)		6	3
Summary Total Group	66.4	73	58
Retired from employment		17	25
Homemaker		6	11
Disability		1	4
Student		1	0
Summary Total Group	31.8	25	40
Unemployed	1.8	2	2

Note: Employment in the U.S. census was assessed for persons 16 years of age and older. This affects comparisons with our HR sample, as we did not survey people this age. The specific types of employment and not employed weren't in the data released yet for the 2000 census.

Table B.8: Prevalence of Each Health Condition Self-reported as Diagnosed by a Doctor or Health Care Professional by Full-time and Part-time Status

	FT%	PT%
Diagnosed arthritis	21	21
Chronic back pain	15	12
Migraines or frequent tension headaches	22	25
Asthma	7	6
Chronic bronchitis	2	1
Emphysema	1.5	0.9
Allergies-inhaled (eyes, sinuses, hay fever, rhinitis)	16	18
Cataracts or glaucoma	8	9
Same, for FT residents over 65 years of age	33	
Epilepsy or seizures	0.8	0.3
Parkinson's disease	0	4
For FT residents over 65 years of age		0
Multiple sclerosis	0.2	0.4
Alzheimer's disease	0.2	0.4
FT residents over 55 years of age	1.5	
Autoimmune disease, like lupus	1	1
Schizophrenia	0.2	0.1
FT residents 20-34 years of age	2.5	
Manic-depressive disorder	1	0.1
FT residents 20-34 years of age	2.5	
FT residents 35-54 years of age	0.8	
FT residents 55-64 years of age	2.3	
Panic disorder or severe anxiety disorder	3	2
FT residents 20-34 years of age	7.6	
FT residents 35-54 years of age	3.3	
FT residents 55-64 years of age	2.8	
FT residents 65 years of age and older	0.8	
Depression	14	7
FT residents 20-34 years of age	15.2	
FT residents 35-54 years of age	11.7	
FT residents 55-64 years of age	8.2	
FT residents 65-74 years of age	3.9	
FT residents 75 years of age and older	6.1	
Problems with any habit-forming drugs, including prescription or nonprescription drugs (like illegal recreational drugs)	1.7	0.4
Coronary heart disease (heart attack, angina, bypass surgery, or angioplasty)	4	5
Heart failure, heart valve disease, or congenital heart disease	2.6	3.3
Pacemaker /implanted defibrillator	0.8	1.3

	FT%	PT%
Hypertension (High blood pressure)	22	24
FT residents 20-34 years of age	3.8	
FT residents 35-54 years of age	9.1	
FT residents 55-64 years of age	29.6	
FT residents 65-74 years of age	51.8	
FT residents 75 years of age and older	43.9	
Thyroid problem	8	8
Stroke or mini-stroke (TIA)	1.7	2.3
FT residents 20-34	0	
FT residents 35-54	0.4	
FT residents 55-64	0.5	
FT residents 65-74	4.7	
FT residents 75 years of age and older	6.8	
Cirrhosis of the liver	1.7	2.3
Stomach problems (ulcers or gastritis)	5	4
Gastroesophageal reflux disease (heartburn or hiatal hernia)	8	9
Colitis / irritable bowel syndrome	4	3
Diverticulitis or bowel problem	5	4
Hepatitis (all)	2	0.9
HIV/AIDS	0.3	0.6
Kidney failure	0.7	0.6
Diabetes	5	3
Lung cancer	0.4	0.1
Brain cancer	0.1	0
Breast cancer	2	5
Uterine or cervical cancer	1	0.9
Colon cancer	5	0.1
Pancreatic cancer	0	0
Liver cancer	0	0
Prostate cancer	1.5	2.5
Lymphoma or Hodgkin's disease	0.2	0.1
Leukemia	0	0.3
Skin cancer (melanoma)	1.4	2.3
FT residents 20-34 years of age	0	
FT residents 35-54 years of age	0.2	
FT residents 55-64 years of age	0.9	
FT residents 65-74 years of age	1.6	
FT residents 75 years of age and and older	1.5	
Skin cancer (basal cell/squamous cell carcinoma)	8	14

