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Health Council

National Program for Quality Indicators in Community Healthcare in Israel

2008-2010

Faculty of the Braun School of Public Health and
Community Medicine, Hebrew University – Hadassah

With the participation of the four health plans in Israel

התכנית הלאומית למדדי איכות לרפואת הקהילה בישראל
NATIONAL PROGRAM FOR QUALITY INDICATORS IN COMMUNITY HEALTHCARE
المشروع الوطني لمؤشرات الجودة الطبية للصحة الجماهيرية في إسرائيل

National Program for Quality Indicators in Community Healthcare in Israel Report 2008-2010

Supported by:

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With the support and participation of the four health plans in Israel: Clalit Health Services, Leumit Health Fund, Maccabi Healthcare Services and Meuhedet Health Fund.

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Academic experts, National Council experts, Brookdale Institute, Gertner Institute, and the National Insurance Institute of Israel

Israel Society for Quality in Health Care

With gratitude for your significant contribution,

Directorate of the National Program for Quality Indicators in Community Healthcare in Israel

FOREWORD

"Efforts to improve quality require efforts to measure it."

(Casalino, 2000:NEJM)

The *National Program for Quality Indicators in Community Healthcare in Israel Report* is produced in coordination with the four health plans in Israel (*kupot cholim*). The purpose of this report is to evaluate the quality of community-based medical care in Israel, including improvements and modifications to the healthcare system introduced over time, and variations in quality of care between subgroups.

The first report by the program was published in 2004 for data from 2001–2003. Annual reports were published thereafter for data through 2009 (Porath et al., 2006, 2007, 2008; Manor et al., 2011). The current report presents results of indicators for the measurement years 2008–2010.

Quality indicators in this report are derived from data provided by the four health plans in Israel. The national quality indicators focus on six major clinical fields in community healthcare in Israel: asthma, cancer screening, immunizations for older adults, child and adolescent health, cardiovascular health, and diabetes. All data presented in the report underwent internal review as well as external auditing by an accredited professional.

We hope the information in this report will benefit the general public, healthcare providers, and policy makers.

Electronic copies of this report are available at our website: http://healthindicators.ekmd.huji.ac.il

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MAIN FINDINGS

The *National Program for Quality Indicators in Community Healthcare Report, 2008–2010* shows continuing improvements in healthcare in Israel, with increasing rates of quality over time and maintenance of the existing high levels of quality for the majority of healthcare indicators. These results are largely due to the concentrated efforts of Israel's health plans and their active role in community medicine.

Noteworthy are the increased rates of documentation of height and weight (for the assessment of body mass index, BMI) among children, adolescents, and adults. These findings are of particular significance considering the increasing prevalence of obesity in all of these age groups. Since documentation is a crucial initial stage in disease prevention and management, higher rates of documentation for height and weight allow for a more thorough evaluation of the existing problem of obesity, and enhance methods for prevention and directed treatment. Rates of documentation of blood pressure measurement and cholesterol testing among younger adults, as well as colon cancer screening, improved over the three-year measurement period.

Despite these findings, gaps in quality of community healthcare remain. Disparities remain for several indicators between those exempt from medical copayments (herein "exempt") – corresponding to the weaker socio-economic stratum of the population – and those non-exempt from medical copayments, the general population.

Less than optimal rates of guideline adherence are noted for influenza immunizations for older adults, where rates remained at a moderate level of 57% over the measurement period.

The report presents an assessment of quality measures longitudinally and by sub-group for various areas of community health, allowing for a more comprehensive examination of quality of care. The data in this report, alongside existing data regarding financial performance and patient satisfaction, provide policymakers with a more complete understanding of the challenges facing the healthcare system, so that they can make informed decisions and policy for the future of the public's health.

Main Findings by Topic

Asthma

- Rates of persistent asthma remained stable throughout the measurement period. The prevalence of this disease was 0.7% among individuals aged 5–44 years.
- In 2010, as in previous years, substantial differences in rates of persistent asthma were observed between the exempt (lower socio-economic status) and general (middle and higher socio-economic status) population.
- Persistent asthma was more common among boys aged 5–17 years. Small disparities by sex were observed for adults.
- The percentage of people using asthma control medication remained high over the measurement period, reaching 79% in 2010. Rates were 5% lower for the exempt than for the general population.
- Thirty-six percent of individuals with persistent asthma received the influenza vaccination in 2010. This rate was lower than in 2009 (39%) but higher than the rate in 2008 (30%).
- Disparities were noted in influenza vaccination rates between the exempt and the general population (49% compared with 34%, respectively).

Cancer Screening

Breast Cancer Screening – Mammography

- Mammography rates for women 51–74 years in 2010 were 68%. This rate is consistent with that from 2009 and slightly higher than the rate in 2008 (65%).
- Mammography rates were significantly lower among the exempt than the general population. The absolute difference in mammography rates between these groups was 3% in 2010.

Colon Cancer Screening

- The colon cancer screening rate (fecal occult blood test (FOBT) during the past year or colonoscopy (investigative or diagnostic) during the previous six years) was 47%. This rate reflects a 7% absolute increase from 2008.
- The rate of colon cancer screening was higher among older (60+ years) than younger (50–59 years) adults, and among women compared to men.

Immunizations for Older Adults

Influenza vaccination

- In 2010, influenza vaccination rates among adults aged 65+ years was 57%.
- Influenza vaccination rates were higher for adults aged 74+ years than those aged 65–73 years and among men compared to women.
- Influenza vaccination rates were lower among the exempt compared with the general population (53% compared with 60%, respectively).

Pneumococcal vaccination

- In 2010, pneumococcal vaccination rates among adults aged 65–71 years remained stable at 71%.
- Pneumococcal vaccination rates were higher among men compared to women. No disparities were observed by exemption status.

Child and Adolescent Health

Anemia Screening for Infants

- The anemia screening (hemoglobin testing) rate for infants was 77% in 2010, representing a 6% improvement over the three-year observation period.
- Anemia screening rates for infants did not differ according to the sex of the infant or the parents' exemption status.

BMI Assessment for Children

- Height and weight documentation rates for children 7–years-of-age increased over the measurement period – from 44% in 2008 to 63% in 2010.
- Higher rates of documentation were observed among children belonging to the exempt compared with the general population.

BMI Assessment for Adolescents

- A dramatic improvement was observed in the documentation of BMI among adolescents – from 47% in 2008 to 62% in 2010.

- No differences in BMI documentation were observed according to sex.
- Documentation rates for BMI were higher among the exempt population compared to the general population.

Cardiovascular Health

Primary Prevention – Cholesterol Assessment

- Over 77% of the population had documented cholesterol levels in their medical file. Rates improved over time for middle-aged adults (35–54 years) and remained stable for older adults (55–74 years).
- Cholesterol documentation rates were higher for women than men and for the exempt population compared with the general population.
- In 2010, 91% of the population achieved appropriate LDL levels.
- Differences in LDL-control were observed according to sex and age. Women aged 35–54 years showed slightly higher rates of cholesterol control than men of the same age group, whereas among those aged 55–74 years, men had higher LDL control rates than women.

Primary Prevention – BMI Assessment

- Documentation of BMI (height and weight) for adults continued to increase over the measurement period. In 2008, the documentation rate of BMI components for adults 20–64 years old was 57% and in 2010 was 78%. For those aged 65–74 years, documentation rates increased from 71% in 2008 to 76% in 2010.
- Among individuals aged 20–64 years, documentation rates were higher for women compared to men and among the exempt population compared to the general population.

Primary Prevention – Blood Pressure Assessment

- Documentation of blood pressure in adults was 86% in 2010. Improvements in documentation rates increased over time, especially among young adults (absolute increase of 11% from 2008).
- Blood pressure documentation rates were higher among women than men and in the exempt population than in the general population.

Secondary Prevention – Cholesterol Management after a Cardiac Procedure

- In 2010, 84% of patients who underwent bypass surgery or interventional cardiac catheterization in the past five years purchased medication for lowering cholesterol levels. This rate remained unchanged throughout the measurement period.
- The purchase rate of LDL-lowering medication (e.g., statins) was lower among women than men, particularly for younger adults. Rates did not differ relative to exemption status.
- In 2010, 72% of patients who underwent bypass surgery or interventional cardiac catheterization in the past five years achieved LDL control (LDL less than 100 mg/dL). This was a slight improvement compared with previous years (an increase of 0.5% per year).
- Cholesterol control among patients who underwent bypass surgery or interventional cardiac catheterization in the past five years was 7% higher among men than women and 2% lower among the exempt compared to the general population.

Secondary Prevention – Reducing Myocardial Strain after a Cardiac Procedure

- In 2010, 67% of patients who underwent bypass surgery or interventional cardiac catheterization in the past five years purchased angiotensin receptor blocker or angiotensin converting enzyme inhibitor (ARB/ACEI) medications. These rates represent an absolute increase of approximately 2% from 2008.
- Purchase rates were higher among younger men than women and among older women than men.
- Higher purchase rates of ARB/ACEI were noted among the exempt population compared with the general population.

Secondary Prevention – Reducing Further Cardiac Damage after a Cardiac Procedure

- In 2010, 70% of patients who underwent bypass surgery or interventional cardiac catheterization in the past five years purchased beta-blockers.
- Purchase rates of beta-blockers were higher among younger men than women and among older women than men.
- Purchase rates of beta-blockers were higher among the exempt population compared with the general population.

Diabetes

- In 2010, the rate of diabetes mellitus (based on the purchase of medication) for all ages was 5.0%. This rate represented a 0.25% annual increase since 2008.
- In 2010, the rate of diabetes mellitus among the exempt population was 4.6 times higher than that found in the general population.
- The rate of documentation of glycosylated hemoglobin (HbA1c) testing at least once during the measurement year among patients with diabetes mellitus remained high (93%) in 2010.
- Improved glycemic control (HbA1c≤7% for individuals 0–74 years and HbA1c≤8% for individuals 75–84 years) was noted for patients with diabetes mellitus during the measurement period. In 2010, 47% of patients aged 0–74 years with diabetes mellitus achieved glycemic control of <7% and 84% of patients with diabetes mellitus aged 75–84 years achieved glycemic control of <8%. Poor glycemic control (HbA1c>9%) was recorded for 13% of all individuals with diabetes mellitus, which represented a 1% improvement from previous years. (The remaining patients achieved moderate glycemic control.)
- The proportion of patients with diabetes mellitus with LDL documentation remained stable over the three-year measurement period at approximately 90%.
- The proportion of patients with diabetes mellitus with controlled LDL (LDL less than 100 mg/dL) was 66% in 2010, representing an absolute increase of 1.5% from 2008.
- In 2010, 65% of patients with diabetes mellitus underwent an annual eye examination.
- The rate of influenza immunization among patients with diabetes mellitus was 55% in 2010. This rate reflected an improvement from 52% in 2008.
- The rate of pneumococcal immunization among older patients with diabetes mellitus (65–71 years) was 77% in 2010. Similar rates were observed throughout the three-year observation period.
- In 2010, 92% of patients with diabetes mellitus had blood pressure documentation. Among this group, 70% achieved the targeted blood pressure control (less than or equal to 130 mm Hg systolic or less than or equal to 80 mm Hg diastolic). These rates represented a slight improvement over the measurement period.
- Documentation of BMI (height and weight) among patients with diabetes mellitus improved substantially throughout the measurement period, reaching 86% in 2010.

INTRODUCTION

The healthcare system in Israel places great importance on quality. Quality in healthcare has many facets and attributes. Healthcare quality can be defined as a measure of the extent to which healthcare providers improve the probability of desired health outcomes in accordance with current professional literature (Institute of Medicine, 1994).

Healthcare quality comprises various elements, including:

- effectiveness – improving health as a result of treatment,
- safety – preventing harm to patients as a result of faulty treatment,
- timing – beginning treatment at the right time and for the right length of time,
- suitability – consideration of preferences, needs, and patient values,
- efficacy – efficiently using available resources to ensure high quality treatment, and
- equality – guaranteeing an equal quality of treatment, unaffected by personal variables such as sex, ethnicity, and socio-economic status.

In 1995, Israel implemented the National Health Insurance (NHI) law providing a standardized basket of medical services to all residents by the four health plans. The need for quality medical care is apparent from the core tenets of the NHI law of "justice, equality, and mutual assistance", in which "healthcare services included in the basket of medical services will be offered based on medical considerations, with *reasonable quality*, in a reasonable timeframe, and at a reasonable distance from the place of residence of the insured person". The Ministry of Health supervises the implementation of the law and external organizations were established for the purpose of "accompaniment and evaluation of the effect of the National Health Insurance law on health services in Israel, as well as their quality, efficiency, and expenditure" (The Health Council and The Israel National Institute for Health Policy and Health Services Research).

The model upon which the law is based is that of "controlled competition" between the health plans. Since the basket of services is uniform across all four health plans and the insured do not pay direct dues to the health plan (apart from copayment for the use of certain services), competition between health plans is therefore based on the quality of medical care and the nature of service. Notwithstanding the shortcomings of this market model, as well as issues related to the availability of data, there are regulatory, administrative, and financial barriers

that may affect and impede the provisions for high quality medical care. Indeed, studies show that reductions in quality of medical care are a common reaction to budgetary distress.

In light of the above, the need for the assessment of the quality of medical care in Israel became clear. In March 2004 the Ministry of Health inaugurated the National Program for Quality Indicators in Community Healthcare in Israel, headed by Avi Porat and Gadi Rabinowitz and with the assistance of Anat Raskin-Segal. The program developed out of a research initiative at Ben-Gurion University in conjunction with Israel's four health plans. The cooperation of the health plans with each other and with the program in setting quality indicators, assessing the indicators on a regular basis, and publishing them are noteworthy and are one of the cornerstones of the program's success.

The program aspires to provide the public and policymakers with information regarding the quality of healthcare services supplied by the health plans to strengthen and improve medical care offered to Israeli residents. In order to achieve this goal, the program publishes the results of a national set of quality indicators for community healthcare (herein "indicators"). This assessment enables an evaluation of the development of quality medical care over time and identification of areas that require intervention and improvement – ranging from data collection to care. In addition, the national dataset is used to compare Israel's achievements with those of other countries.

The program has set a high standard for measuring quality. Indicators are carefully chosen by a consensus of representatives from each of Israel's four health plans and are based on national and international guidelines. All processes undergo strict internal and external auditing.

Measuring the quality of care is a complex matter and is a current topic of debate both in academia and in practice. Over the last decade indicators have been developed to assess the quality of medical care in the United States (Agency for Healthcare Research and Quality, 2010), Sweden (Swedish Association of Local Authorities and Regions, 2008), Australia (Australian Institute of Health and Welfare, 2008), Canada (Ministry of Health Canada, 2008), and England (National Health Services, 2009), as well as by the World Health Organization (Engels et al., 2005) and the Organization for Economic Co-operation and Development (OECD, 2009; Armesto et al., 2008). Measures included in the Israeli program relate to the quality of clinical care as drafted by professional authorities nationally and worldwide, and rooted in similar established measures from the countries mentioned above. A comparison between the findings in this report and the findings in the United States for 2010 for several indicators is presented in Appendix A.

Indicators were selected based on three criteria:

1. Significance – the indicators reflect the quality of treatment (preventive or active) of common illnesses, in which medical treatment has proven to be effective and contributes to decreasing morbidity.
2. Validity – the indicators reflect the quality of treatment in clinical fields in which both health status and changes in health status are properly and reliably quantifiable.
3. Feasibility – the indicators reflect the quality of treatment in fields with available and reliable data.

The set of indicators include two indicator categories:

- prevalence
- quality of medical care
    - Prevention and health promotion (e.g., breast cancer screening rates – mammography)
    - Treatment (e.g., appropriate treatment rates for asthma patients)
    - Outcome (e.g., rates of diabetics whose HbA1c levels are lower than 7%).

All indicators are presented as rates – the number of people in a defined group who satisfy specified criteria (e.g., the number of people who received the influenza vaccination among individuals aged 65+ years). The indicators are stratified according to gender and age (determined by a team of experts), as well as socio-economic status (determined by the entitlement to an exemption from medical copayments).

In the current report we present, for the first time, indicators according to health plan. Publication of this information provides relevant data to all parties, including health plans, the Ministry of Health, medical associations, and, of course, the public. It is important to note that in a recent report commissioned by the US Agency for Healthcare Research and Quality the authors state that, “While public reporting efforts may have begun with the primary goal of helping patients choose providers, providers themselves turned out to be the primary audience for public performance reports” (Friedberg & Damberg, 2011:88). In addition, the reported quality indicators are not without limitations. In particular, we are unable to properly adjust for case-mix and specifically socio-economic status, which differ substantially between health plans. These and other constraints are listed in more detail together with the health plan-level data in Appendix C.

METHODS

Data Sources

The data presented in the report are based on information from Israel's four health plans. As part of their active and voluntary participation in the program, the health plans provided indicator data for 2008–2010 that were then aggregated into the national set. The data provided by the health plans were anonymous and did not include any personal identifiers, ensuring confidentiality.

Population

The report is based on information for the insured population in the health plans. All information originated in the computer databases of each of the health plans. Data were missing for a small percentage of the population (0.6%, who are not included in this report). Additionally, members with incomplete membership in a given health plan during the study period are not included in the report. This group includes those who switched health plans within a measurement year. In 2010, approximately 117,000 people (1.6% of insured persons in 2009) switched health plans (Bendelek, 2011). Soldiers are not included in the report demographic; however, this only affects rates for the age group 18–24 years. Aside from these exceptions, the report includes the entirety of Israel's population, approximately 7.2 million people.

Gathering data for the entire insured population in Israel enables assessment and monitoring of indicators in relatively small sub-groups, including age, gender, and socio-economic status.

Characteristics

Indicators are presented as rates for the overall population over the three-year measurement period, as well as categorized into relevant sub-groups such as sex, age, and socio-economic status. Socio-economic status is the basis for entitlement to exemption or reduction in the payment of deductibles or copayment for health services. Data provided by the health plans for 2010 indicates that the exempt population includes approximately 10.2% of the entire insured population. This rate has been stable over the course of the three years

presented in this report. Exemption privileges are determined in paragraph 8 of the NHI law and these criteria are updated periodically. Throughout the measurement period a full or partial exemption is based on a number of criteria, including National Insurance (*Bituah Leumi*) stipend privileges, such as the pension stipend and dependant's pension, large family stipend, and so forth. For the purpose of this report, exempt or partially exempt individuals are referred to as the "exempt" population.

Work Plan

The preparation of this report included the following stages:

1. Indicators included in the report and indicator specifications

This report includes most indicators presented in the 2007–2009 report, as well as several updated or new indicators. Specifically, the classification of individuals with asthma was restricted in order to increase the validity and reliability of this group (pg 20). The indicator for colon cancer screening was updated to reflect those who underwent any type of colon cancer screening, including fecal occult blood testing or colonoscopy (pg 33). Pneumococcal vaccination, which was excluded from the previous year's report due to computational issues, is reintroduced to the present report as a quality indicator for the elderly population (pg 40) and for patients with diabetes mellitus (pg 114). Blood pressure control for the general population is not reported, since validation issues were detected for this measure. Updated target levels of LDL cholesterol are now used for the general population (pg 54). The components of body mass index – height and weight – are no longer presented in the report. Patients who underwent bypass surgery or interventional cardiac catheterization are now presented as a single group of patients following a coronary intervention. For care of patients with diabetes mellitus, the target level of glycemic control is stratified according to age group (pg 93). Finally, a new quality health indicator of height and weight assessment for children aged 7 years is presented (pg 47). Appendix A presents a summary list of the all quality indicators for 2010.

2. Indicator specification updating

Identification of the denominator population, i.e., those with a disease or disorder, is based on the purchase of medications or the billing of a procedure. (This specification is a result of issues related to data and diagnostic uniformity between health plans that rely, among other things, on the quality and availability of information passed from hospitals.) A comprehensive database that includes all relevant medications and procedures is utilized and continuously updated for the relevant measurement period.

3. Data auditing

Data from each health plan are examined at three levels: an internal data audit is conducted within each health plan, a data audit is performed by the program's directorate, and the health plans and program directorate undergo an external process audit by a certified external auditor. The objective of the audits is to ensure a high level of consistency between health plans' data. The administrative evaluation includes logic checks, subgroup analyses, and an evaluation of trends over time. The external evaluation focuses on the production process and indicator construction within each health plan, as well as processes for creating indicators for the entire population.

4. Validation of Findings

Health surveys, such as those from the Central Bureau of Statistics, and consultations with experts are used to validate the results.

5. Creating a Database for Findings

The report is prepared in two formats: a written report and an online report (http://healthindicators.ekmd.huji.ac.il). The written report presents information for 35 measures in six areas for 2008–2010. Measure specifications, including rationale and numerator and denominator specifications are reported. Indicator rates are presented graphically illustrating time trends and comparisons by age, sex, and exemption status. Results are also presented in tabular form for: (1) age group and years, (2) age group and gender (2010 data only), and (3) age group and exemption status (2010 data only).

Data Quality

This report is based on data from the entire population, not a representative sample. Thus the data presented here are not susceptible to sampling error. However, other sources of error are possible (Weitzman, 2010). The method created for data collection includes an extensive evaluation program intended to minimize the chance of various errors, including differences between health plans in documentation and coding of their insured population's characteristics, and is based on recommendations noted in the US Agency for Healthcare Research and Quality report entitled, *Methodological Considerations in Generating Provider Performance Scores for Use in Public Reporting* (Friedberg & Damberg, 2011). This method has certainly led to fewer errors, but is unable to eliminate them entirely. Therefore, small changes in data among a given group (age or gender) over various years should be considered with caution.

RESULTS

ASTHMA

Prevalence of persistent asthma

Description: The percentage of individuals aged 5–44 years with persistent asthma. Persistent asthma is defined as the purchase of at least eight asthma medications during the measurement year or the year prior to the measurement year.

Rationale: Asthma is one of the most common chronic diseases worldwide. The prevalence of asthma in the general Israeli population is approximately 9%, and among children approximately 7%. Persistent asthma is distinguished from intermittent asthma and is characterized by a high frequency of attacks. Proper treatment of asthma significantly decreases hospitalizations, emergency room visits, and sick days from work or school. Monitoring and evaluating the prevalence of asthma, as well as providing proper treatment, contribute substantially to controlling the disease.

Denominator: Individuals aged 5–44 years.

Numerator: The number of individuals in the denominator who purchased at least eight prescription asthma medications (over the course of at least eight separate months) during the measurement year or the year prior to the measurement year.

Comments: Persistent asthma is classified according to asthma medication purchases. These asthma medications include control medications (immunomodulators, inhaled corticosteroids, leukotriene modifiers, long-acting beta-2 agonists, and mast cell stabilizers), and relief medications (short-acting beta-2 agonists, and anticholinergics). Classification of persistent asthma has been changed in the current report (2008–2010) to reflect the purchase of 8 asthma medications over a two-year period instead of 4 asthma medications in one year.

Results **(Tables 1-3 and Figures 1-4)**

In 2010, 30,119 people or 0.73% of the population aged 5–44 years were identified as patients with persistent asthma. For children, prevalence rates were higher for 5–9 year olds (0.95%) compared to 10–17 year olds (0.61%). Prevalence rates for persistent asthma remained stable throughout the measurement period, 2008–2010.

Persistent asthma was more prevalent among men (0.83%) than women (0.64%). These differences were more pronounced for children and diminished with age.

Substantial disparities were observed in the prevalence of persistent asthma by socio-economic status. The prevalence of persistent asthma among the exempt population was 2.2 times higher than in the non-exempt population.

Prevalence of persistent asthma

Percentage of individuals who purchased at least eight prescription asthma medications (over the course of at least eight separate months) during the measurement year or the year prior to the measurement year (numerator) among all individuals aged 5-44 (denominator)

Figure 1 *by year*

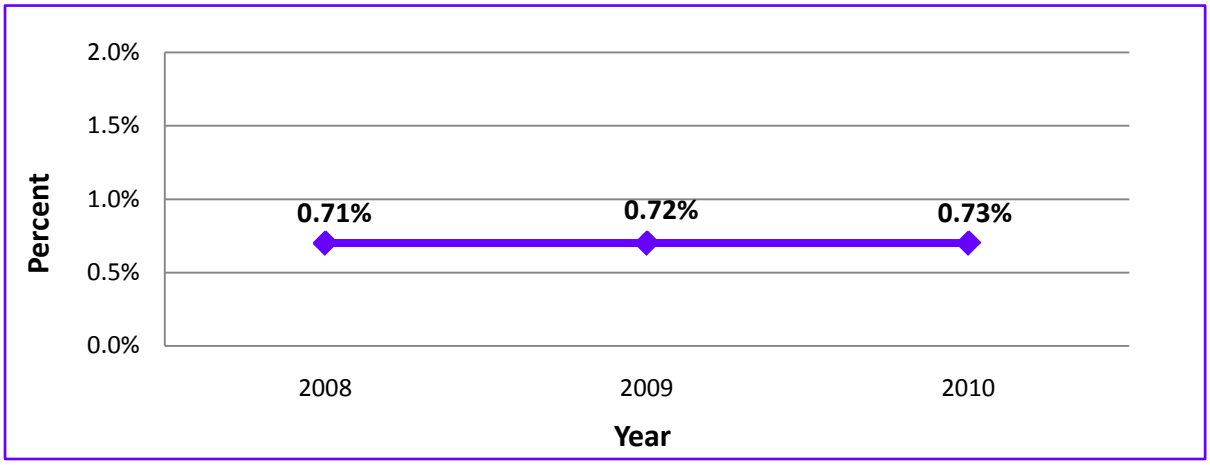


Figure 2 *by age group*

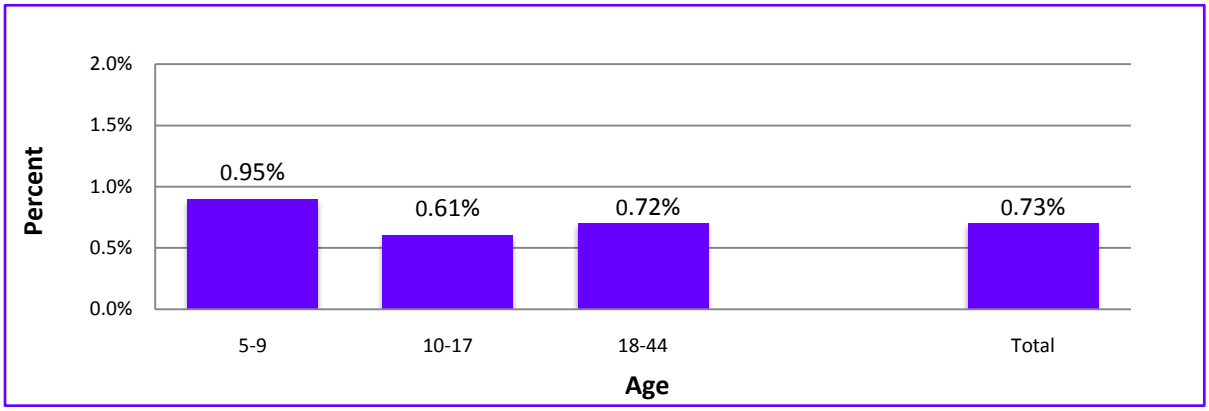


Figure 3 *by sex*

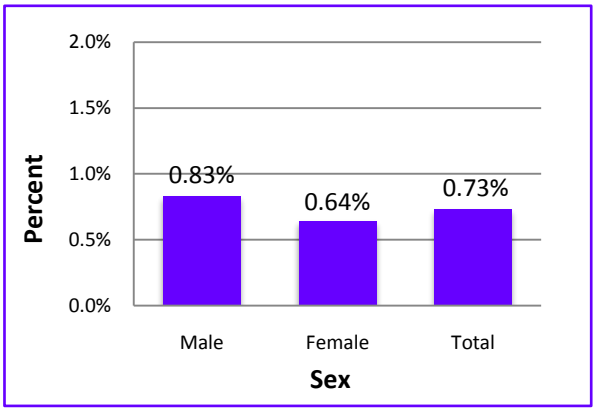
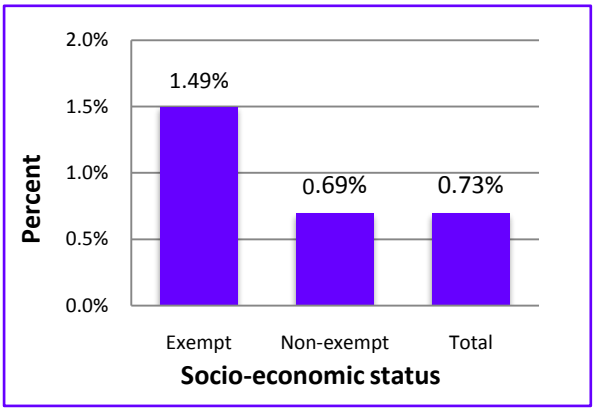


Figure 4 *by SES*



Prevalence of persistent asthma

Individuals who purchased at least eight prescription asthma medications (over the course of at least eight separate months) during the measurement year or the year prior to the measurement year (numerator) among all individuals aged 5-44 (denominator)

Table 1 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)			
Year		**5-9**	**10-17**	**18-44**	**Total**
2008	Numerator	6,244	5,492	16,775	28,511
	Denominator	657,224	929,363	2,410,260	3,996,847
	Rate	**0.95%**	**0.59%**	**0.70%**	**0.71%**
2009	Numerator	6,346	5,590	17,348	29,284
	Denominator	669,018	942,093	2,440,131	4,051,242
	Rate	**0.95%**	**0.59%**	**0.71%**	**0.72%**
2010	Numerator	6,454	5,847	17,818	30,119
	Denominator	680,347	955,952	2,470,035	4,106,334
	Rate	**0.95%**	**0.61%**	**0.72%**	**0.73%**

Table 2 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)			
Sex		**5-9**	**10-17**	**18-44**	**Total**
Male	Numerator	4,058	3,807	8,913	16,778
	Denominator	349,855	489,794	1,191,941	2,031,590
	Rate	**1.16%**	**0.78%**	**0.75%**	**0.83%**
Female	Numerator	2,396	2,040	8,905	13,341
	Denominator	330,492	466,158	1,278,094	2,074,744
	Rate	**0.72%**	**0.44%**	**0.70%**	**0.64%**
Total	Numerator	6,454	5,847	17,818	30,119
	Denominator	680,347	955,952	2,470,035	4,106,334
	Rate	**0.95%**	**0.61%**	**0.72%**	**0.73%**

Table 3 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)			
Socio-economic status		**5-9**	**10-17**	**18-44**	**Total**
Exempt	Numerator	678	767	1,867	3,312
	Denominator	38,285	80,580	103,489	222,354
	Rate	**1.77%**	**0.95%**	**1.80%**	**1.49%**
Non-exempt	Numerator	5,776	5,080	15,951	26,807
	Denominator	642,062	875,372	2,366,546	3,883,980
	Rate	**0.90%**	**0.58%**	**0.67%**	**0.69%**
Total	Numerator	6,454	5,847	17,818	30,119
	Denominator	680,347	955,952	2,470,035	4,106,334
	Rate	**0.95%**	**0.61%**	**0.72%**	**0.73%**

Use of appropriate asthma control medication for individuals with persistent asthma

Description: The percentage of individuals aged 5–44 years with persistent asthma who received appropriate asthma control medication during the measurement year.

Rationale: Asthma is one of the most common chronic diseases worldwide. Persistent asthma is characterized by a high frequency of attacks. Proper control and treatment of asthma significantly lessens the frequency and intensity of the attacks, reduces hospitalizations, and improves the quality of life.

Denominator: Individuals with persistent asthma aged 5–44 years.

Numerator: The number of individuals in the denominator who purchased at least three prescription asthma control medications (over the course of several months) during the measurement year.

Comments: Persistent asthma is classified according to asthma medication purchases. These asthma medications include control medications (immunomodulators, inhaled corticosteroids, leukotriene modifiers, long-acting beta-2 agonists, and mast cell stabilizers), and relief medications (short-acting beta-2 agonists, and anticholinergics). Classification of persistent asthma has been changed in the current report (2008–2010) to reflect the purchase of 8 asthma medications over a two-year period instead of 4 asthma medications in one year.

Results **(Tables 4-6 and Figures 5-8)**

In 2010, 78.8% of individuals aged 5–44 years with persistent asthma had appropriate levels of control medication use (purchased at least three asthma control medications). These rates are higher than in the previous two years (76.6–78.9%). Rates of appropriate control medication use were higher among children aged 5–17 years (81.8%) compared to adults aged 18–44 years (76.8%).

Rates of appropriate use of asthma control medication varied slightly by gender.

Rates of appropriate use of asthma control medication were lower among the exempt population compared to the non-exempt population (74.2% compared with 79.4%, respectively).

Use of appropriate asthma control medication for individuals with persistent asthma

Percentage of individuals who received appropriate asthma control medication (numerator) among individuals with persistent asthma aged 5-44 (denominator)

Figure 5 *by year*

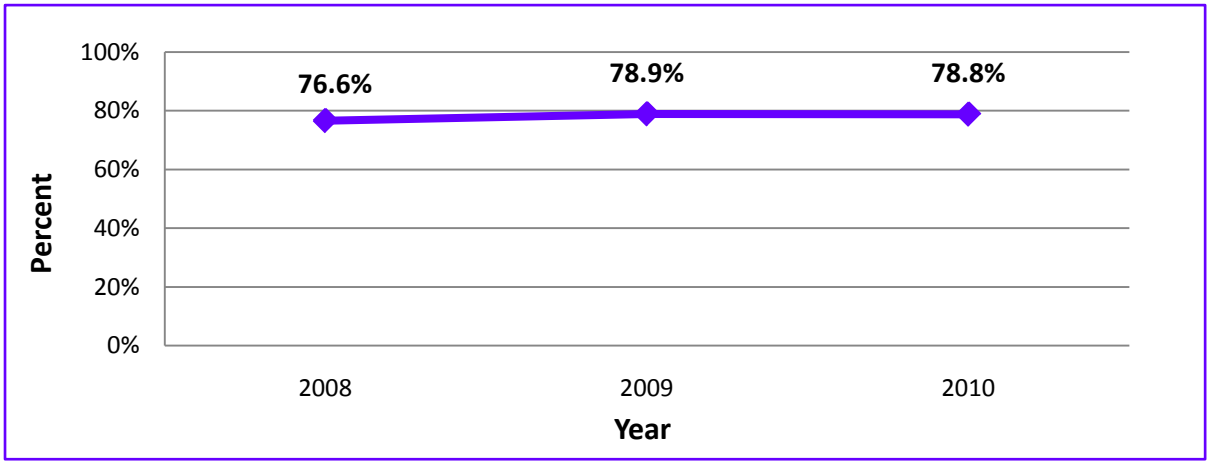


Figure 6 *by age group*

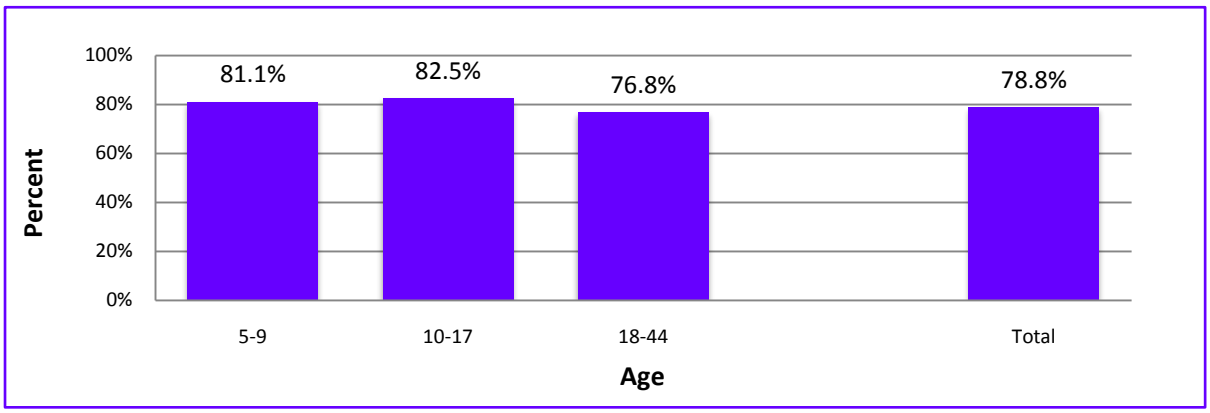


Figure 7 *by sex*

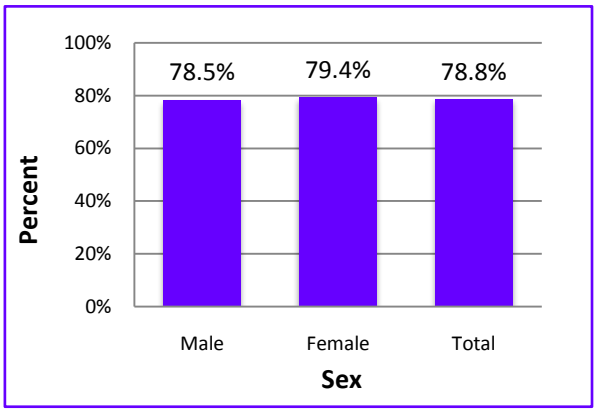
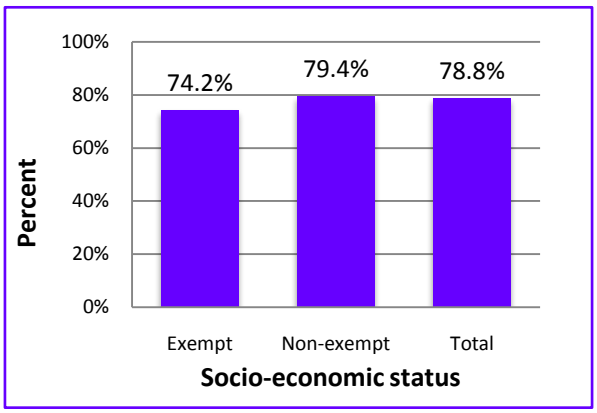


Figure 8 *by SES*



Use of appropriate asthma control medication for individuals with persistent asthma

Percentage of individuals who received appropriate asthma control medication (numerator) among individuals with persistent asthma aged 5-44 (denominator)

Table 4 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 5-9	10-17	18-44	Total
2008	Numerator	5,066	4,505	12,262	21,833
	Denominator	6,244	5,492	16,775	28,511
	Rate	**81.1%**	**82.0%**	**73.1%**	**76.6%**
2009	Numerator	5,269	4,680	13,170	23,119
	Denominator	6,346	5,590	17,348	29,284
	Rate	**83.0%**	**83.7%**	**75.9%**	**78.9%**
2010	Numerator	5,237	4,825	13,677	23,739
	Denominator	6,454	5,847	17,818	30,119
	Rate	**81.1%**	**82.5%**	**76.8%**	**78.8%**

Table 5 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 5-9	10-17	18-44	Total
Male	Numerator	3,311	3,148	6,720	13,179
	Denominator	4,058	3,807	8,913	16,778
	Rate	**81.6%**	**82.7%**	**75.4%**	**78.5%**
Female	Numerator	1,926	1,677	6,957	10,560
	Denominator	2,396	2,040	8,905	13,341
	Rate	**80.4%**	**82.2%**	**78.1%**	**79.2%**
Total	Numerator	5,237	4,825	13,677	23,739
	Denominator	6,454	5,847	17,818	30,119
	Rate	**81.1%**	**82.5%**	**76.8%**	**78.8%**

Table 6 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 5-9	10-17	18-44	Total
Exempt	Numerator	534	596	1,328	2,458
	Denominator	678	767	1,867	3,312
	Rate	**78.8%**	**77.7%**	**71.1%**	**74.2%**
Non-exempt	Numerator	4,703	4,229	12,349	21,281
	Denominator	5,776	5,080	15,951	26,807
	Rate	**81.4%**	**83.2%**	**77.4%**	**79.4%**
Total	Numerator	5,237	4,825	13,677	23,739
	Denominator	6,454	5,847	17,818	30,119
	Rate	**81.1%**	**82.5%**	**76.8%**	**78.8%**

Influenza vaccination for individuals with persistent asthma

Description: The percentage of individuals with persistent asthma aged 5–44 years who received a seasonal influenza vaccination during the measurement year.

Rationale: Asthma is one of the most common chronic diseases worldwide. Persistent asthma is characterized by a high frequency of attacks. Asthmatics are at an increased risk for respiratory complications, which could lead to hospitalization. The influenza vaccination significantly decreases such complications and the resultant emergency room admissions and hospitalizations. Therefore, the Ministry of Health recommends yearly influenza vaccinations for asthma patients.

Denominator: Individuals with persistent asthma aged 5–44 years**.**

Numerator: The number of individuals in the denominator who received an influenza vaccination during the fall and winter months of the measurement year.

Comments: Persistent asthma is classified according to asthma medication purchases. These asthma medications include control medications (immunomodulators, inhaled corticosteroids, leukotriene modifiers, long-acting beta-2 agonists, and mast cell stabilizers), and relief medications (short-acting beta-2 agonists, and anticholinergics). The measurement period for influenza vaccination begins on September 1 of the measurement year and ends on February 28 of the following year.

Results **(Tables 7-9 and Figures 9-12)**

In 2010, 35.6% of individuals with persistent asthma received a seasonal influenza vaccination. This rate was lower than the vaccination rate for the previous year of 38.8%.

Women had slightly higher influenza vaccination rates (36.2%) than men (35.0%).

Influenza vaccination rates were higher among individuals in the exempt than the non-exempt population (49.3% compared with 33.9%, respectively).

Influenza vaccination rates for individuals with persistent asthma

Percentage of individuals who received a seasonal influenza vaccination (numerator) among individuals with persistent asthma aged 5-44 (denominator)

Figure 9 *by year*

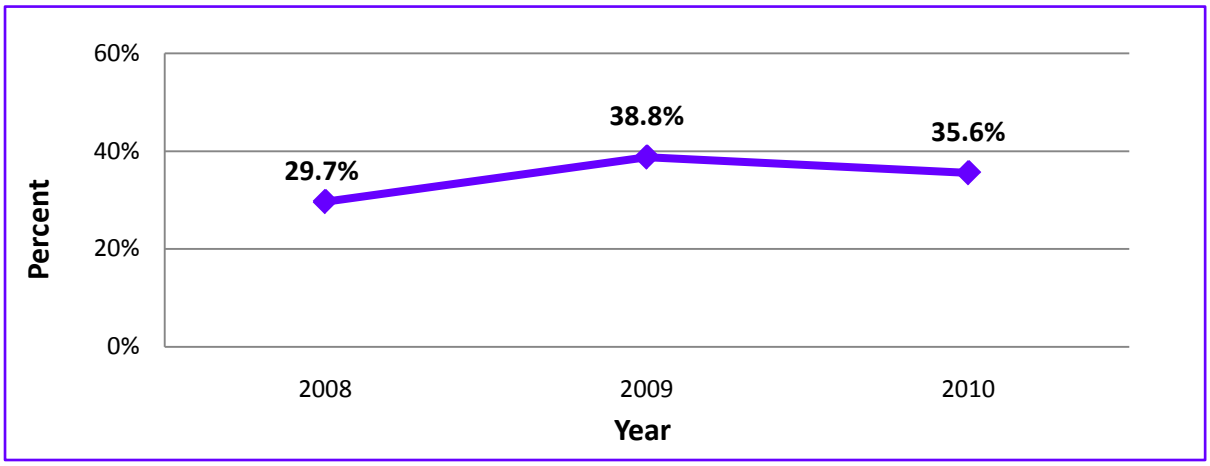


Figure 10 *by age group*

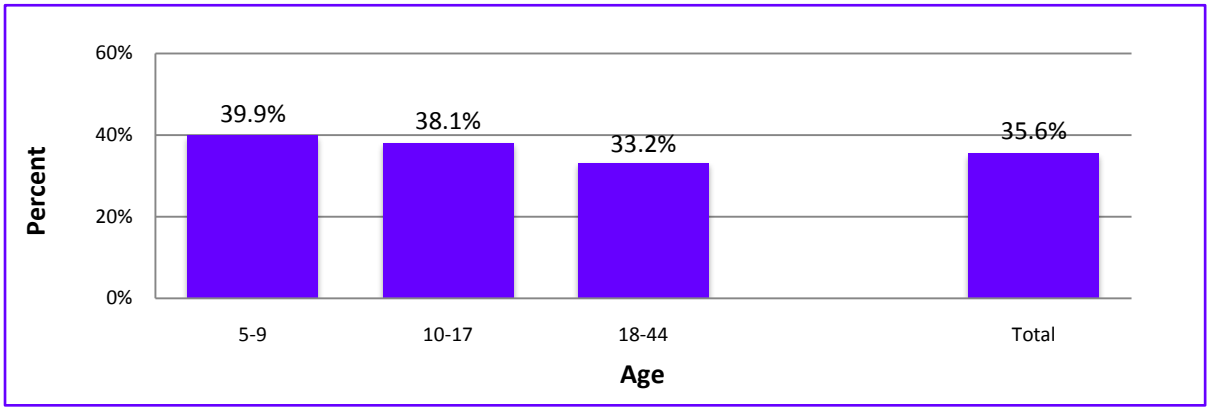


Figure 11 *by sex*

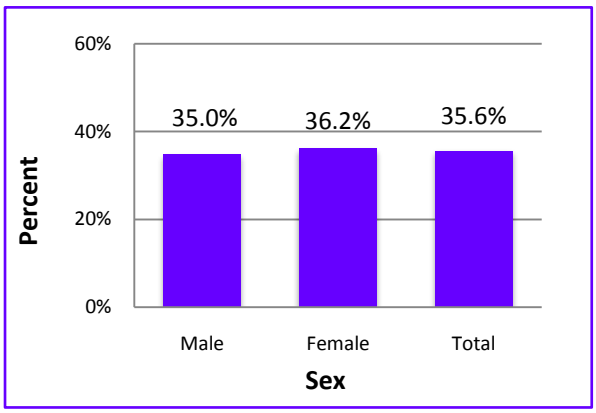
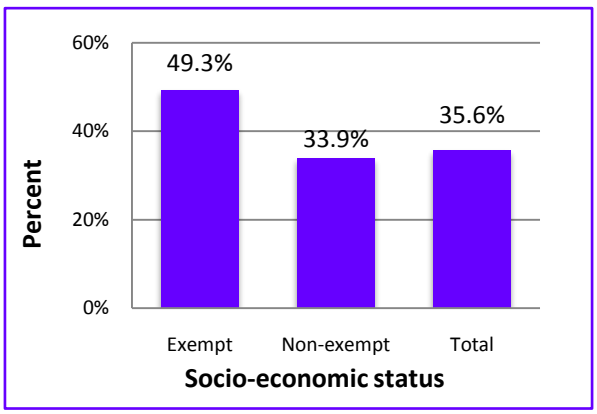