Skin cancer (basal cell/squamous cell carcinoma)	FT%	PT%
FT residents 20-34 years of age	1.3	
FT residents 35-54 years of age	2.2	
FT residents 55-64 years of age	11.8	
FT residents 65-74 years of age	17.3	
FT residents 75 years of age and older	18.9	
Lyme disease (diagnosed or treated)	12.24	7.25
FT residents 20-34 years of age	11.4	
FT residents 35-54 years of age	13.5	
FT residents 55-64 years of age	10.5	
FT residents 65-74 years of age	8.7	
FT residents 75 years of age and older	15.2	

Table B.9. Percent with Self-reported Injuries/Accidents

	FT%	PT%
Motor vehicle accident (car or truck): driver or passenger	3	3
FT residents 20-34 years of age	6.3	
FT residents 35-54 years of age	3.1	
FT residents 55-64 years of age	2.3	
FT residents 65-74 years of age	1.6	
FT residents 75 years of age and older	3.0	
Motor vehicle accident: pedestrian	0.1	0.3
Motor vehicle accident: while riding a bicycle	0.1	0.3
Other bicycle accident, including falls	0.6	2
Boating accident	0.5	0.1
Falls: other	9	6.5
FT residents 20-34 years of age	6.3	
FT residents 35-54 years of age	8.4	
FT residents 55-64 years of age	7.7	
FT residents 65-74 years of age	7.9	
FT residents 75 years of age and older	18.2	
Sports injury	6	6.5
FT residents 20-34 years of age	12.7	
FT residents 35-54 years of age	10.1	
FT residents 55-64 years of age	1.8	
FT residents 65-74 years of age	2.4	
FT residents 75 years of age and older	0	
Physical assault	0.09	0.14
Suicide attempt or self-inflicted injury	0.09	0.09
Dog bite	1	0.6
Bite by animal other than dog	0.4	0.1
Bite by a deer tick or a dog tick	10	5
FT residents 20-34 years of age	6.6	
FT residents 35-54 years of age	11.1	
FT residents 55-64 years of age	11.8	
FT residents 65-74 years of age	7.1	
FT residents 75 years of age and older	11.4	
Insect bites or stings	6	7.5
Burns	2	0.9

* Note. Comparisons of these data with U.S. data can be done using WASQARSTM (Web-based Injury Statistics Query and Reporting System), an interactive CDC database system that provides customized reports of injury-related data (<http://www.cdc.gov/ncipc/wwasqars/>). We do not report this information in the main document because of the very small numbers and inability to perform comparisons.

Table B.10. Percent Rating Own Health by Category and Age

	FT%	PT%
Excellent	32	41
FT residents 20-34 years of age	27.8	
FT residents 35-54 years of age	36.4	
FT residents 55-64 years of age	37.4	
FT residents 65-74 years of age	22.1	
FT residents 75 years of age and older	20.1	
Good	54	51
FT residents 20-34 years of age	62.0	
FT residents 35-54 years of age	52.5	
FT residents 55-64 years of age	52.5	
FT residents 65-74 years of age	59.8	
FT residents 75 years of age and older	56.6	
Fair	12	7
FT residents 20-34 years of age	10.1	
FT residents 35-54 years of age	10.3	
FT residents 55-64 years of age	9.1	
FT residents 65-74 years of age	16.5	
FT residents 75 years of age and older	18.6	
Poor	2	1
FT residents 20-34 years of age	0	
FT residents 35-54 years of age	0.8	
FT residents 55-64 years of age	0.9	
FT residents 65-74 years of age	1.6	
FT residents 75 years of age and older	3.9	

Table B.11. Self-reported Tick-borne Disease Exposures and Preventive Behaviors

	FT%	PT%
I have found ticks on my skin while on M.V.	85	64
I have had a documented tick-borne disease (Lyme disease, other).	21	11
I usually examine my skin after being in a wooded or grassy area.	90	87
I wear a mask when doing yard work or landscaping on M.V.	16	11
I often avoid grassy or wooded areas because of ticks.	45	52
I receive education/information about tick-borne diseases while on M.V.	89	77

Table B.12. Tick-borne Disease Exposures by Town (Percent of both FT and PT Residents)

	Aquinnah %	Chilmark%	West Tisbury %	Vineyard Haven %	Oak Bluffs %	Edgartown %
I have found ticks on my skin while on M.V.	94	90	90	74	61	78
I have had a documented tick-borne disease (Lyme disease, other).	25	37	34	13	7	10
I usually examine my skin after being in a wooded or grassy area.	93	88	91	90	85	91
I wear a mask when doing yard work or landscaping on M.V.	13	13	15	14	13	13
I often avoid grassy or wooded areas because of ticks.	44	46	34	50	54	51
I receive education about tick-borne diseases while on M.V.	89	89	89	87	79	82