Figure 12 *by SES*



Influenza vaccination rates for individuals with persistent asthma

Individuals who received a seasonal influenza vaccination (numerator) among individuals with persistent asthma aged 5-44 (denominator)

Table 7 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)			
Year		**5-9**	**10-17**	**18-44**	**Total**
2008	Numerator	1,985	1,700	4,774	8,459
	Denominator	6,244	5,492	16,775	28,511
	Rate	**31.8%**	**31.0%**	**28.5%**	**29.7%**
2009	Numerator	2,751	2,362	6,262	11,375
	Denominator	6,346	5,590	17,348	29,284
	Rate	**43.4%**	**42.3%**	**36.1%**	**38.8%**
2010	Numerator	2,577	2,227	5,908	10,712
	Denominator	6,454	5,847	17,818	30,119
	Rate	**39.9%**	**38.1%**	**33.2%**	**35.6%**

Table 8 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)			
Sex		**5-9**	**10-17**	**18-44**	**Total**
Male	Numerator	1,622	1,426	2,830	5,878
	Denominator	4,058	3,807	8,913	16,778
	Rate	**40.0%**	**37.5%**	**31.8%**	**35.0%**
Female	Numerator	955	801	3,078	4,834
	Denominator	2,396	2,040	8,905	13,341
	Rate	**39.9%**	**39.3%**	**34.6%**	**36.2%**
Total	Numerator	2,577	2,227	5,908	10,712
	Denominator	6,454	5,847	17,818	30,119
	Rate	**39.9%**	**38.1%**	**33.2%**	**35.6%**

Table 9 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)			
Socio-economic status		**5-9**	**10-17**	**18-44**	**Total**
Exempt	Numerator	314	362	958	1,634
	Denominator	678	767	1,867	3,312
	Rate	**46.3%**	**47.2%**	**51.3%**	**49.3%**
Non-exempt	Numerator	2,263	1,865	4,950	9,078
	Denominator	5,776	5,080	15,951	26,807
	Rate	**39.2%**	**36.7%**	**31.0%**	**33.9%**
Total	Numerator	2,577	2,227	5,908	10,712
	Denominator	6,454	5,847	17,818	30,119
	Rate	**39.9%**	**38.1%**	**33.2%**	**35.6%**

CANCER SCREENING

Breast cancer screening

Description: The percentage of women aged 51–74 years who have had at least one mammogram performed during the measurement year or the year prior to the measurement year.

Rationale: Breast cancer is the most common malignant disease among women in Israel. Almost one-third of all cancers among women are breast cancer. The relative survival rates among women with breast cancer have improved over the last few years – an improvement that can be partially attributed to early detection and treatment.

Denominator: Women aged 51–74 years.

Numerator: The number of individuals in the denominator who had at least one mammogram performed during the measurement year or the year prior to the measurement year.

Comments: None.

Results **(Tables 10-11 and Figures 13-15)**

In 2010, 67.8% of the 714,406 eligible women had a mammogram during the measurement year or the year prior to the measurement year. This rate is similar to the previous year and represents an increase from 2008 (64.7%). Mammography rates varied somewhat by age group: 67.4% for women aged 51–60 years, 70.8% for women aged 61–68 years, and 64.0% for women aged 69–74 years.

Mammography rates were higher among individuals in the non-exempt than the exempt population (68.7% compared with 65.3%, respectively).

Breast cancer screening – mammography

Percentage of women who had a mammogram during the past two years (numerator) among women aged 51-74 years (denominator)

Figure 13 *by year*

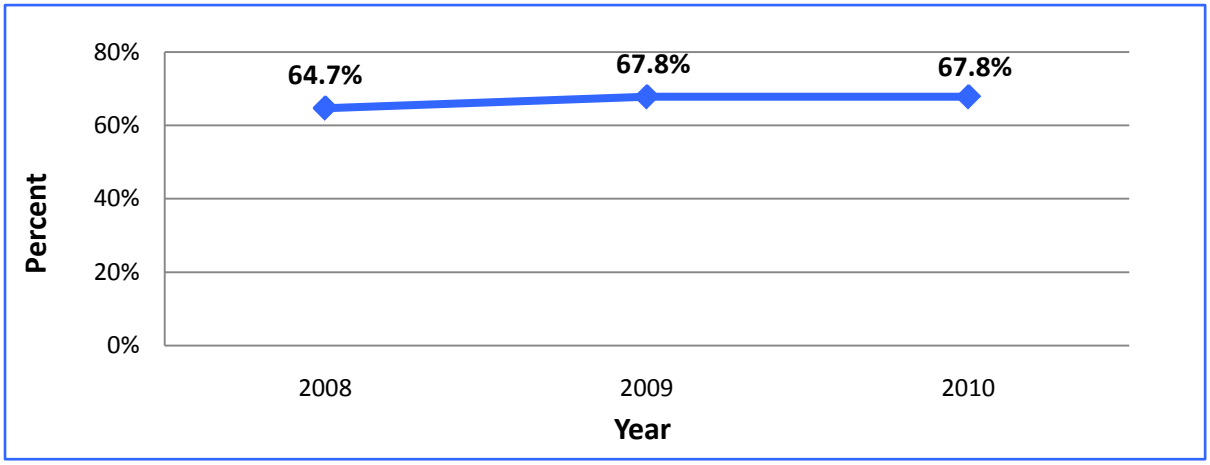


Figure 14 *by age group*

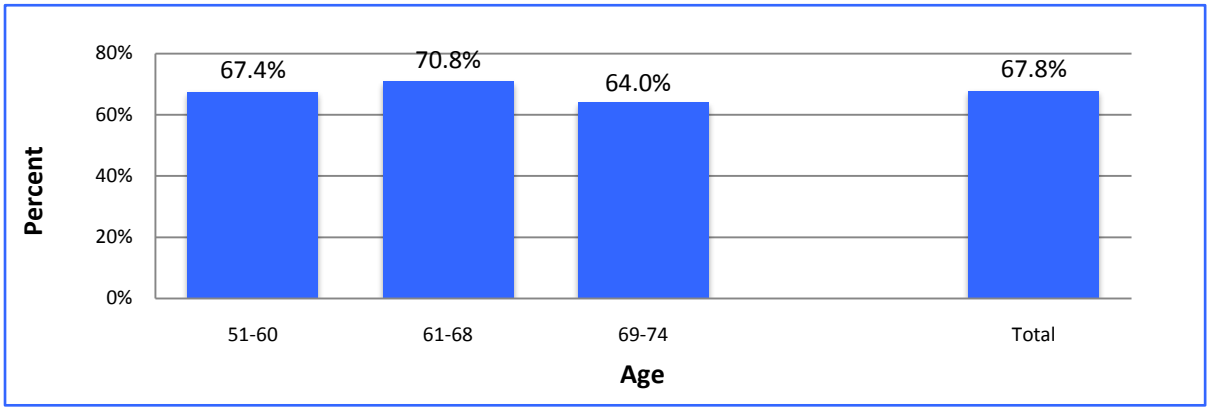
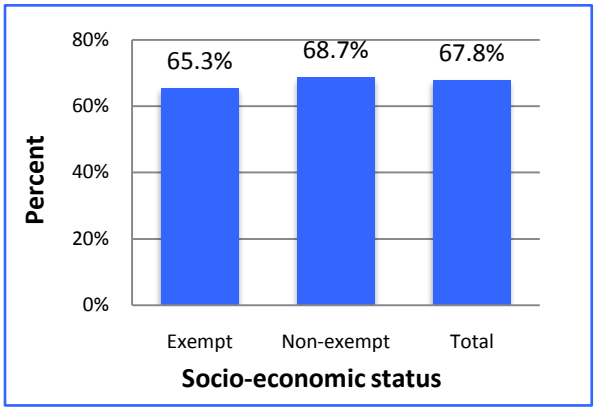


Figure 15 *by SES*



Breast cancer screening – mammography

Women who had a mammogram during the past two years (numerator) among women aged 51-74 years (denominator)

Table 10 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 51-60	61-68	69-74	Total
2008	Numerator	239,158	126,188	73,792	439,138
	Denominator	369,249	187,579	121,395	678,223
	Rate	**64.8%**	**67.3%**	**60.8%**	**64.7%**
2009	Numerator	250,616	141,494	79,703	471,813
	Denominator	370,654	200,839	124,083	695,576
	Rate	**67.6%**	**70.5%**	**64.2%**	**67.8%**
2010	Numerator	253,622	150,226	80,459	484,307
	Denominator	376,298	212,321	125,787	714,406
	Rate	**67.4%**	**70.8%**	**64.0%**	**67.8%**

Table 11 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 51-60	61-68	69-74	Total
Exempt	Numerator	42,349	48,211	31,775	122,335
	Denominator	64,713	70,356	52,247	187,316
	Rate	**65.4%**	**68.5%**	**60.8%**	**65.3%**
Non-exempt	Numerator	211,273	102,015	48,684	361,972
	Denominator	311,585	141,965	73,540	527,090
	Rate	**67.8%**	**71.9%**	**66.2%**	**68.7%**
Total	Numerator	253,622	150,226	80,459	484,307
	Denominator	376,298	212,321	125,787	714,406
	Rate	**67.4%**	**70.8%**	**64.0%**	**67.8%**

Colon cancer screening

Description: The percentage of individuals aged 50–74 years who had a fecal occult blood test (FOBT) performed during the measurement year or a colonoscopy during the measurement year or the five years prior to the measurement year.

Rationale: Approximately 5% of the population is susceptible to rectal and intestinal cancer. This type of cancer is responsible for one-tenth of fatalities due to malignant disease. Cancer mortality can be reduced with early detection. For the general population of individuals aged 50–74 years at standard risk, the Ministry of Health recommends performing a yearly FOBT. Colonoscopy is an optical examination that enables a visual perspective of the colon, a biopsy of the colon, and the removal of polyps. This examination is recommended following positive results from an FOBT, as well as for people at high risk due to family history, people who suffer from pain or discomfort in the digestive system, and those with previous colon complications. In the general population of individuals aged 50–74 years, a colonoscopy is often recommended once every few years as a screening test for colon cancer (instead of an FOBT). The colonoscopy screen is a highly effective tool for the diagnosis and treatment of pre-cancerous colon tumors; unfortunately, the rate of its use is low due to the discomfort caused by the examination. In Israel there are no formal recommendations for colonoscopy examinations.

Denominator: Individuals aged 50–74 years.

Numerator: The number of individuals in the denominator who underwent an examination for the detection of fecal occult blood at least once within the measurement year or a colonoscopy during the measurement year or the five years prior to the measurement year.

Comments: The underlying reason for a colonoscopy (e.g., screening for early detection instead of an examination to detect fecal occult blood, following symptoms, a positive fecal occult blood test) is unknown. The 6-year measurement period for colonoscopy testing is a function of data availability and it is expected to increase to a 10-year screening period when data are available. In the current report (2008–2010) a single indicator for individuals who underwent either an FOBT or colonoscopy is presented.

Results **(Tables 12-14 and Figures 16-19)**

In 2010, 46.9% of the 646,506 adults aged 50–74 years underwent a colon cancer screening test. This rate increased over time, from 39.6% in 2008 and 43.9% in 2009 and by age group. Screening rates were higher for women (48.4%) than men (45.2%). Disparities in rates by socio-economic status were apparent for older age groups, with higher screening rates in adults aged 70–74 years of the non-exempt (56.5%) than exempt (49.8%) population.

Colon cancer screening

Percentage of individuals who had a fecal occult blood test in the past year or had a colonoscopy in the past five years (numerator) among all individuals aged 50-74 (denominator)

Figure 16 *by year*

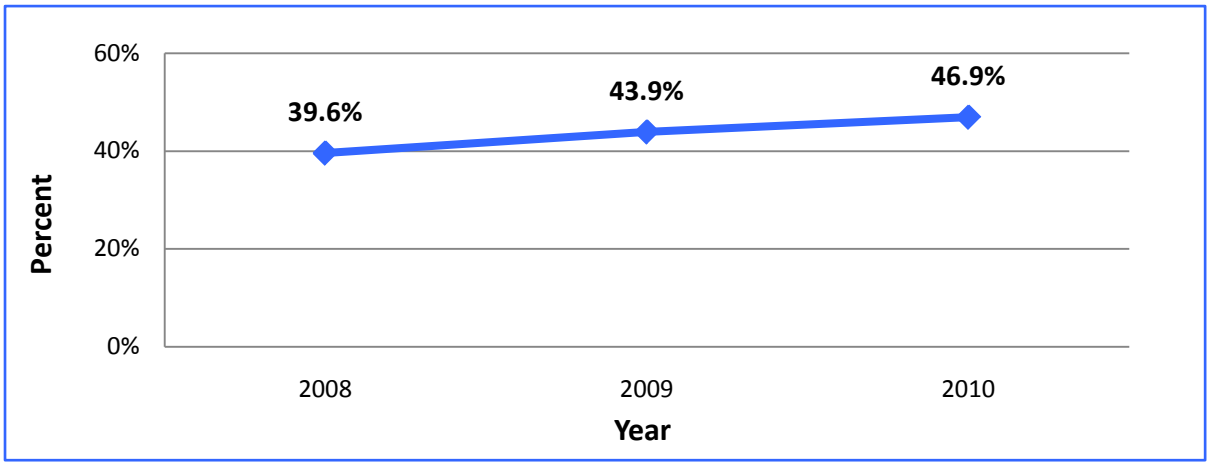


Figure 17 *by age group*

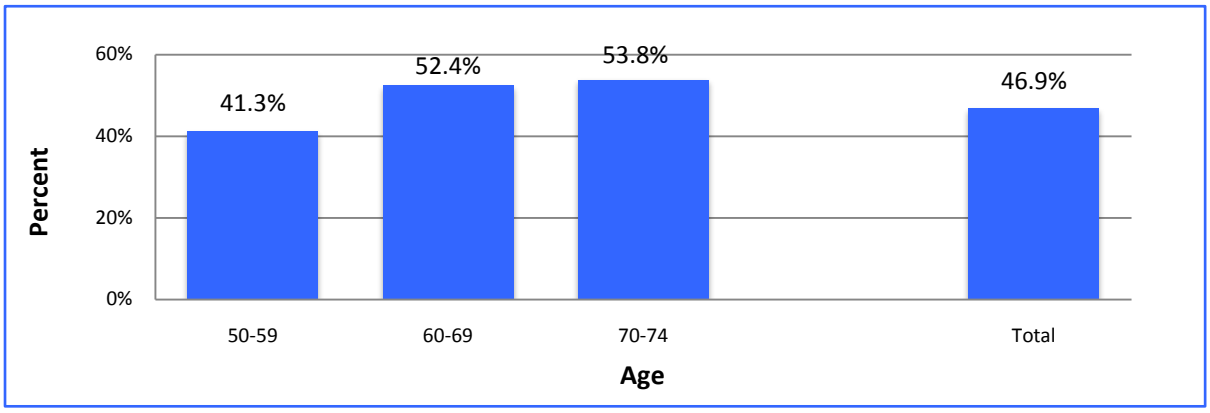


Figure 18 *by sex*

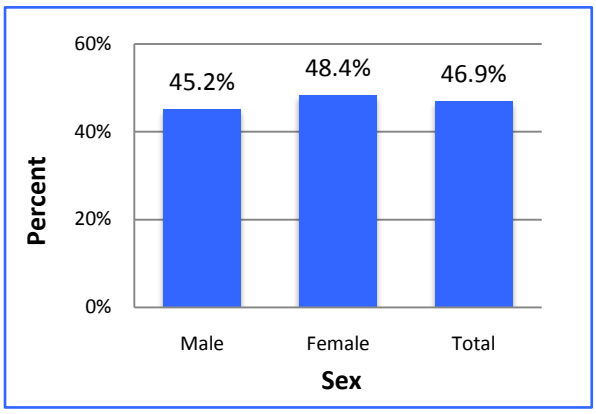
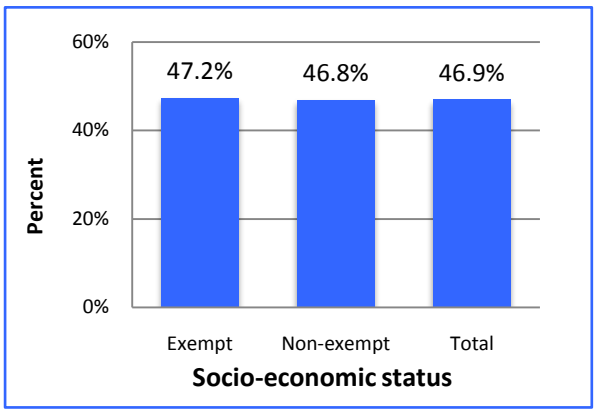


Figure 19 *by SES*



Colon cancer screening

Individuals who had a fecal occult blood test in the past year or had a colonoscopy in the past five years (numerator) among all individuals aged 50-74 (denominator)

Table 12 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 50-59	60-69	70-74	Total
2008	Numerator	235,303	202,051	81,255	518,609
	Denominator	687,778	447,953	172,891	1,308,622
	Rate	**34.2%**	**45.1%**	**47.0%**	**39.6%**
2009	Numerator	268,997	229,139	90,969	589,105
	Denominator	697,744	466,216	178,657	1,342,617
	Rate	**38.6%**	**49.1%**	**50.9%**	**43.9%**
2010	Numerator	292,387	255,189	98,930	646,506
	Denominator	707,111	487,241	183,847	1,378,199
	Rate	**41.3%**	**52.4%**	**53.8%**	**46.9%**

Table 13 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 50-59	60-69	70-74	Total
Male	Numerator	133,144	116,464	44,709	294,317
	Denominator	338,985	229,680	82,051	650,716
	Rate	**39.3%**	**50.7%**	**54.5%**	**45.2%**
Female	Numerator	159,243	138,725	54,221	352,189
	Denominator	368,126	257,561	101,796	727,483
	Rate	**43.3%**	**53.9%**	**53.3%**	**48.4%**
Total	Numerator	292,387	255,189	98,930	646,506
	Denominator	707,111	487,241	183,847	1,378,199
	Rate	**41.3%**	**52.4%**	**53.8%**	**46.9%**

Table 14 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 50-59	60-69	70-74	Total
Exempt	Numerator	40,781	70,128	36,436	147,345
	Denominator	100,052	138,863	73,150	312,065
	Rate	**40.8%**	**50.5%**	**49.8%**	**47.2%**
Non-exempt	Numerator	251,606	185,061	62,494	499,161
	Denominator	607,059	348,378	110,697	1,066,134
	Rate	**41.4%**	**53.1%**	**56.5%**	**46.8%**
Total	Numerator	292,387	255,189	98,930	646,506
	Denominator	707,111	487,241	183,847	1,378,199
	Rate	**41.3%**	**52.4%**	**53.8%**	**46.9%**

IMMUNIZATIONS FOR OLDER ADULTS

Influenza vaccination for older adults

Description: The percentage of individuals aged 65+ years who received a seasonal influenza vaccination during the measurement year.

Rationale: Improvement of seasonal influenza vaccination coverage in older adults likely reduces morbidities and their complications such as pneumonia, which in this age group often leads to hospitalization and even death.

Denominator: Individuals aged 65+ years.

Numerator: The number of individuals in the denominator who received an influenza vaccination during the fall and winter months of the measurement year.

Comments: This indicator relates to seasonal influenza vaccinations and does not include Swine Flu (H1N1) vaccinations. The measurement period begins on September 1 of the measurement year and ends on February 28 of the following year.

Results **(Tables 15-17 and Figures 20-23)**

In 2010, 57.1% of individuals aged 65+ years received the influenza vaccination. This rate represents improvement in care compared to 56.7% coverage in 2008. Vaccination rates were slightly higher among adults aged 74+ years (61.3%) compared with 65–73 years (52.8%).

Man had higher vaccination rates than women, and this disparity was most prominent among 74+–year-olds (65.8% compared with 58.3%).

Influenza vaccination rates were higher among individuals in the non-exempt than the exempt population (59.8% compared with 52.5%, respectively), regardless of age group.

Influenza vaccination rates for older adults

Percentage of individuals who received a seasonal influenza vaccination (numerator) among all Individuals aged 65+ years (denominator)

Figure 20 *by year*

Figure 21 *by age group*

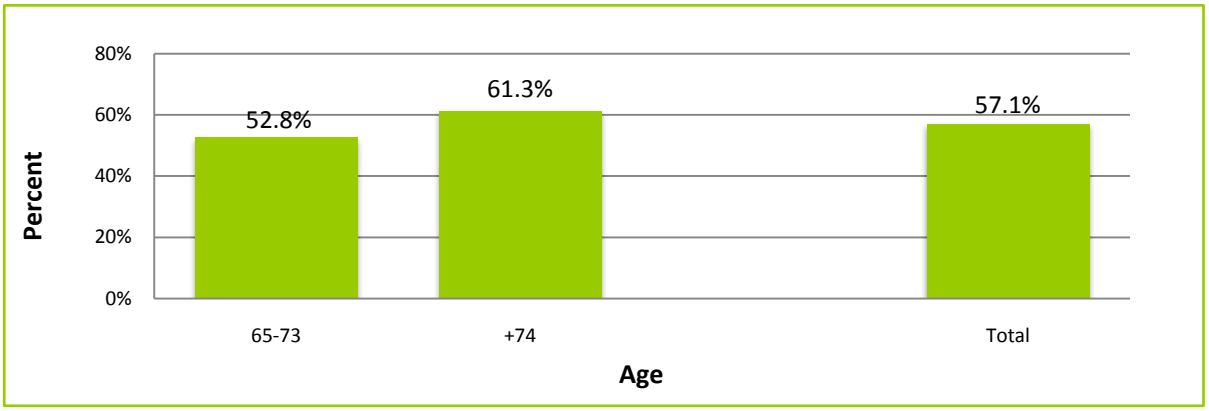


Figure 22 *by sex*

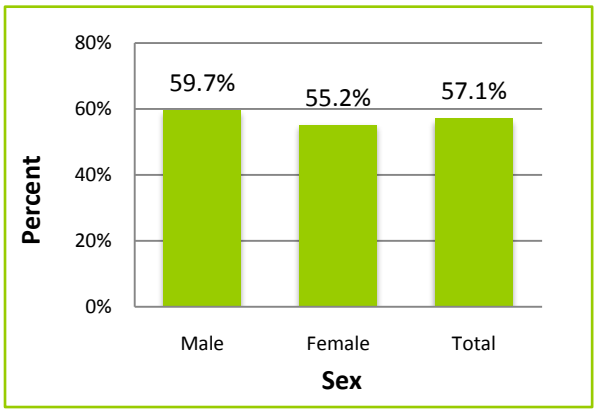
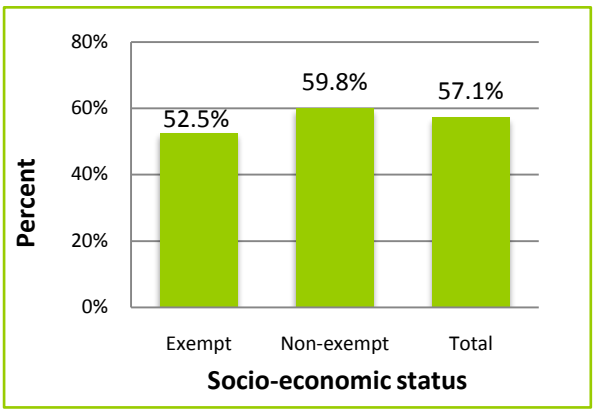


Figure 23 *by SES*



Influenza vaccination rates for older adults

Individuals who received a seasonal influenza vaccination (numerator) among all Individuals aged 65+ years (denominator)

Table 15 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)		
Year		**65-73**	**74+**	**Total**
2008	Numerator	174,804	212,942	387,746
	Denominator	345,941	353,454	699,395
	Rate	**50.5%**	**60.2%**	**55.4%**
2009	Numerator	182,875	219,590	402,465
	Denominator	348,581	360,860	709,441
	Rate	**52.5%**	**60.9%**	**56.7%**
2010	Numerator	186,447	226,684	413,131
	Denominator	353,440	369,567	723,007
	Rate	**52.8%**	**61.3%**	**57.1%**

Table 16 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)		
Sex		**65-73**	**74+**	**Total**
Male	Numerator	87,465	97,968	185,433
	Denominator	161,587	148,892	310,479
	Rate	**54.1%**	**65.8%**	**59.7%**
Female	Numerator	98,982	128,716	227,698
	Denominator	191,853	220,675	412,528
	Rate	**51.6%**	**58.3%**	**55.2%**
Total	Numerator	186,447	226,684	413,131
	Denominator	353,440	369,567	723,007
	Rate	**52.8%**	**61.3%**	**57.1%**

Table 17 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)		
Socio-economic status		**65-73**	**74+**	**Total**
Exempt	Numerator	67,066	71,406	138,472
	Denominator	131,483	132,025	263,508
	Rate	**51.0%**	**54.1%**	**52.5%**
Non-exempt	Numerator	119,381	155,278	274,659
	Denominator	221,957	237,542	459,499
	Rate	**53.8%**	**65.4%**	**59.8%**
Total	Numerator	186,447	226,684	413,131
	Denominator	353,440	369,567	723,007
	Rate	**52.8%**	**61.3%**	**57.1%**

Pneumoccocal vaccination for older adults

Description: The percentage of individuals aged 65–71 years who received a pneumococcal vaccination.

Rationale: Improvement of pneumococcal vaccination coverage in older adults likely reduces morbidity and mortality that is caused by the *Pneumococcus* bacterium.

Denominator: Individuals aged 65–71 years

Numerator: The number of individuals in the denominator who received a pneumococcal vaccination once after age 65 years or within the past five years.

Comments: This indicator relates to the 23-valent formulation of the pneumococcal polysaccharide vaccine. The age range used for the present report (2008–2010) is a function of data availability.

Results **(Tables 18-20 and Figures 24-27)**

In 2010, 70.5% of individuals aged 65–71 years had received the pneumococcal vaccination after the age 65 or within the previous five years. This rate is similar to previous measurement years.

Men had slightly higher vaccination rates than women (71.8% compared with 69.3%).

No socio-economic disparities in pneumococcal vaccination rates were observed.

Pneumococcal vaccination status for older adults

Percentage of individuals who received a pneumococcal vaccination once after age 65 or in the last five years (numerator) among all individuals aged 65+ years (denominator)

Figure 24 *by year*

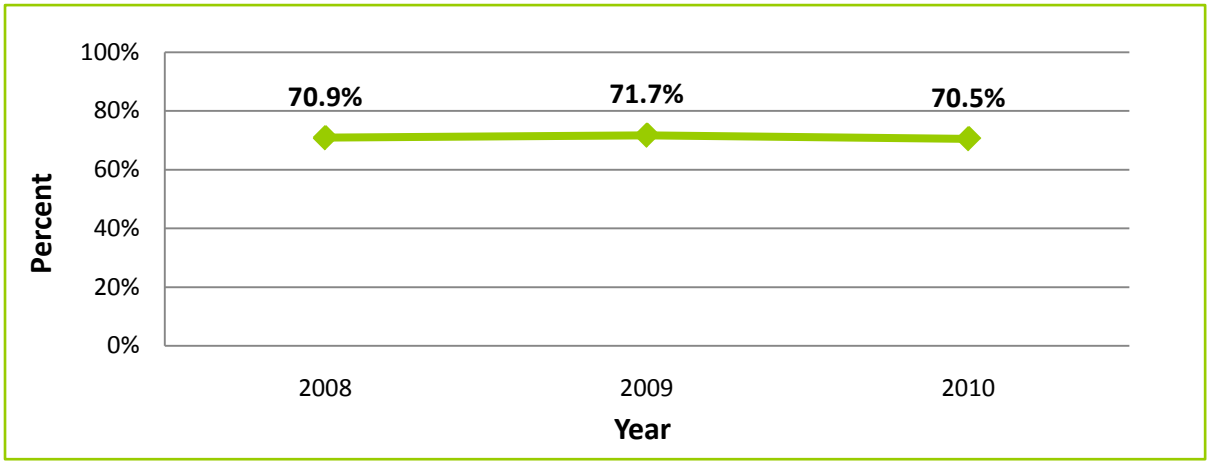


Figure 25 *by age group*

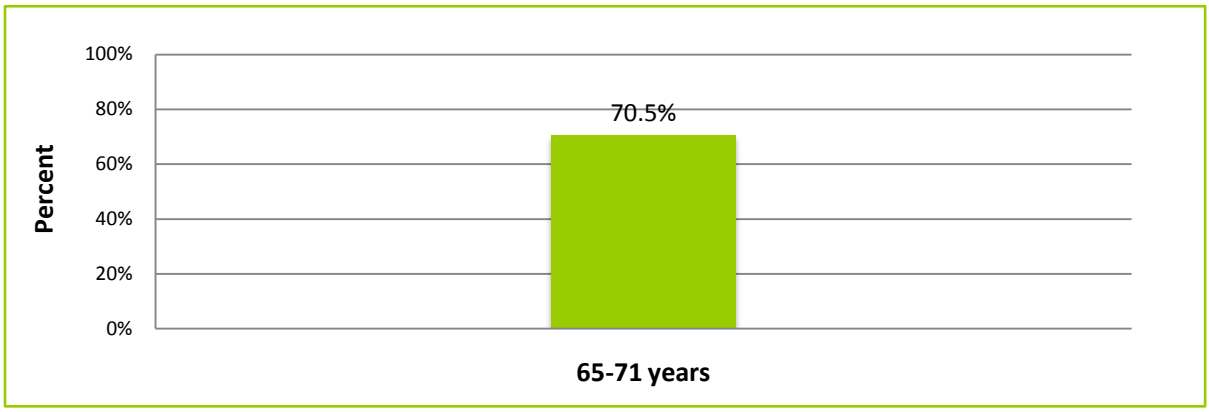


Figure 26 *by sex*

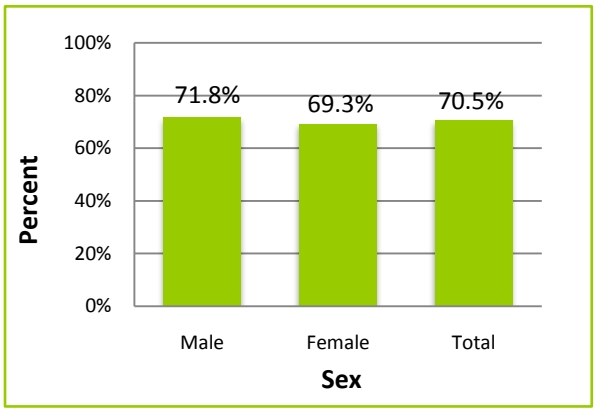
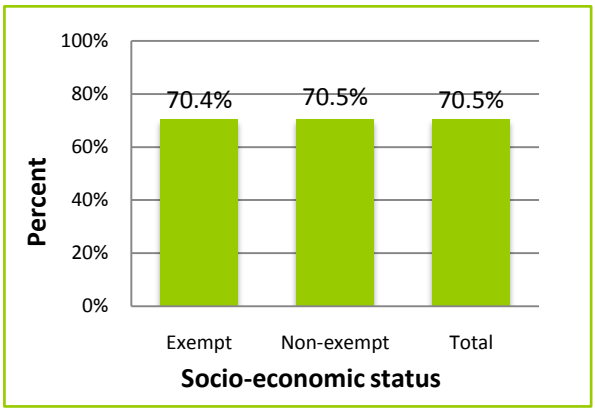


Figure 27 *by SES*



Pneumococcal vaccination status for older adults (ages 65+ years)

Individuals who received a pneumococcal vaccination once after age 65 or in the last five years (numerator) among all individuals aged 65+ years (denominator)

Table 18 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)
Year		**65-71**
2008	Numerator	180,231
	Denominator	254,201
	Rate	**70.9%**
2009	Numerator	182,409
	Denominator	254,514
	Rate	**71.7%**
2010	Numerator	180,697
	Denominator	256,441
	Rate	**70.5%**

Table 19 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)
Sex		**65-71**
Male	Numerator	85,084
	Denominator	118,555
	Rate	**71.8%**
Female	Numerator	95,613
	Denominator	137,886
	Rate	**69.3%**
Total	Numerator	180,697
	Denominator	256,441
	Rate	**70.5%**

Table 20 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)
Socio-economic status		**65-71**
Exempt	Numerator	63,270
	Denominator	89,855
	Rate	**70.4%**
Non-exempt	Numerator	117,427
	Denominator	166,586
	Rate	**70.5%**
Total	Numerator	180,697
	Denominator	256,441
	Rate	**70.5%**

CHILD AND ADOLESCENT HEALTH

Anemia screening for infants

Description: The percentage of infants aged one year during the measurement year, who had at least one hemoglobin test during the measurement year.

Rationale: The detection of anemia at a young age is important, as anemia affects a child's development and, in particular, cognitive development. Anemia is diagnosed through a simple blood test. One of the causes of anemia at a young age is iron deficiency. Early diagnosis and treatment of anemia prevents irreversible damage. The Ministry of Health recommends routine screening for anemia for infants one year old.

Denominator: Infants aged 9–18 months during the measurement year.

Numerator: The number of infants in the denominator who underwent a hemoglobin screening test during the measurement year.

Comments: The American Academy of Pediatrics recommends iron supplementation for breastfed infants from 4 months-of-age and a hemoglobin screening at 12 months. The US Preventive Services Task Force finds insufficient evidence to recommend anemia screening in infants, but recommends iron supplementation for children 6–12 months who are at increased risk for iron deficiency anemia. However, data from Israel demonstrate a clear decrease in the prevalence of anemia among infants, especially in the Jewish population, since the implementation of anemia screening recommendations by the Ministry of Health in 1985. Furthermore, a Cochrane meta-analysis from 2001 demonstrated that long-term iron supplementation (approximately 4 months) is likely to improve an infant's cognitive status.

Results **(Tables 21-23 and Figures 28-31)**

In 2010, 77.3% of infants aged one year during the measurement year underwent at least one hemoglobin test for the detection of anemia. This rate represents an absolute increase of approximately 3% per year.

No differences in test rates were found based on sex or parents' socio-economic status (exempt vs. non-exempt).

Anemia screening for infants

Percentage of children with a recorded hemoglobin level (numerator) among all children aged 9-18 months (denominator)

Figure 28 *by year*

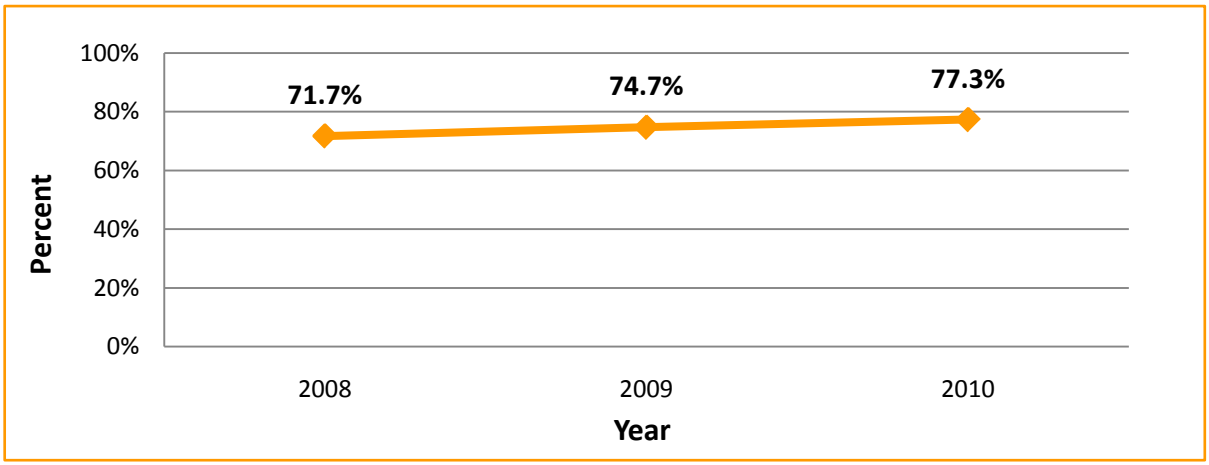


Figure 29 *by age group*

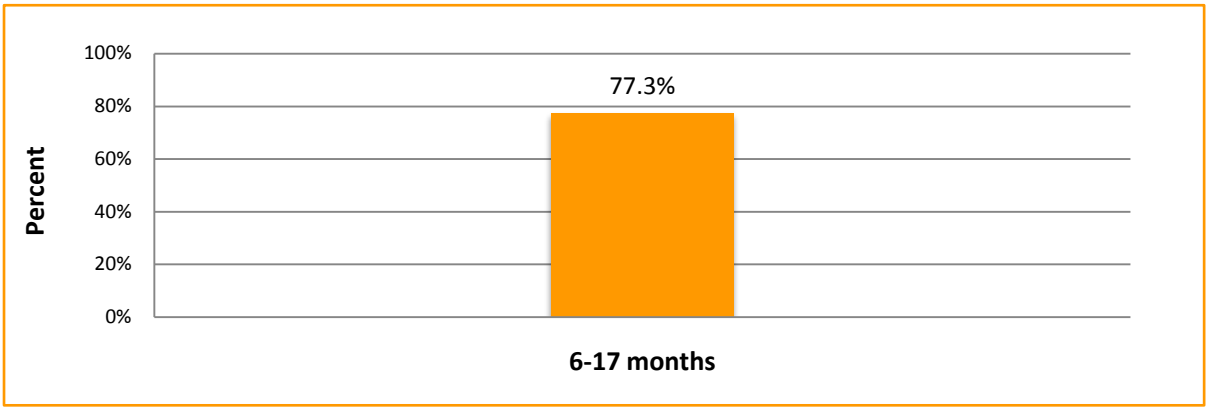


Figure 30 *by sex*

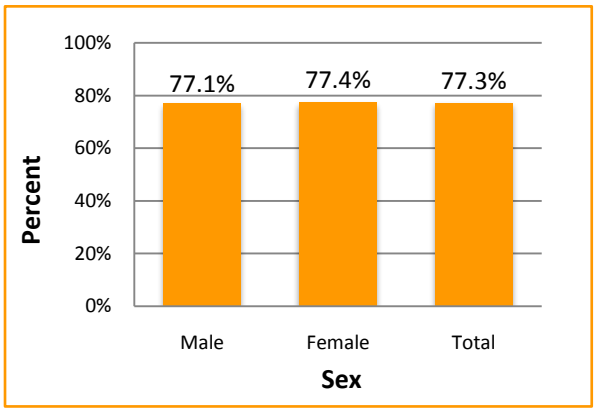
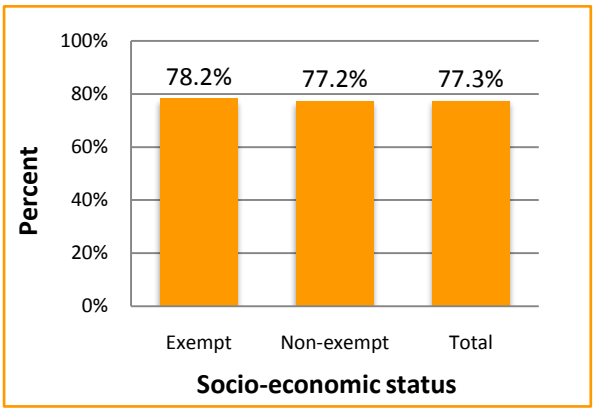


Figure 31 *by SES*



Anemia screening for infants

Children with a recorded hemoglobin level (numerator) among all children aged 9-18 months (denominator)

Table 21 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age 6-17 months
2008	Numerator	104,607
	Denominator	145,840
	Rate	**71.7%**
2009	Numerator	113,252
	Denominator	151,644
	Rate	**74.7%**
2010	Numerator	119,280
	Denominator	154,396
	Rate	**77.3%**

Table 22 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age 6-17 months
Male	Numerator	60,766
	Denominator	78,774
	Rate	**77.1%**
Female	Numerator	58,514
	Denominator	75,622
	Rate	**77.4%**
Total	Numerator	119,280
	Denominator	154,396
	Rate	**77.3%**

Table 23 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age 6-17 months
Exempt	Numerator	3,159
	Denominator	4,038
	Rate	**78.2%**
Non-exempt	Numerator	116,121
	Denominator	150,358
	Rate	**77.2%**
Total	Numerator	119,280
	Denominator	154,396
	Rate	**77.3%**

Body mass index (BMI) documentation for children

Description: The percentage of adolescents aged 7 years with a documented body mass index (BMI) (height and weight) between the ages of 5–7 years.

Rationale: Obesity among children and adolescents is a common problem in Western society, with short- and long-term health consequences. Obesity among children is associated with diabetes and high blood pressure in childhood and adulthood. Childhood obesity is related to low self esteem and social isolation, as well as risky behaviors such as smoking. Identifying youths who suffer from obesity is an important step in preventing and minimizing health risks with interventions such as diet and exercise. Tackling childhood obesity on individual and societal levels depends on the ability of the healthcare system to evaluate the problem and intervene. The BMI is a measure of obesity that is based on the relation between body weight and height (weight in kilograms divided by height in meters squared and, for children, is evaluated as a percentile and not absolute value).

Denominator: Individuals aged 7 years.

Numerator: The number of patients in the denominator with a record of height and weight at least once between the ages 5–7 years.

Comments: The Ministry of Health recommends height and weight documentation once for children aged 2–4, 5–7, and every three years for adolescents aged 14+ years.

Results **(Tables 24-26 and Figures 32-35)**

In 2010, documentation of weight and height of adolescents aged 14–18 years was 63.4%. This rate was higher than the rate in 2009 (55.8%) and 2008 (44.2%).

Documentation rates for weight and height did not differ by sex.

Higher documentation rates were observed among the exempt (68.5%) compared with the non-exempt (63.1%) population.