Table B.13. Current Smoking

	FT%	PT%
Not at all (includes former smokers)	86	95
Daily	10	2
Occasionally	4	3

Table B.14. Percent of Smokers Agreeing with these Statements

	FT%	PT%
I have tried nicotine replacement (gum or patch).	49	31
I have tried prescription drugs (bupropion) to quit.	22	29
Smoking helps me cope with stress.	77	69
Smoking increases my energy.	22	26
I would like help to stop smoking.	78	53
My doctor or health care practitioner has advised me to stop smoking.	79	70
I have had a health problem related to my smoking.	25	26

Table B.15. Percent with Self-reported Frequency of Drinking Alcoholic Beverages

	FT%	PT%
Never	15	9
2-3 times a year	10	8
Once a month	11	9
2-3 times a month	12	14
2-3 times a week	26	30
Once a day	22	28
More than once a day	5	3

Table B.16. Percent Consuming Five or More Drinks* on Any One Occasion in the Past Year

	FT%	PT%
Never	69	75
2-3 times a year	16	14
Once a month	6	5
2-3 times a month	5	4
2-3 times a week	3	2
Once a day	1	1

* One drink = one beer, one glass of wine, or one shot (ounce) of hard liquor.

Table B.17. Self-reported Problems with Alcohol

Percent ever treated for a problem with alcohol.	Full time: 6%	Part-time: 2%
Percent who think they have a problem with alcohol at the present time.	Full time: 4%	Part-time: 3%
Percent whose health care practitioner ever discusses alcohol use with them.	Full time: 15%	Part-time: 16%

Table B18. Average Body Mass Index and Percent Obese*

Average Calculated BMI weight (kg)/ height (m ²)	Full time: 25.4 ± 5
	Part-time: 25.2 ± 4
Percent obese (BMI ≥ 30)	Full-time 13.3%
	Part-time 12.8%

* Based on self-reported weight and height which results in only marginal error.

Table B.19. Percent with Experiences that Affected Them or Their Life Personally in the Past Two Years

	FT%	PT%
Mental health concerns	18	13
Job or work stress	44	34
General household stress	38	26
Loss of work or a job	9	7
Death of a loved one	22	18
Divorce or separation	7	1
Marital conflict	14	10
Concern about having enough to eat	2	0.3
Serious problems with affordable housing	7	0.7
Discrimination (race, gender, or other)	2	3
Physical violence or abuse	0.8	0.3
Drug use (prescriptions or street drugs)	2.5	1

ADDITIONAL DATA RESOURCES:



U.S. Centers for Disease Control and Prevention
600 Clifton Road
Atlanta, GA 30333
Web site: <http://www.cdc.gov/>
Public inquiries: 404-639-3534 / 800-311-3435



The Massachusetts Department of Public Health
250 Washington Street
Boston, MA 02108-4619
Web site: <http://mass.gov/dph/>
DPH Public Health Information Line
866-627-7968



National Institutes of Health
9000 Rockville Pike
Bethesda, MD 20892
Web site: <http://www.nih.gov/>
NIHinfo@od.nih.gov
E-mail messages are answered Monday-Friday, 9 a.m.-4 p.m



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
200 Independence Avenue, S.W.
Washington, DC 20201
Web site: <http://www.hhs.gov/>
Telephone: 202-619-0257
Toll Free: 1-877-696-6775
A list, by subject, of Web sites and public inquiry and publication phone numbers for popular topics: <http://www.hhs.gov/about/referlst.html>



For Health Professionals
PubMed is a service of the U.S. National Library of Medicine that includes over 16 million citations from MEDLINE and other life science journals for biomedical articles back to the 1950s. PubMed includes links to full-text articles and other related resources. Abstracts are available for free, while full-text articles are referenced and paid for at the site. Some are free. The text is technical, and represents up-to-date research on health topics.
Web site: www.pubmed.gov

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Charles Silberstein is a practicing psychiatrist at The Martha's Vineyard Hospital. He has taken an active leadership role in dialogue about health on The Vineyard and has moderated many local seminars on health issues. He and his wife, Laura Roosevelt, a writer, live with their two children in West Tisbury.