Body mass index (BMI) documentation for children

Percentage of children with a record of height and weight at least once between the ages 5–7 years (numerator) among all children aged 7 years (denominator)

Figure 32 *by year*

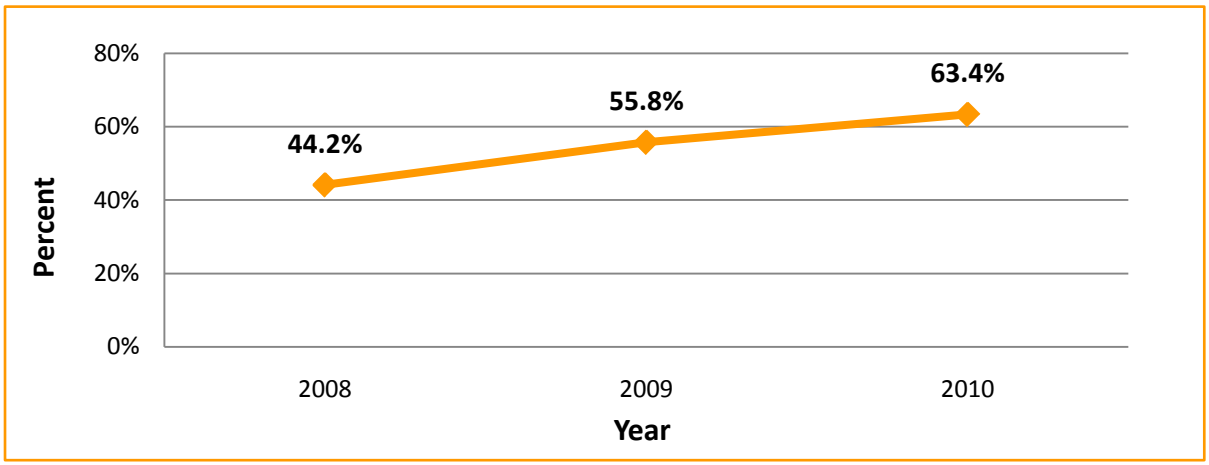


Figure 33 *by age group*

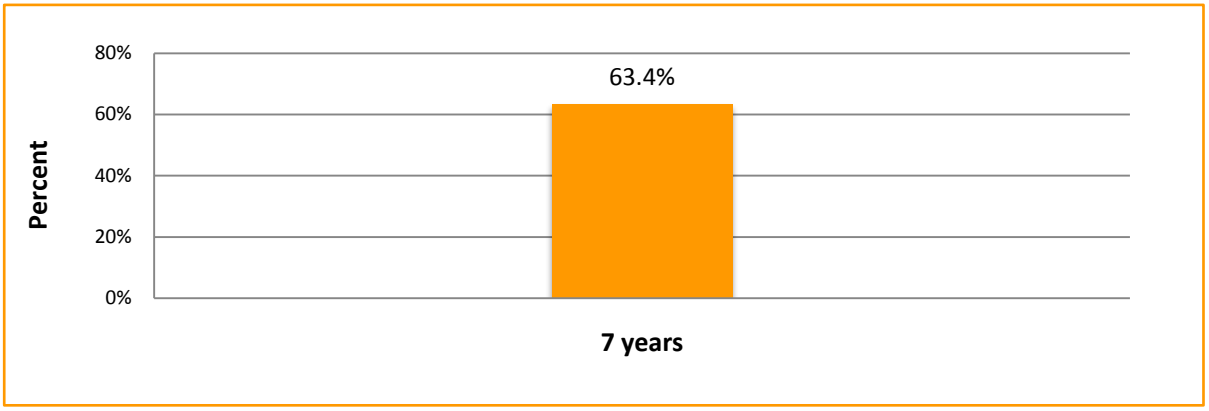


Figure 34 *by sex*

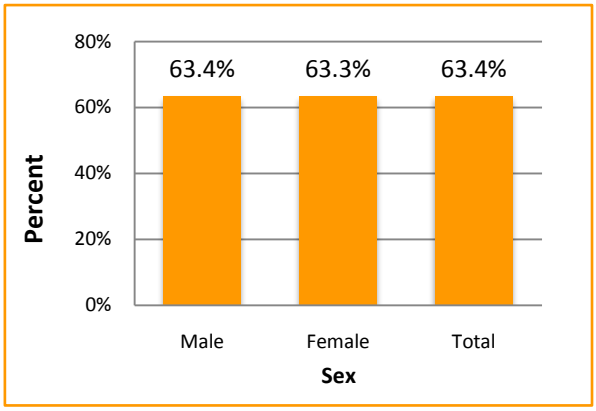
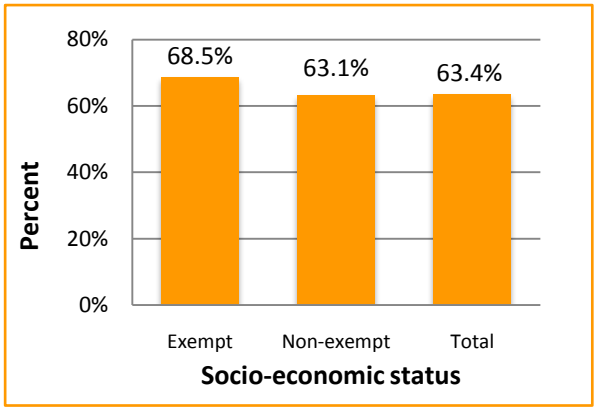


Figure 35 *by SES*



Body mass index (BMI) documentation for children

Children with a record of height and weight at least once between the ages 5–7 years (numerator) among all children aged 7 years (denominator)

Table 24 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)
Year		**7**
2008	Numerator	57,582
	Denominator	130,401
	Rate	**44.2%**
2009	Numerator	74,350
	Denominator	133,180
	Rate	**55.8%**
2010	Numerator	87,578
	Denominator	138,205
	Rate	**63.4%**

Table 25 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)
Sex		**7**
Male	Numerator	44,961
	Denominator	70,897
	Rate	**63.4%**
Female	Numerator	42,617
	Denominator	67,308
	Rate	**63.3%**
Total	Numerator	87,578
	Denominator	138,205
	Rate	**63.4%**

Table 26 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)
Socio-economic status		**7**
Exempt	Numerator	5,019
	Denominator	7,330
	Rate	**68.5%**
Non-exempt	Numerator	82,559
	Denominator	130,875
	Rate	**63.1%**
Total	Numerator	87,578
	Denominator	138,205
	Rate	**63.4%**

Body mass index (BMI) documentation for adolescents

Description: The percentage of adolescents aged 14–18 years with a documented body mass index (BMI; height and weight).

Rationale: Obesity among children and adolescents is a common problem in Western society, with short- and long-term health consequences. Obesity among children is associated with diabetes and high blood pressure in childhood and adulthood. Childhood obesity is related to low self esteem and social isolation, as well as risky behaviors such as smoking. Identifying youths who suffer from obesity is an important step in preventing or minimizing health risks with interventions such as diet and exercise. Tackling childhood obesity on individual and societal levels depends on the ability of the healthcare system to evaluate the problem and intervene. The BMI is a measure of obesity that is based on the relation between body weight and height (weight in kilograms divided by height in meters squared).

Denominator: Individuals aged 14–18 years.

Numerator: The number of patients in the denominator with a record of height and weight at least once during the measurement year or the two years prior to the measurement year.

Comments: The Ministry of Health recommends height and weight documentation once for children aged 2–4, 5–7, and every three years for adolescents aged 14+ years.

Results **(Tables 27-29 and Figures 36-39)**

In 2010, documentation of weight and height of adolescents aged 14–18 years was 62.3%. This rate was similar to that from 2009 (61.2%); however, it represented a substantial increase from 2008 (46.6%).

Documentation rates for weight and height did not differ by sex.

Higher documentation rates were observed among the exempt (68.2%) compared with the non-exempt (60.1%) population.

Body mass index (BMI) documentation for adolescents

Percentage of adolescents with a documented BMI (numerator) among adolescents aged 14-18 years (denominator)

Figure 36 *by year*

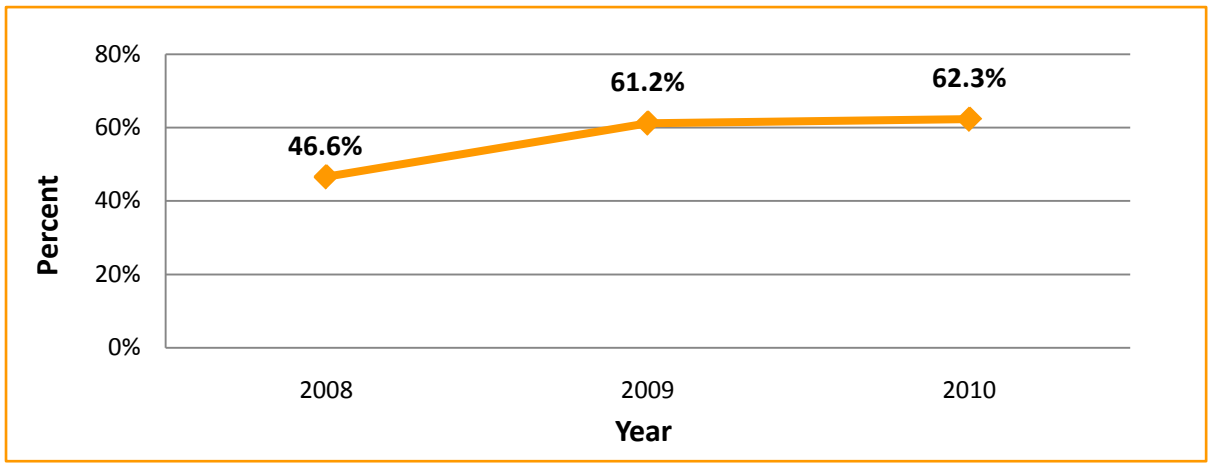


Figure 37 *by age group*

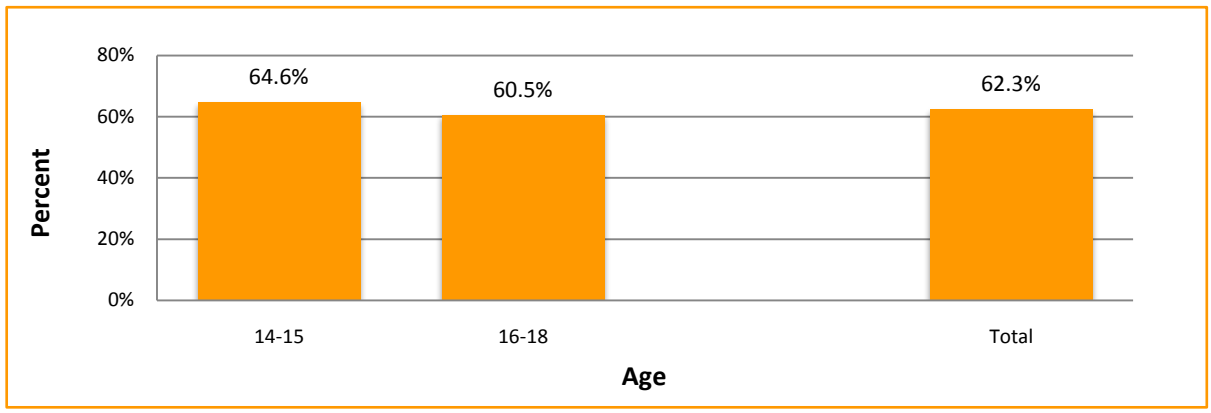


Figure 38 *by sex*

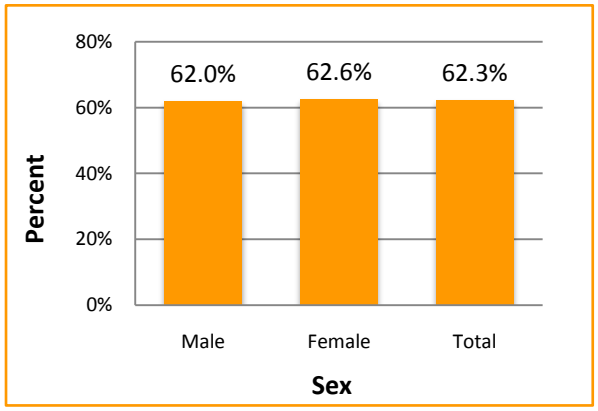
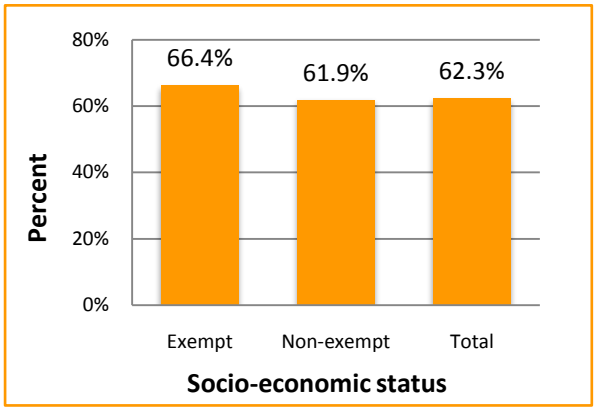


Figure 39 *by SES*



Body mass index (BMI) documentation for adolescents

Adolescents with a documented BMI (numerator) among adolescents aged 14-18 years (denominator)

Table 27 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)		
Year		**14-15**	**16-18**	**Total**
2008	Numerator	106,678	132,497	239,175
	Denominator	231,652	281,110	512,762
	Rate	**46.1%**	**47.1%**	**46.6%**
2009	Numerator	144,759	169,844	314,603
	Denominator	233,437	280,203	513,640
	Rate	**62.0%**	**60.6%**	**61.2%**
2010	Numerator	151,433	170,142	321,575
	Denominator	234,547	281,381	515,928
	Rate	**64.6%**	**60.5%**	**62.3%**

Table 28 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)		
Sex		**14-15**	**16-18**	**Total**
Male	Numerator	77,459	85,295	162,754
	Denominator	119,938	142,449	262,387
	Rate	**64.6%**	**59.9%**	**62.0%**
Female	Numerator	73,974	84,847	158,821
	Denominator	114,609	138,932	253,541
	Rate	**64.5%**	**61.1%**	**62.6%**
Total	Numerator	151,433	170,142	321,575
	Denominator	234,547	281,381	515,928
	Rate	**64.6%**	**60.5%**	**62.3%**

Table 29 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)		
Socio-economic status		**14-15**	**16-18**	**Total**
Exempt	Numerator	14,764	14,730	29,494
	Denominator	21,438	22,955	44,393
	Rate	**68.9%**	**64.2%**	**66.4%**
Non-exempt	Numerator	136,669	155,412	292,081
	Denominator	213,109	258,426	471,535
	Rate	**64.1%**	**60.1%**	**61.9%**
Total	Numerator	151,433	170,142	321,575
	Denominator	234,547	281,381	515,928
	Rate	**64.6%**	**60.5%**	**62.3%**

CARDIOVASCULAR HEALTH

Cholesterol levels documentation

Description: The percentage of individuals aged 35–74 years with documented levels of low-density lipoprotein (LDL) cholesterol.

Rationale: Coronary atherosclerosis can lead to myocardial infarction, angina pectoris, stroke, and sudden death. It is associated with deposits in blood vessels that are frequently caused by high levels of cholesterol. Lowering cholesterol to target levels has significant benefits in the prevention of complications of atherosclerosis in heart patients (secondary prevention), and in decreasing the risk of developing heart disease for individuals with elevated risk factors (primary prevention). Identifying individuals with higher than recommended total cholesterol and LDL cholesterol levels is critical for primary and secondary prevention. Treatment for high LDL cholesterol includes lifestyle changes and pharmacological therapy. Studies have shown that a 10% decrease in cholesterol levels can lead to a 30% decrease in heart disease.

Denominator: Individuals aged 35–54 years and 55–74 years.

Numerator: The number of individuals in the denominator with LDL cholesterol documentation (among 35–54–year-olds at least one test during the measurement year or the four years prior to the measurement year; among 55–74-year-olds at least one test during the measurement year).

Comments: None.

Results (Tables 30-35 and Figures 40-47)

Ages 35–54 years

In 2010, 84.5% of individuals aged 35–54 years had documented LDL cholesterol levels. This rate represented a 4% increase from 2008. Documentation rates increased with age (80.6% for ages 35–44 years and 89.0% for ages 44–54 years). Documentation rates for LDL cholesterol levels were higher for women (89.2%) than for men (79.6%), especially in the younger age group (35–44 years). Rates of LDL documentation were higher in the exempt (90.6%) than the non-exempt (84.0%) population.

Ages 55–74 years

In 2010, 76.8% of individuals aged 55–74 years had documented LDL cholesterol levels, similar to previous years. Documentation rates were higher for women (79.7%) than for men (73.5%), especially for adults 55–64 years. Rates of LDL documentation were higher in the exempt (81.1%) than the non-exempt (73.0%) population, primarily due to differences in rates for adults ages 55–64 years.

Cholesterol levels documentation (ages 35-54 years)

Percentage of individuals with documented levels of LDL cholesterol (numerator) among all individuals aged 35-54 years (denominator)

Figure 40 *by year*

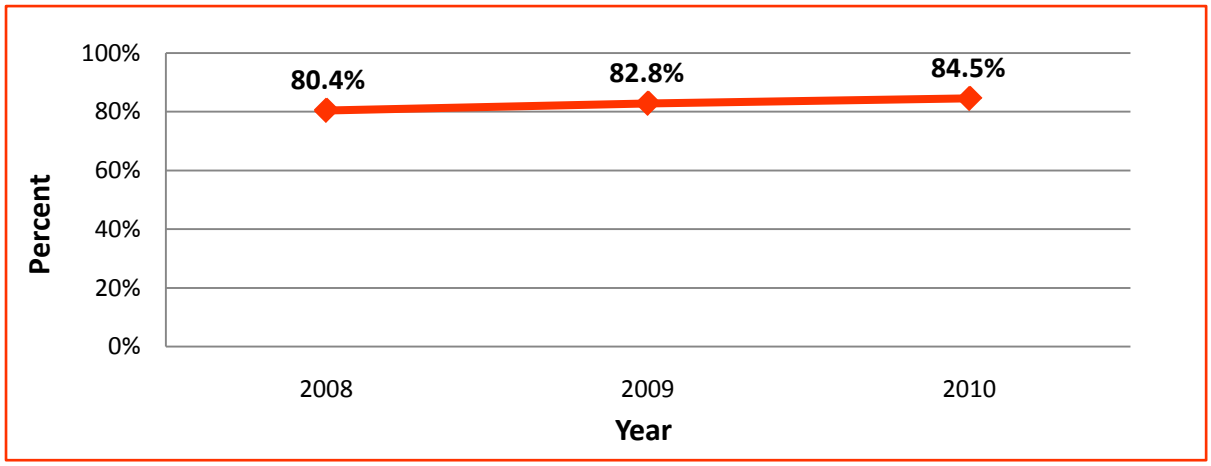


Figure 41 *by age group*

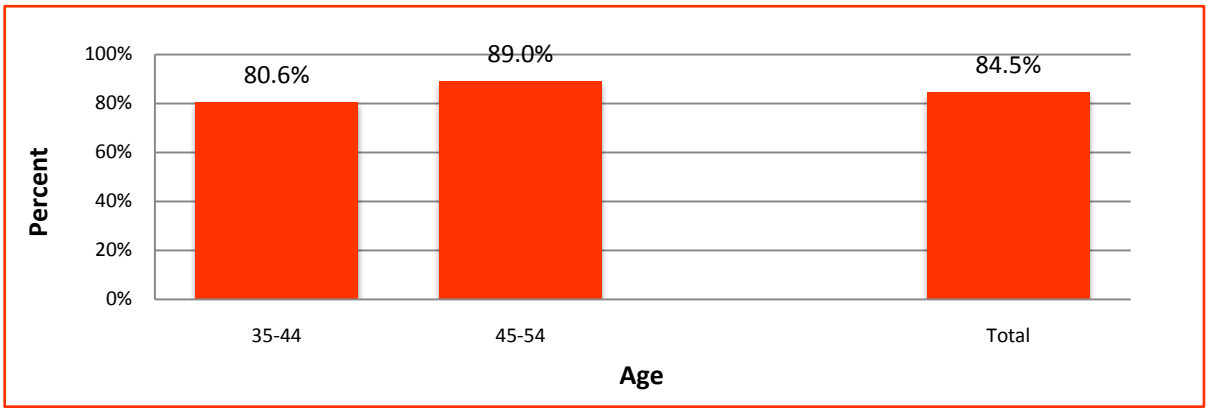


Figure 42 *by sex*

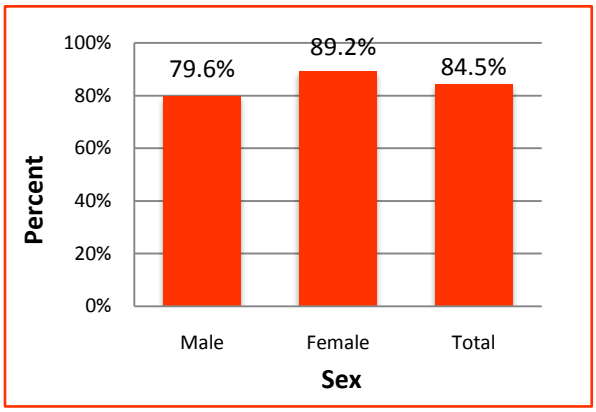
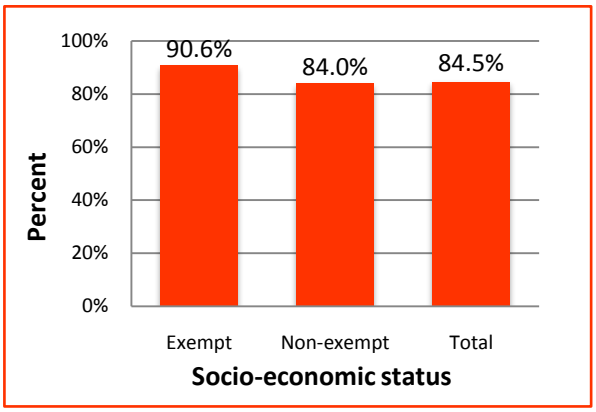


Figure 43 *by SES*



Cholesterol levels documentation (ages 35-54 years)

Individuals with documented levels of LDL cholesterol (numerator) among all individuals aged 35-54 years (denominator)

Table 30 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 35-44	45-54	Total
2008	Numerator	600,734	626,026	1,226,760
	Denominator	800,013	724,893	1,524,906
	Rate	**75.1%**	**86.4%**	**80.4%**
2009	Numerator	640,793	637,842	1,278,635
	Denominator	819,122	725,622	1,544,744
	Rate	**78.2%**	**87.9%**	**82.8%**
2010	Numerator	677,809	651,071	1,328,880
	Denominator	840,545	731,234	1,571,779
	Rate	**80.6%**	**89.0%**	**84.5%**

Table 31 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 35-44	45-54	Total
Male	Numerator	304,800	299,514	604,314
	Denominator	407,024	352,236	759,260
	Rate	**74.9%**	**85.0%**	**79.6%**
Female	Numerator	373,009	351,557	724,566
	Denominator	433,521	378,998	812,519
	Rate	**86.0%**	**92.8%**	**89.2%**
Total	Numerator	677,809	651,071	1,328,880
	Denominator	840,545	731,234	1,571,779
	Rate	**80.6%**	**89.0%**	**84.5%**

Table 32 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 35-44	45-54	Total
Exempt	Numerator	42,803	70,601	113,404
	Denominator	48,900	76,210	125,110
	Rate	**87.5%**	**92.6%**	**90.6%**
Non-exempt	Numerator	635,006	580,470	1,215,476
	Denominator	791,645	655,024	1,446,669
	Rate	**80.2%**	**88.6%**	**84.0%**
Total	Numerator	677,809	651,071	1,328,880
	Denominator	840,545	731,234	1,571,779
	Rate	**80.6%**	**89.0%**	**84.5%**

Cholesterol levels documentation (ages 55-74 years)

Percentage of individuals with documented levels of LDL cholesterol (numerator) among all individuals aged 55-74 years (denominator)

Figure 44 *by year*

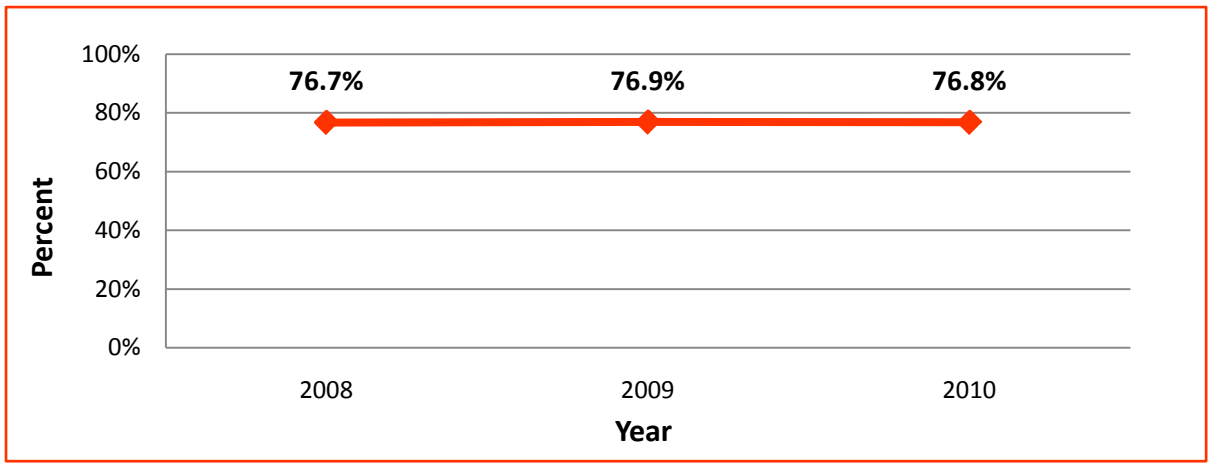


Figure 45 *by age group*

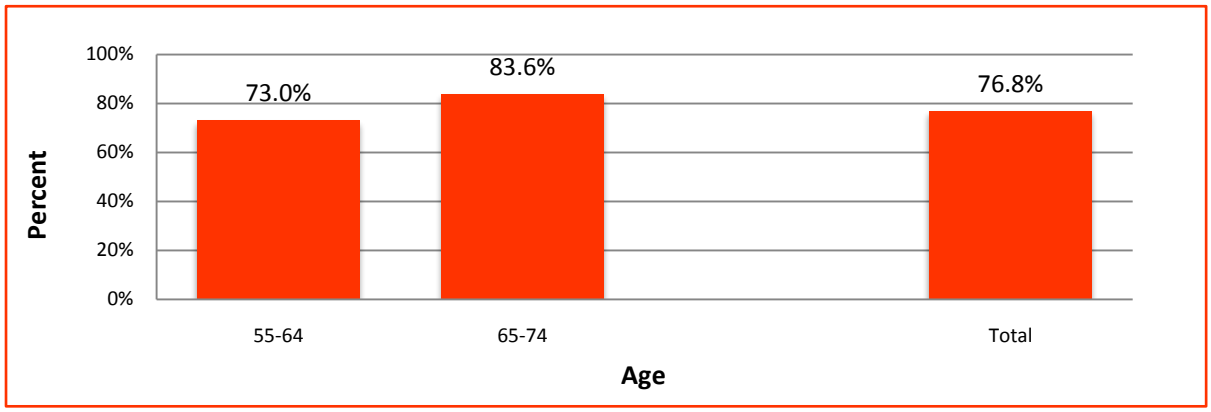


Figure 46 *by sex*

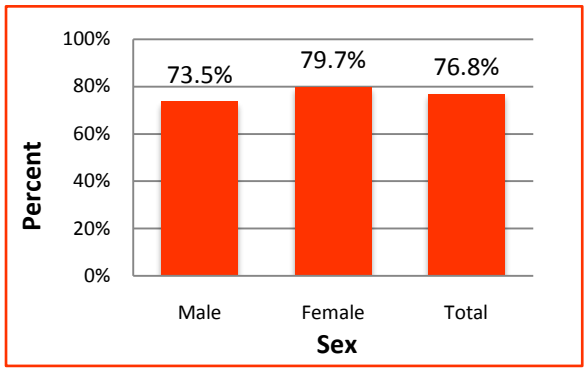
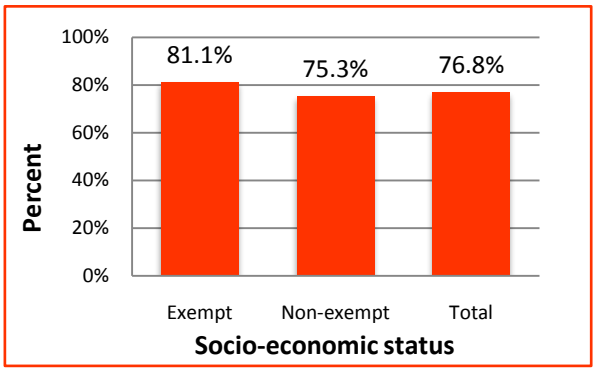


Figure 47 *by SES*



Percentage of adults with documented levels of LDL cholesterol (ages 35-54 years)

Individuals with documented levels of LDL cholesterol (numerator) among all individuals aged 35-54 years (denominator)

Table 33 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)		
Year		**35-44**	**45-54**	**Total**
2008	Numerator	600,734	626,026	1,226,760
	Denominator	800,013	724,893	1,524,906
	Rate	**75.1%**	**86.4%**	**80.4%**
2009	Numerator	640,793	637,842	1,278,635
	Denominator	819,122	725,622	1,544,744
	Rate	**78.2%**	**87.9%**	**82.8%**
2010	Numerator	677,809	651,071	1,328,880
	Denominator	840,545	731,234	1,571,779
	Rate	**80.6%**	**89.0%**	**84.5%**

Table 34 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)		
Sex		**35-44**	**45-54**	**Total**
Male	Numerator	304,800	299,514	604,314
	Denominator	407,024	352,236	759,260
	Rate	**74.9%**	**85.0%**	**79.6%**
Female	Numerator	373,009	351,557	724,566
	Denominator	433,521	378,998	812,519
	Rate	**86.0%**	**92.8%**	**89.2%**
Total	Numerator	677,809	651,071	1,328,880
	Denominator	840,545	731,234	1,571,779
	Rate	**80.6%**	**89.0%**	**84.5%**

Table 35 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)		
Socio-economic status		**35-44**	**45-54**	**Total**
Exempt	Numerator	42,803	70,601	113,404
	Denominator	48,900	76,210	125,110
	Rate	**87.5%**	**92.6%**	**90.6%**
Non-exempt	Numerator	635,006	580,470	1,215,476
	Denominator	791,645	655,024	1,446,669
	Rate	**80.2%**	**88.6%**	**84.0%**
Total	Numerator	677,809	651,071	1,328,880
	Denominator	840,545	731,234	1,571,779
	Rate	**80.6%**	**89.0%**	**84.5%**

Cholesterol levels assessment

Description: The percentage of individuals aged 35–74 years with low-density lipoprotein (LDL) cholesterol levels less than or equal to 160 mg/dL.

Rationale: High LDL cholesterol is a significant risk factor for developing and aggravating atherosclerosis. International guidelines set a standard of LDL cholesterol less than or equal to 160 mg/dL as the desirable target in the general population (without a history of atherosclerotic disease). The purpose of this measure is to identify the percentage of adults with LDL cholesterol at the recommended level (i.e., adequate control).

Denominator: Individuals aged 35–54 years and 55–74 years with documented levels of LDL cholesterol (among 35–54 year olds at least one test during the measurement year or the four years prior to the measurement year; among 55–74 year olds at least one test during the measurement year).

Numerator: The number of individuals in the denominator whose last documented LDL cholesterol level is less than or equal to 130 mg/dL.

Comments: The measure is calculated according to two age groups, 35–54 years (low risk for cardiovascular disease), and 55–74 years (high risk for cardiovascular disease). In the absence of data to estimate an individual's cardiovascular risk factors and properly calculate their recommended target LDL cholesterol level, a target level of 160 mg/dL was used. The LDL-cholesterol value for the current report (2008–2010) is a more conservative target than that used in previous reports.

Results (Tables 36-41 and Figures 48-55)

Ages 35–54 years

In 2010, 91.2% of individuals aged 35–54 years with documented cholesterol levels achieved the recommend target levels of LDL cholesterol (160 mg/dL). This rate was slightly higher than rates from previous years. Rates of LDL control were higher among individuals aged 35–44 years than those 45–54 years, and for women (92.6%) than men (89.6%). No differences in LDL cholesterol control according to socio-economic status were noted.

Ages 55–74 years

In 2010, 92.6% of adults aged 55–74 years with documented LDL cholesterol levels reached adequate control levels of LDL cholesterol (160 mg/dL). This rate remained stable over the measurement period. Rates of adequate LDL control were lower for adults 55–64 (91.4%) compared to adults 65–74 years (94.5%) and for women (91.3%) compared to men (94.2%). No differences in LDL cholesterol control according to socio-economic status were noted.

Percentage of adults with LDL levels less than or equal to 130 mg/dL (ages 35-54 years)

Percentage of individuals with LDL levels less than or equal to 130 mg/dL (numerator) among all individuals aged 35-54 years with a record of LDL (denominator)

Figure 48 *by year*

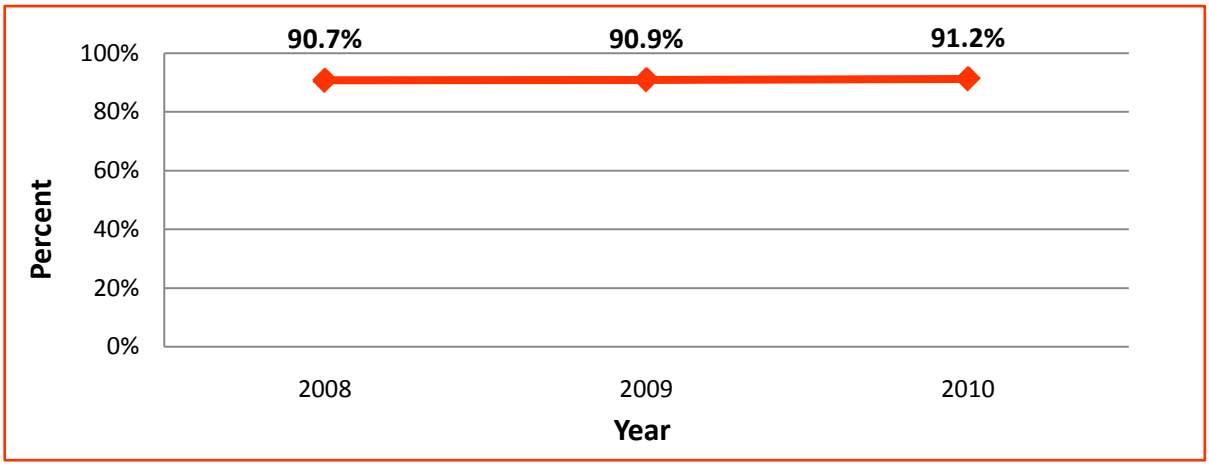


Figure 49 *by age group*

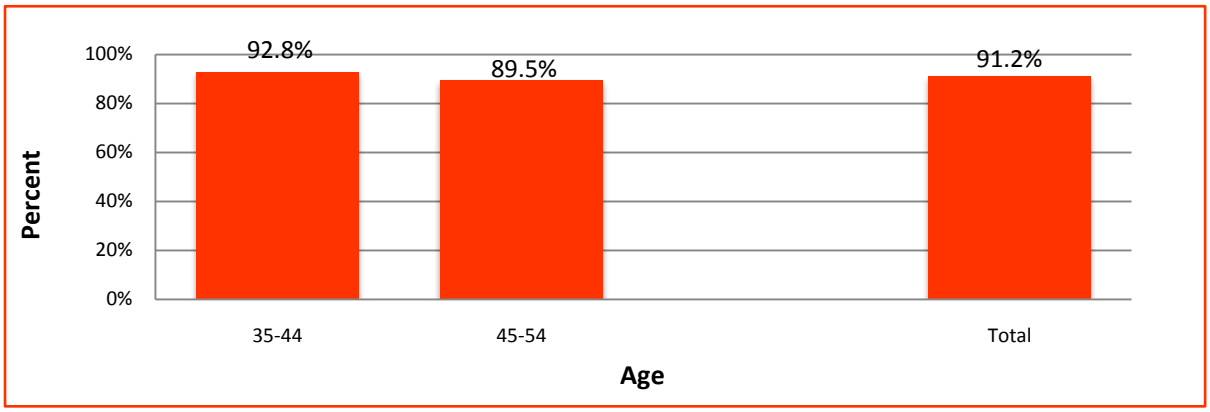


Figure 50 *by sex*

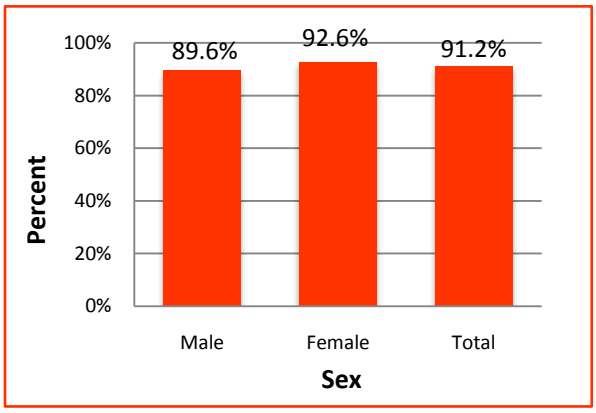
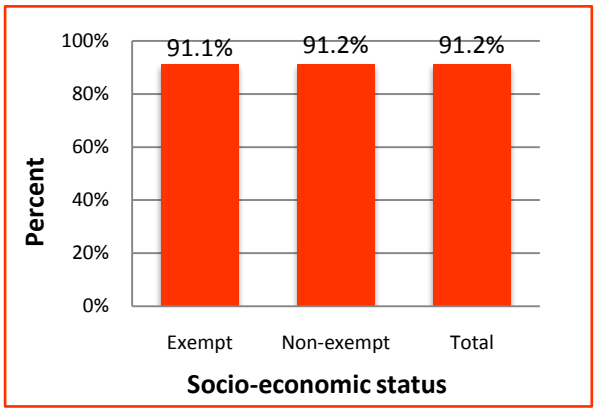


Figure 51 *by SES*



Percentage of adults with LDL levels less than or equal to 130 mg/dL (ages 35-54 years)

Individuals with LDL levels less than or equal to 130 mg/dL (numerator) among all individuals aged 35-54 years with a record of LDL (denominator)

Table 36 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)		
Year		**35-44**	**45-54**	**Total**
2008	Numerator	555,297	557,292	1,112,589
	Denominator	600,734	626,026	1,226,760
	Rate	**92.4%**	**89.0%**	**90.7%**
2009	Numerator	593,265	569,169	1,162,434
	Denominator	640,793	637,842	1,278,635
	Rate	**92.6%**	**89.2%**	**90.9%**
2010	Numerator	629,162	582,877	1,212,039
	Denominator	677,809	651,071	1,328,880
	Rate	**92.8%**	**89.5%**	**91.2%**

Table 37 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)		
Sex		**35-44**	**45-54**	**Total**
Male	Numerator	274,792	266,504	541,296
	Denominator	304,800	299,514	604,314
	Rate	**90.2%**	**89.0%**	**89.6%**
Female	Numerator	354,370	316,373	670,743
	Denominator	373,009	351,557	724,566
	Rate	**95.0%**	**90.0%**	**92.6%**
Total	Numerator	629,162	582,877	1,212,039
	Denominator	677,809	651,071	1,328,880
	Rate	**92.8%**	**89.5%**	**91.2%**

Table 38 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)		
Socio-economic status		**35-44**	**45-54**	**Total**
Exempt	Numerator	39,625	63,736	103,361
	Denominator	42,803	70,601	113,404
	Rate	**92.6%**	**90.3%**	**91.1%**
Non-exempt	Numerator	589,537	519,141	1,108,678
	Denominator	635,006	580,470	1,215,476
	Rate	**92.8%**	**89.4%**	**91.2%**
Total	Numerator	629,162	582,877	1,212,039
	Denominator	677,809	651,071	1,328,880
	Rate	**92.8%**	**89.5%**	**91.2%**

Percentage of adults with LDL levels less than or equal to 130 mg/dL (ages 55-74 years)

Percentage of individuals with LDL levels less than or equal to 130 mg/dL (numerator) among all individuals aged 55-74 years with a record of LDL (denominator)

Figure 52 *by year*

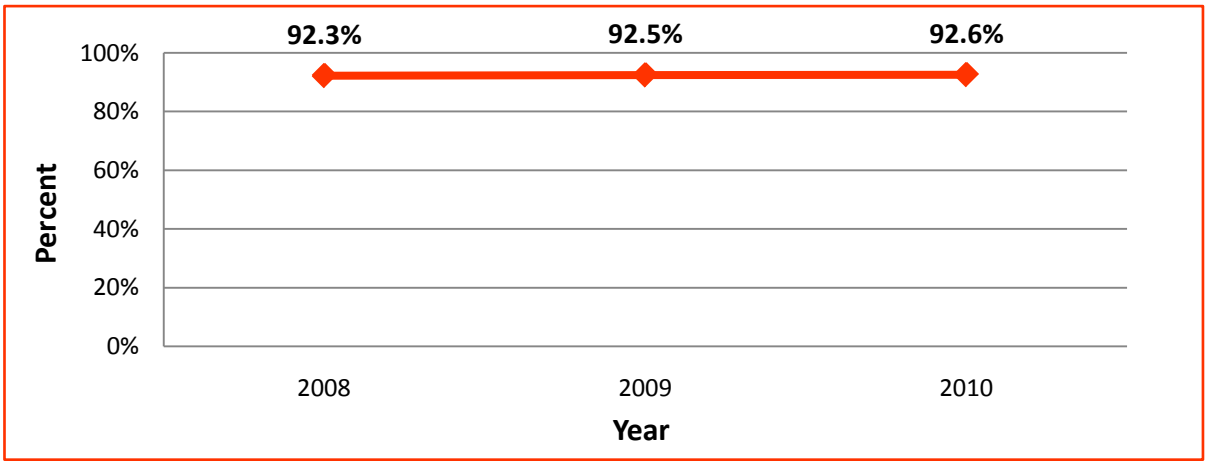


Figure 53 *by age group*

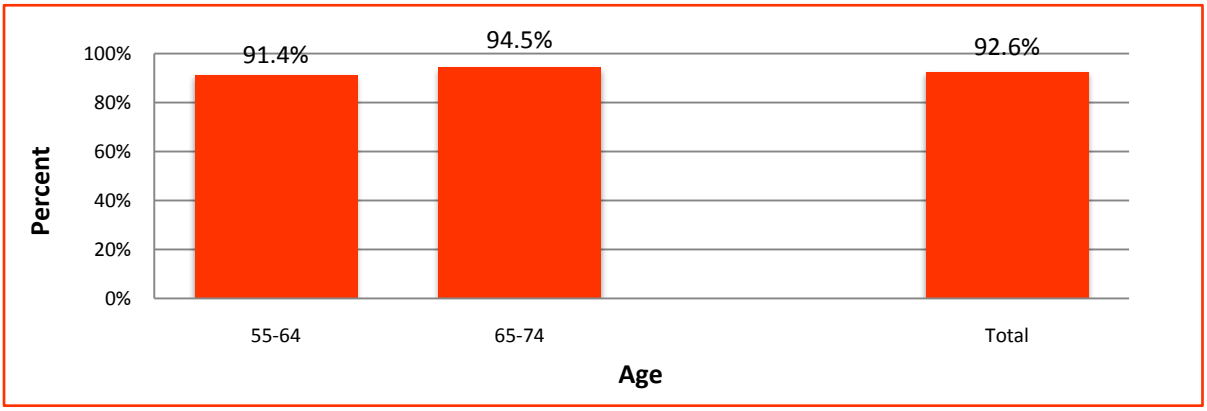


Figure 54 *by sex*

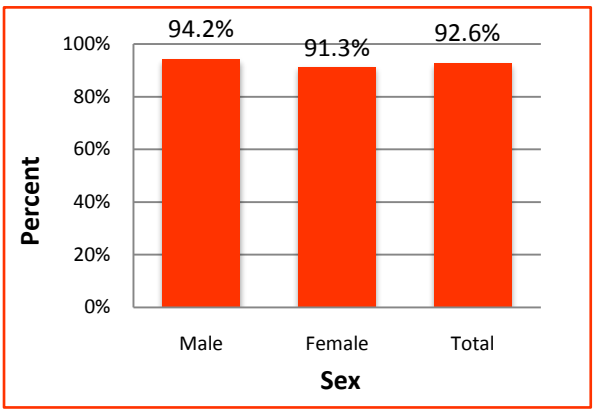
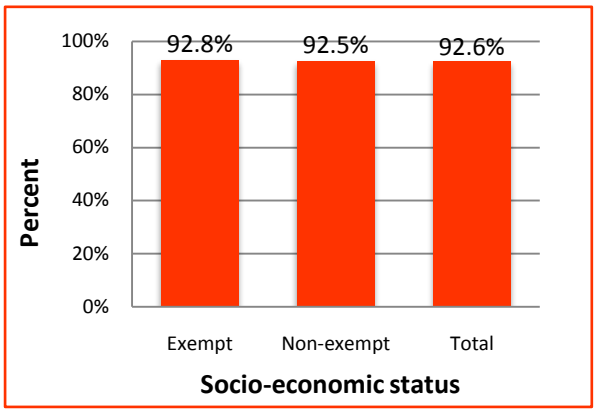


Figure 55 *by SES*



Percentage of adults with LDL levels less than or equal to 130 mg/dL (ages 55-74 years)

Individuals with LDL levels less than or equal to 130 mg/dL (numerator) among all individuals aged 55-74 years with a record of LDL (denominator)

Table 39 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 55-64	65-74	Total
2008	Numerator	409,025	296,486	705,511
	Denominator	449,106	315,107	764,213
	Rate	**91.1%**	**94.1%**	**92.3%**
2009	Numerator	434,554	298,275	732,829
	Denominator	476,328	316,085	792,413
	Rate	**91.2%**	**94.4%**	**92.5%**
2010	Numerator	452,170	305,386	757,556
	Denominator	494,973	323,262	818,235
	Rate	**91.4%**	**94.5%**	**92.6%**

Table 40 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 55-64	65-74	Total
Male	Numerator	207,779	138,473	346,252
	Denominator	223,129	144,402	367,531
	Rate	**93.1%**	**95.9%**	**94.2%**
Female	Numerator	244,391	166,913	411,304
	Denominator	271,844	178,860	450,704
	Rate	**89.9%**	**93.3%**	**91.3%**
Total	Numerator	452,170	305,386	757,556
	Denominator	494,973	323,262	818,235
	Rate	**91.4%**	**94.5%**	**92.6%**

Table 41 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 55-64	65-74	Total
Exempt	Numerator	100,332	113,501	213,833
	Denominator	109,255	121,286	230,541
	Rate	**91.8%**	**93.6%**	**92.8%**
Non-exempt	Numerator	351,838	191,885	543,723
	Denominator	385,718	201,976	587,694
	Rate	**91.2%**	**95.0%**	**92.5%**
Total	Numerator	452,170	305,386	757,556
	Denominator	494,973	323,262	818,235
	Rate	**91.4%**	**94.5%**	**92.6%**

Body mass index (BMI) documentation for adults

Description: The percentage of individuals aged 20–74 years with a documented body mass index (BMI; height and weight).

Rationale: Obesity is considered an epidemic in the Western world that is expected to increase rates of morbidity and mortality, as well as pose an enormous financial burden. Body mass index is a measure of obesity that is based on a ratio of body weight and height (weight in kilograms divided by height in meters squared). Identifying individuals with a high BMI increases the effectiveness of interventions for one of the most important risk factors for chronic diseases today. Obesity treatment in earlier stages can prevent further health complications.

Denominator: Individuals aged 20–64 years and 65–74 years.

Numerator: The number of individuals in the denominator with a documented BMI (height and weight). For ages 20–64 years, documentation of weight and height during the measurement year or the four years prior to the measurement year; for ages 65–74 years, documentation of weight during the measurement year, and height during the measurement year or the four years prior to the measurement year.

Comments: None.

Results (Tables 42-47 and Figures 56-63)

A substantial increase was observed in the documentation of body weight and height (BMI) during the measurement period, 2008–2010. For individuals aged 20–64 years, the rate of BMI documentation rose from 56.5% in 2008 to 77.6% in 2010, and for individuals aged 65–74 years, from 71.1% to 76.0% for this same period.

Documentation rates were higher among women (72.0%) than men (66.2%), predominantly among younger age groups and decreasing with age. No disparities were noted for individuals aged 65–74 years by sex.

Among individuals aged 20–64 years, documentation rates among the exempt population were higher than for the non-exempt population (86.4% compared to 76.8%). No disparities were noted for individuals aged 65–74 years by socio-economic status.

Percentage of adults with a documented BMI (ages 20-64 years)

Percentage of individuals with a documented BMI (numerator) among all individuals aged 20-64 years (denominator)

Figure 56 *by year*

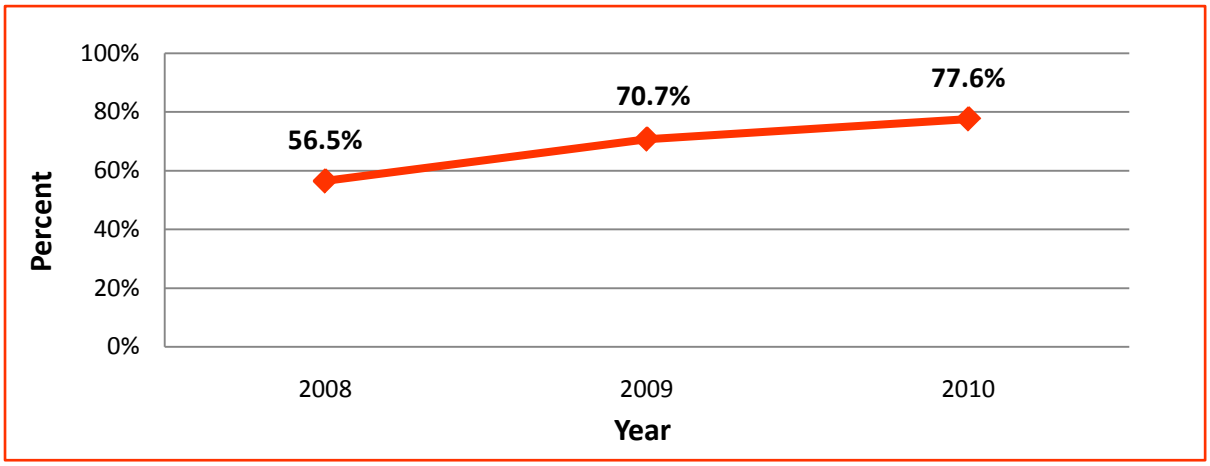


Figure 57 *by age group*

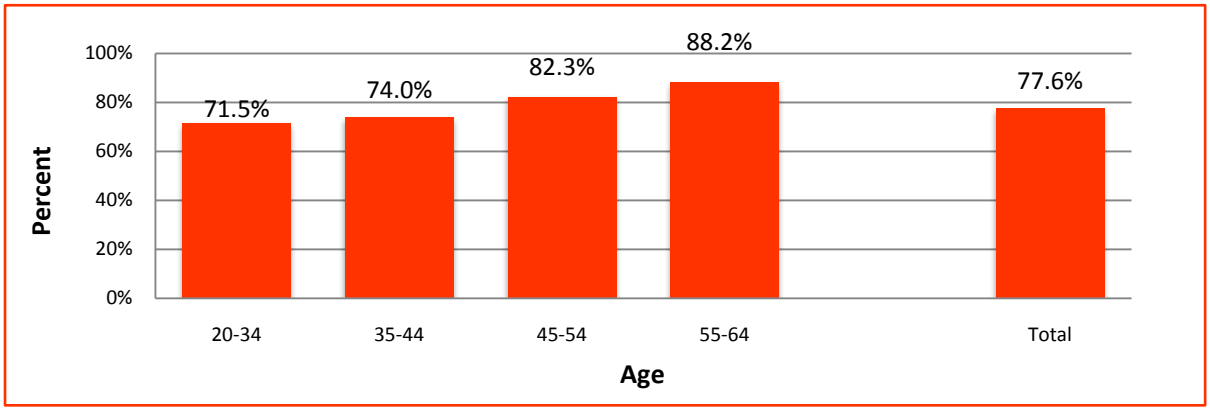


Figure 58 *by sex*

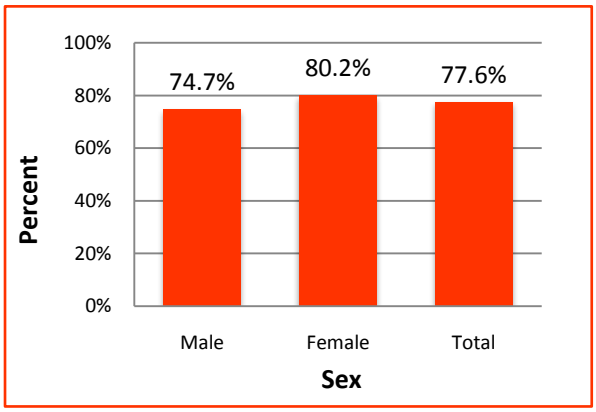
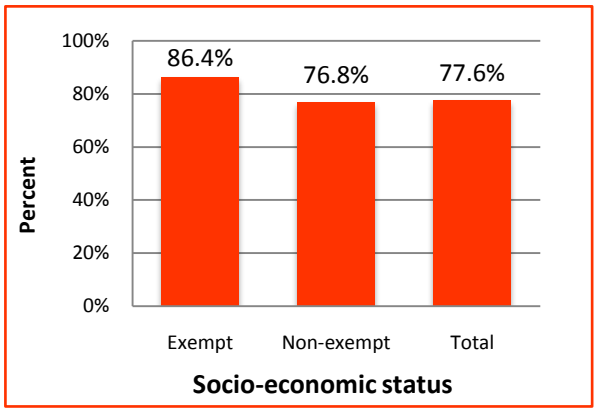


Figure 59 *by SES*



Percentage of adults with a documented BMI (ages 20-64 years)

Individuals with a documented BMI (numerator) among all individuals aged 20-64 years (denominator)

Table 42 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 20-34	35-44	45-54	55-64	Total
2008	Numerator	498,138	406,329	487,300	471,490	1,863,257
	Denominator	1,172,206	800,013	724,893	597,786	3,294,898
	Rate	**42.5%**	**50.8%**	**67.2%**	**78.9%**	**56.5%**
2009	Numerator	728,496	544,213	563,606	536,912	2,373,227
	Denominator	1,180,681	819,122	725,622	629,054	3,354,479
	Rate	**61.7%**	**66.4%**	**77.7%**	**85.4%**	**70.7%**
2010	Numerator	856,658	622,234	601,704	577,545	2,658,141
	Denominator	1,198,217	840,545	731,234	654,968	3,424,964
	Rate	**71.5%**	**74.0%**	**82.3%**	**88.2%**	**77.6%**

Table 43 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 20-34	35-44	45-54	55-64	Total
Male	Numerator	372,618	291,510	282,954	272,237	1,219,319
	Denominator	560,182	407,024	352,236	312,237	1,631,679
	Rate	**66.5%**	**71.6%**	**80.3%**	**87.2%**	**74.7%**
Female	Numerator	484,040	330,724	318,750	305,308	1,438,822
	Denominator	638,035	433,521	378,998	342,731	1,793,285
	Rate	**75.9%**	**76.3%**	**84.1%**	**89.1%**	**80.2%**
Total	Numerator	856,658	622,234	601,704	577,545	2,658,141
	Denominator	1,198,217	840,545	731,234	654,968	3,424,964
	Rate	**71.5%**	**74.0%**	**82.3%**	**88.2%**	**77.6%**

Table 44 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 20-34	35-44	45-54	55-64	Total
Exempt	Numerator	34,018	39,822	66,593	122,009	262,442
	Denominator	44,494	48,900	76,210	134,232	303,836
	Rate	**76.5%**	**81.4%**	**87.4%**	**90.9%**	**86.4%**
Non-exempt	Numerator	822,640	582,412	535,111	455,536	2,395,699
	Denominator	1,153,723	791,645	655,024	520,736	3,121,128
	Rate	**71.3%**	**73.6%**	**81.7%**	**87.5%**	**76.8%**
Total	Numerator	856,658	622,234	601,704	577,545	2,658,141
	Denominator	1,198,217	840,545	731,234	654,968	3,424,964
	Rate	**71.5%**	**74.0%**	**82.3%**	**88.2%**	**77.6%**

Percentage of adults with a documented BMI (ages 65-74 years)

Percentage of individuals with a documented BMI (numerator) among all individuals aged 65-74 years (denominator)

Figure 60 *by year*

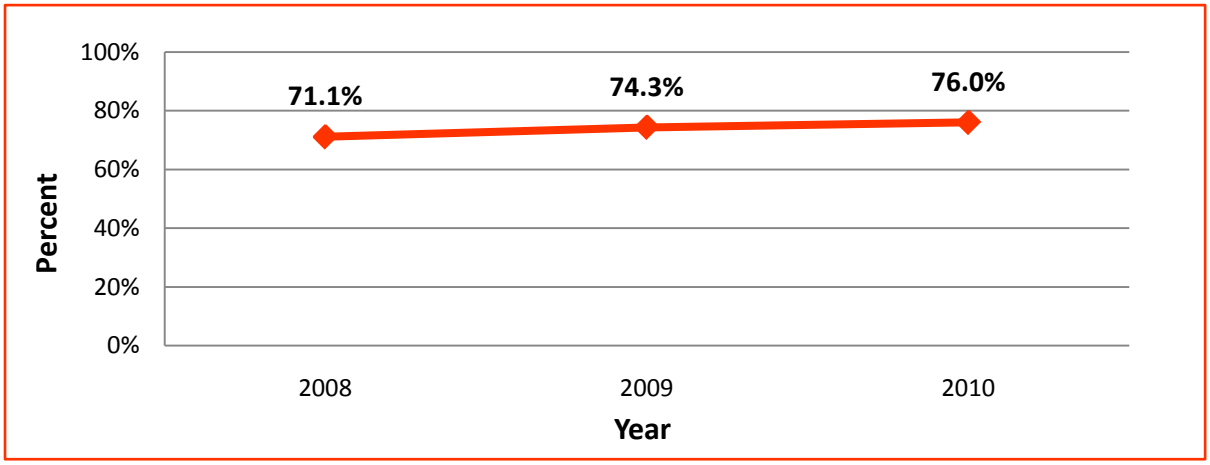


Figure 61 *by age group*

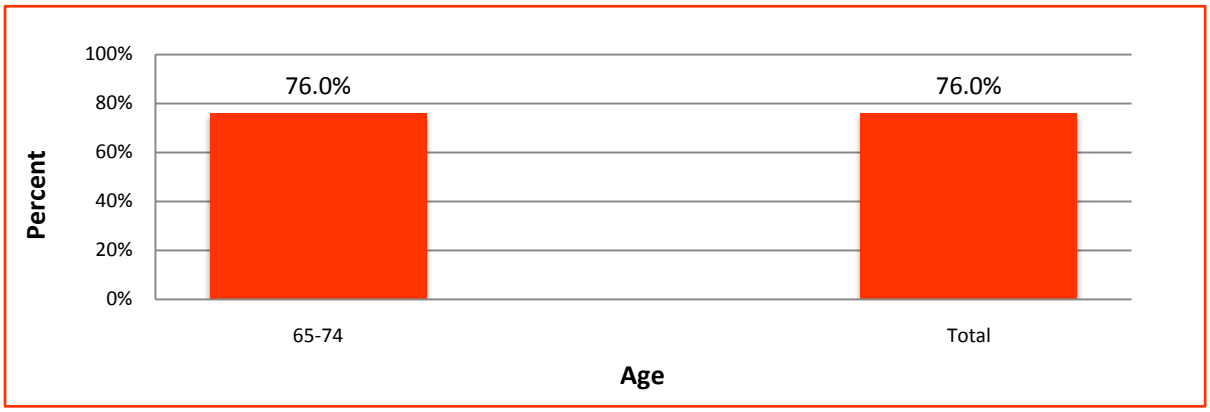


Figure 62 *by sex*

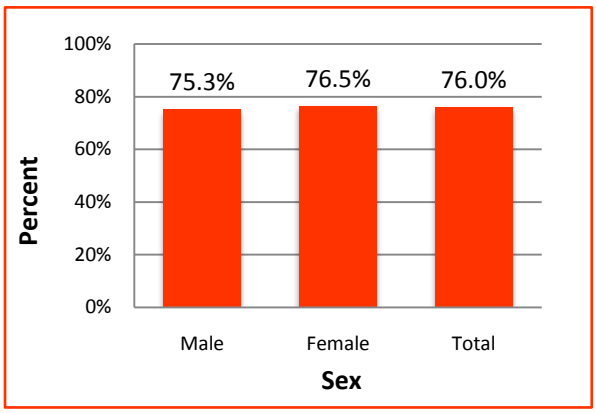
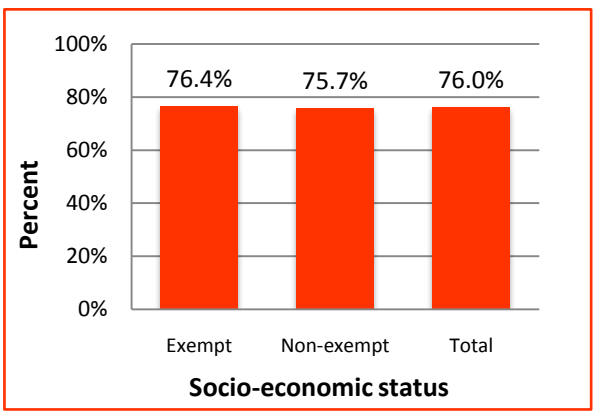


Figure 63 *by SES*



Percentage of adults with a documented BMI (ages 65-74 years)

Individuals with a documented BMI (numerator) among all individuals aged 65-74 years (denominator)

Table 45 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 65-74	Total
2008	Numerator	258,936	258,936
	Denominator	364,155	364,155
	Rate	**71.1%**	**71.1%**
2009	Numerator	272,467	272,467
	Denominator	366,578	366,578
	Rate	**74.3%**	**74.3%**
2010	Numerator	284,216	284,216
	Denominator	374,176	374,176
	Rate	**76.0%**	**76.0%**

Table 46 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 65-74	Total
Male	Numerator	128,579	128,579
	Denominator	170,707	170,707
	Rate	**75.3%**	**75.3%**
Female	Numerator	155,637	155,637
	Denominator	203,469	203,469
	Rate	**76.5%**	**76.5%**
Total	Numerator	284,216	284,216
	Denominator	374,176	374,176
	Rate	**76.0%**	**76.0%**

Table 47 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 65-74	Total
Exempt	Numerator	105,931	105,931
	Denominator	138,639	138,639
	Rate	**76.4%**	**76.4%**
Non-exempt	Numerator	178,285	178,285
	Denominator	235,537	235,537
	Rate	**75.7%**	**75.7%**
Total	Numerator	284,216	284,216
	Denominator	374,176	374,176
	Rate	**76.0%**	**76.0%**

Blood pressure measurement documentation

Description: The percentage of individuals aged 20–74 years with blood pressure measurement documentation.

Rationale: High blood pressure is a risk factor for cardiovascular disease. Stroke, congestive heart failure, acute myocardial infarction, and kidney failure are all complications associated with high blood pressure. The US Preventive Services Task Force recommends measuring blood pressure at each doctor's visit for individuals over the age of 20 years (level A recommendation – high certainty that the net benefit is substantial). High blood pressure is often considered a "silent killer" since symptoms are rare. In fact, awareness of high blood pressure is low, despite accessible and simple testing available in every healthcare facility. Blood pressure measurement documentation enables the identification of the disease, treatment with lifestyle changes, dietary balance, and medication, and, ultimately, the prevention of further health issues.

Denominator: Individuals aged 20–54 years and 55–74 years.

Numerator: The number of individuals in the denominator with documentation of blood pressure. For ages 20–54 years, documentation at least once during the measurement year or the four years prior to the measurement year; for ages 55–74 years, documentation during the measurement year.

Comments: None.

Results (Tables 48-53 and Figures 64-71)

Ages 20–54 years

Blood pressure documentation rates increased from 77.4% in 2008 to 88.1% in 2010. Documentation rates increased with age from 84.6% for ages 20–34 years to 93.4% for ages 45–54 years. Generally speaking, women have higher documentation rates for blood pressure than men (91.6% compared with 84.3%, respectively), with larger disparities in the younger age group 20–34 years. Blood pressure documentation rates were higher in the exempt (91.4%) than non-exempt (87.9%) population.

Ages 55–74 years

In 2010, the blood pressure documentation rate was 81.7% for adults aged 55–74 years. Documentation rates increased with age from 78.5% for ages 55–64 years to 87.3% for ages 65–74 years. Women (83.2%) had higher blood pressure documentation rates than men (80.0%). Blood pressure documentation rates were higher in the exempt (86.6%) than non-exempt (79.9%) population.

Percentage of adults with documentation of blood pressure measurement (ages 20-54 years)

Percentage of individuals with documentation of blood pressure measurement (numerator) among all individuals aged 20-54 years (denominator)

Figure 64 *by year*

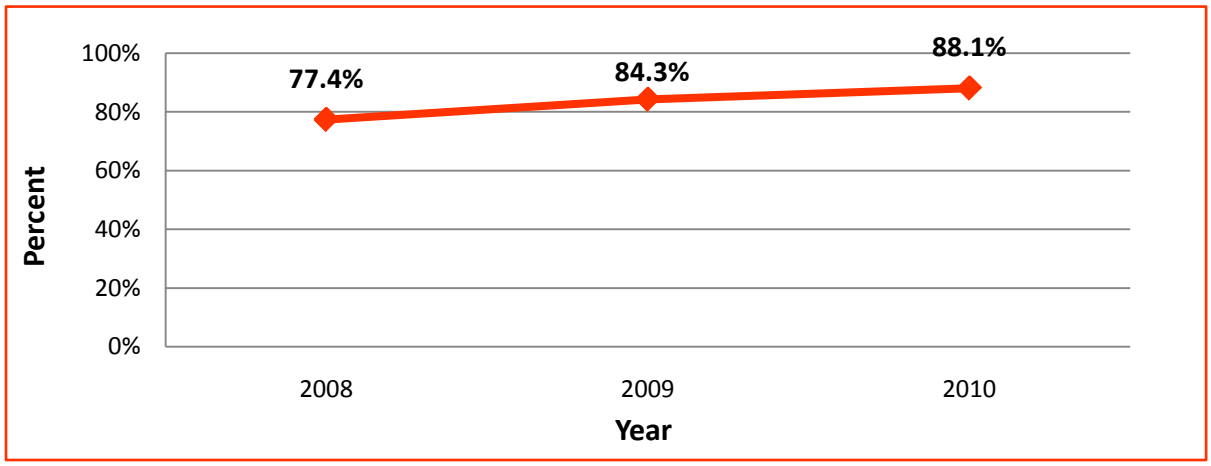


Figure 65 *by age group*

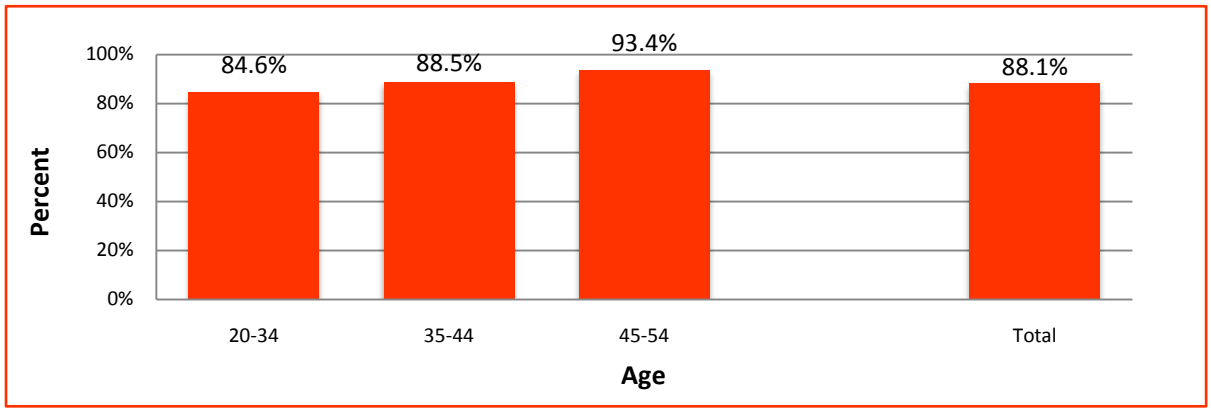


Figure 66 *by sex*

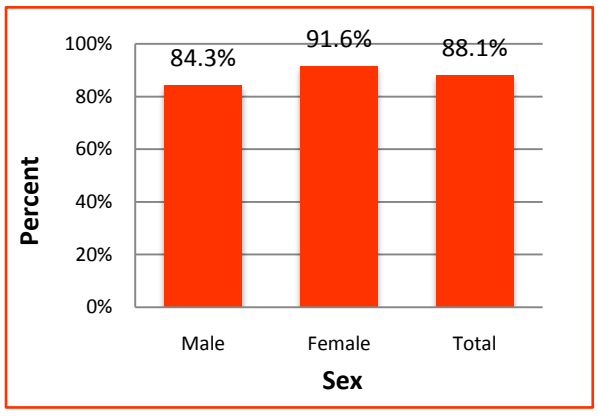
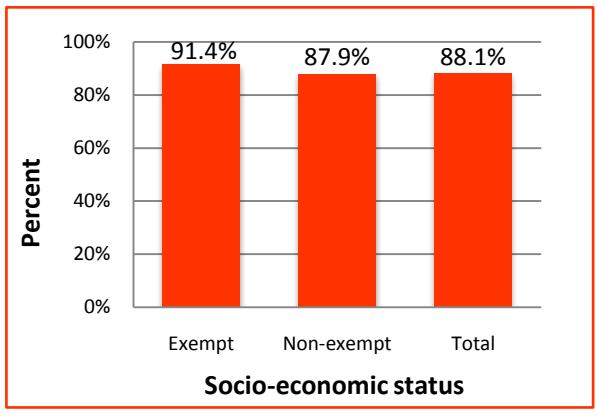


Figure 67 *by SES*



Percentage of adults with documentation of blood pressure measurement (ages 20-54 years)

Individuals with documentation of blood pressure measurement (numerator) among all individuals aged 20-54 years (denominator)

Table 48 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)			
Year		**20-34**	**35-44**	**45-54**	**Total**
2008	Numerator	814,323	633,246	640,098	2,087,667
	Denominator	1,172,206	800,013	724,893	2,697,112
	Rate	**69.5%**	**79.2%**	**88.3%**	**77.4%**
2009	Numerator	935,838	697,260	665,399	2,298,497
	Denominator	1,180,681	819,122	725,622	2,725,425
	Rate	**79.3%**	**85.1%**	**91.7%**	**84.3%**
2010	Numerator	1,013,423	744,283	683,147	2,440,853
	Denominator	1,198,217	840,545	731,234	2,769,996
	Rate	**84.6%**	**88.5%**	**93.4%**	**88.1%**

Table 49 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)			
Sex		**20-34**	**35-44**	**45-54**	**Total**
Male	Numerator	439,858	347,995	324,201	1,112,054
	Denominator	560,182	407,024	352,236	1,319,442
	Rate	**78.5%**	**85.5%**	**92.0%**	**84.3%**
Female	Numerator	573,565	396,288	358,946	1,328,799
	Denominator	638,035	433,521	378,998	1,450,554
	Rate	**89.9%**	**91.4%**	**94.7%**	**91.6%**
Total	Numerator	1,013,423	744,283	683,147	2,440,853
	Denominator	1,198,217	840,545	731,234	2,769,996
	Rate	**84.6%**	**88.5%**	**93.4%**	**88.1%**

Table 50 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)			
Socio-economic status		**20-34**	**35-44**	**45-54**	**Total**
Exempt	Numerator	37,907	44,608	72,432	154,947
	Denominator	44,494	48,900	76,210	169,604
	Rate	**85.2%**	**91.2%**	**95.0%**	**91.4%**
Non-exempt	Numerator	975,516	699,675	610,715	2,285,906
	Denominator	1,153,723	791,645	655,024	2,600,392
	Rate	**84.6%**	**88.4%**	**93.2%**	**87.9%**
Total	Numerator	1,013,423	744,283	683,147	2,440,853
	Denominator	1,198,217	840,545	731,234	2,769,996
	Rate	**84.6%**	**88.5%**	**93.4%**	**88.1%**

Percentage of adults with documentation of blood pressure measurement (ages 55-74 years)

Percentage of individuals with documentation of blood pressure measurement (numerator) among all individuals aged 55-74 years (denominator)

Figure 68 *by year*

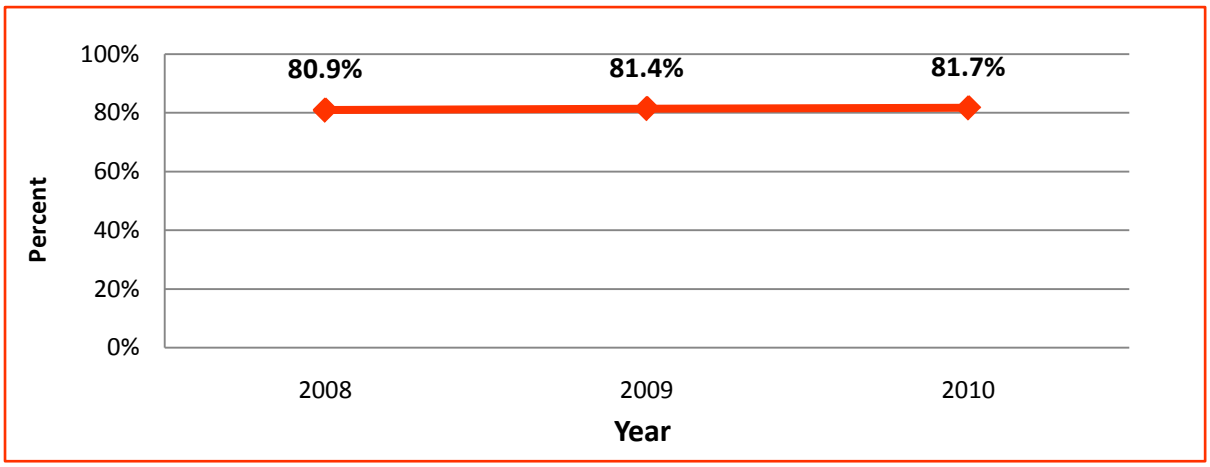


Figure 69 *by age group*

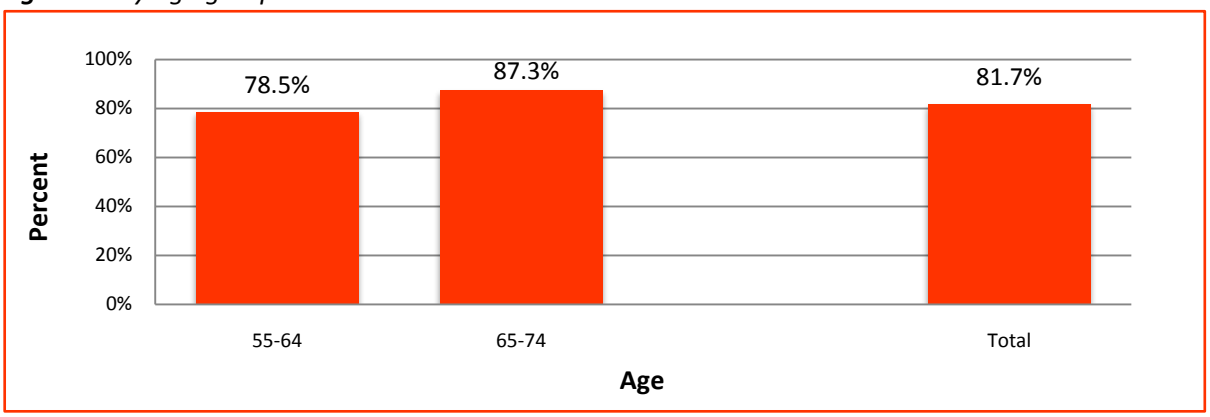


Figure 70 *by sex*

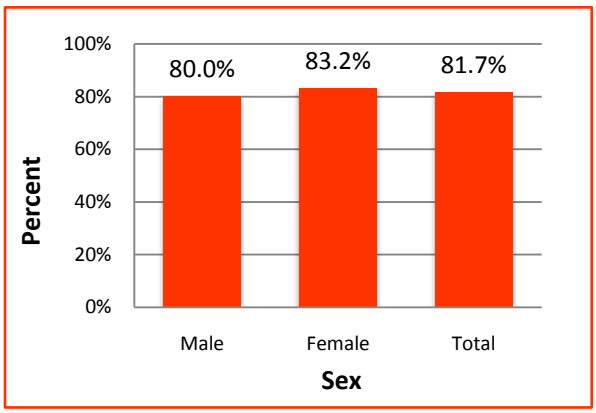
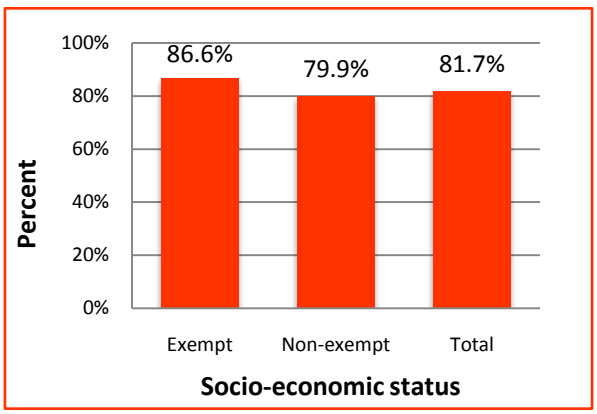


Figure 71 *by SES*



Percentage of adults with documentation of blood pressure measurement (ages 55-74 years)

Individuals with documentation of blood pressure measurement (numerator) among all individuals aged 55-74 years (denominator)

Table 51 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 55-64	65-74	Total
2008	Numerator	477,765	327,820	805,585
	Denominator	619,085	376,776	995,861
	Rate	**77.2%**	**87.0%**	**80.9%**
2009	Numerator	508,881	330,242	839,123
	Denominator	651,611	379,303	1,030,914
	Rate	**78.1%**	**87.1%**	**81.4%**
2010	Numerator	532,245	337,850	870,095
	Denominator	678,329	386,878	1,065,207
	Rate	**78.5%**	**87.3%**	**81.7%**

Table 52 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 55-64	65-74	Total
Male	Numerator	247,228	152,345	399,573
	Denominator	323,202	176,569	499,771
	Rate	**76.5%**	**86.3%**	**80.0%**
Female	Numerator	285,017	185,505	470,522
	Denominator	355,127	210,309	565,436
	Rate	**80.3%**	**88.2%**	**83.2%**
Total	Numerator	532,245	337,850	870,095
	Denominator	678,329	386,878	1,065,207
	Rate	**78.5%**	**87.3%**	**81.7%**

Table 53 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 55-64	65-74	Total
Exempt	Numerator	117,956	128,219	246,175
	Denominator	139,681	144,608	284,289
	Rate	**84.4%**	**88.7%**	**86.6%**
Non-exempt	Numerator	414,289	209,631	623,920
	Denominator	538,648	242,270	780,918
	Rate	**76.9%**	**86.5%**	**79.9%**
Total	Numerator	532,245	337,850	870,095
	Denominator	678,329	386,878	1,065,207
	Rate	**78.5%**	**87.3%**	**81.7%**

Statin use after coronary artery bypass surgery and/or interventional cardiac catheterization

Description: The percentage of individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization in the past five years and received treatment with low-density lipoprotein (LDL)-lowering medications (statins) during the measurement year.

Rationale: Coronary artery bypass surgery and interventional cardiac catheterization are invasive procedures performed on patients with progressive illness in the coronary arteries. These patients are at high risk of repeated coronary events. Management should include drug therapy as a secondary prevention measure. Statins are the most common medications used to lower LDL cholesterol. According to accepted medical guidelines, all heart patients who have undergone invasive procedures should be treated with statins or similar LDL cholesterol lowering medications.

Denominator: Individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization during the measurement year or the four years prior to the measurement year.

Numerator: The number of individuals in the denominator who purchased at least three prescriptions for LDL-lowering prescription medications over the course of at least three separate months during the measurement year.

Comments: None.

Results (Tables 54-56 and Figures 72-75)

In 2010, 84.1% of patients who underwent coronary artery bypass surgery and/or interventional cardiac catheterization purchased LDL-lowering medication. Similar rates were observed during the observation period. Purchase rates for LDL-lowering medication increased with age, from 63.0% for patients aged 35–44 years to 88.7% for patients aged 65–74 years.

Purchase rates for LDL-lowering medication were higher for men (84.9%) than for women (81.0%). This disparity was most prominent in younger age groups, where the purchase rate of LDL-lowering medication was twice as high for men than for women (69.9% compared to 32.4%, respectively).

Socio-economic status disparities were not apparent for the purchase rates of LDL-lowering medication among this group of cardiac patients.

Percentage of patients after coronary artery bypass surgery and/or interventional cardiac catheterization treated with LDL-lowering medication (ages 35-74 years)

Percentage of individuals who purchased at least three prescriptions of LDL-lowering medications (numerator), among individuals aged 35-74 years after coronary artery bypass surgery and/or interventional cardiac catheterization (denominator)

Figure 72 *by year*

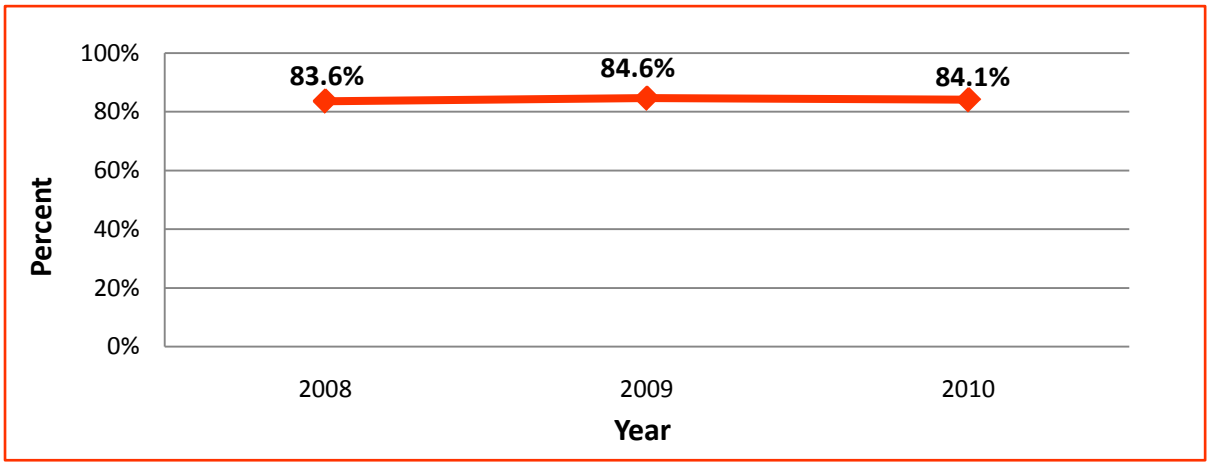


Figure 73 *by age group*

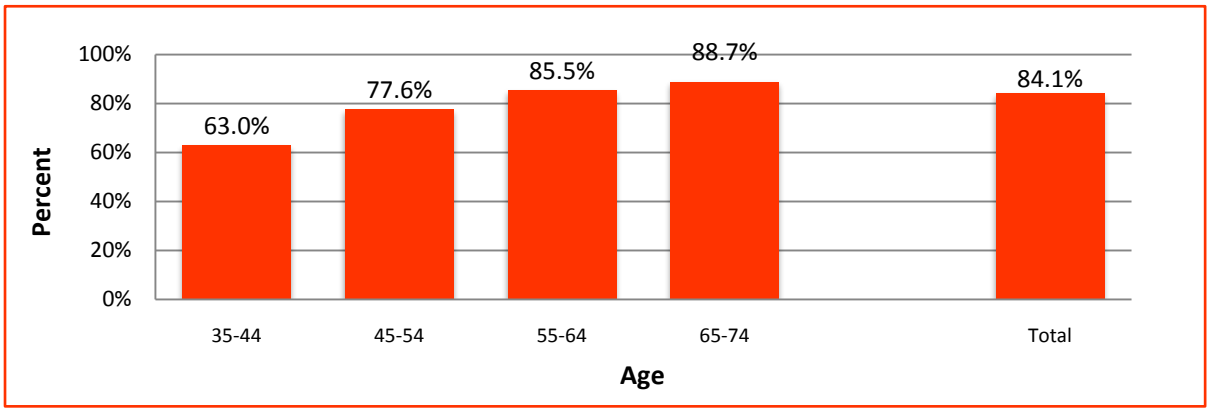


Figure 74 *by sex*

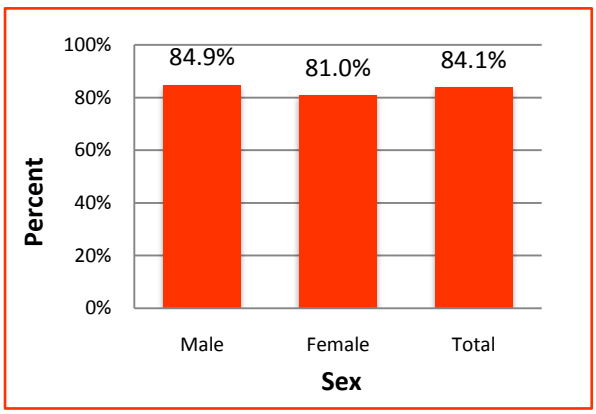
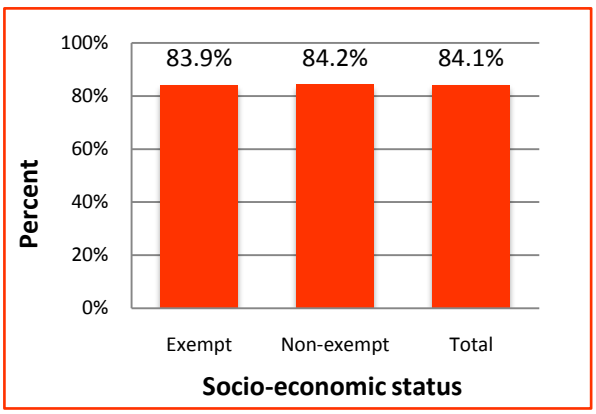


Figure 75 *by SES*



Percentage of patients after coronary artery bypass surgery and/or interventional cardiac catheterization treated with LDL-lowering medication (ages 35-74 years)

Individuals who purchased at least three prescriptions of LDL-lowering medications (numerator), among individuals aged 35-74 years after coronary artery bypass surgery and/or interventional cardiac catheterization (denominator)

Table 54 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)				
Year		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
2008	Numerator	2,023	10,792	21,989	21,912	56,716
	Denominator	3,213	13,982	25,822	24,853	67,870
	Rate	**63.0%**	**77.2%**	**85.2%**	**88.2%**	**83.6%**
2009	Numerator	2,026	10,625	22,991	21,771	57,413
	Denominator	3,178	13,562	26,665	24,430	67,835
	Rate	**63.8%**	**78.3%**	**86.2%**	**89.1%**	**84.6%**
2010	Numerator	1,935	10,116	22,863	21,209	56,123
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**63.0%**	**77.6%**	**85.5%**	**88.7%**	**84.1%**

Table 55 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)				
Sex		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Male	Numerator	1,753	8,893	19,055	15,715	45,416
	Denominator	2,507	11,183	22,178	17,653	53,521
	Rate	**69.9%**	**79.5%**	**85.9%**	**89.0%**	**84.9%**
Female	Numerator	182	1,223	3,808	5,494	10,707
	Denominator	562	1,850	4,558	6,245	13,215
	Rate	**32.4%**	**66.1%**	**83.5%**	**88.0%**	**81.0%**
Total	Numerator	1,935	10,116	22,863	21,209	56,123
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**63.0%**	**77.6%**	**85.5%**	**88.7%**	**84.1%**

Table 56 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)				
Socio-economic status		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Exempt	Numerator	420	2,580	7,982	9,360	20,342
	Denominator	661	3,439	9,494	10,651	24,245
	Rate	**63.5%**	**75.0%**	**84.1%**	**87.9%**	**83.9%**
Non-exempt	Numerator	1,515	7,536	14,881	11,849	35,781
	Denominator	2,408	9,594	17,242	13,247	42,491
	Rate	**62.9%**	**78.5%**	**86.3%**	**89.4%**	**84.2%**
Total	Numerator	1,935	10,116	22,863	21,209	56,123
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**63.0%**	**77.6%**	**85.5%**	**88.7%**	**84.1%**

Angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB) use after coronary artery bypass surgery and/or interventional cardiac catheterization

Description: The percentage of individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization in the past five years and received treatment with angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB) during the measurement year.

Rationale: Coronary artery bypass surgery and interventional cardiac catheterization are invasive procedures performed on patients with progressive illness in the coronary arteries. These patients are at high risk of repeated coronary events. Management should include drug therapy as a secondary prevention measure. Two types of medication that inhibit the renin-angiotensin-aldosterone pathway, which is responsible for raising blood pressure, include angiotensin receptor blockers (ARB) and angiotensin-converting enzyme inhibitors (ACEI). With the exception of specific cases, treatment with ACEI/ARB should be administered to all heart patients, especially those who undergo bypass surgery.

Denominator: Individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization during the measurement year or the four years prior to the measurement year.

Numerator: The number of individuals in the denominator who purchased at least three prescriptions of ACEI/ARB in three separate months over the course of at least three separate months during the measurement year.

Comments: None.

Results (Tables 57-59 and Figures 76-79)

In 2010, 66.9% of patients who underwent coronary artery bypass surgery and/or interventional cardiac catheterization purchased ACEI or ARB medication. This rate represents an increase from 64.6% in 2008. Purchase rates increased gradually with age, from 43.5% for patients aged 35–44 years to 74.5% for patients aged 65–74 years.

Women had higher purchase rates of ACEI or ARB medication after a cardiac event than men (68.0% compared with 66.6%, respectively). Gender differences in rates varied by age group, however. Higher purchase rates of ACEI or ARB medication were observed for cardiac patients in the exempt (72.2%) compared to the non-exempt (63.9%) population.

Percentage of patients after coronary artery bypass surgery and/or interventional cardiac catheterization treated with ACEI or ARB (ages 35-74 years)

Percentage of individuals who purchased at least three prescriptions for ACEI / ARB (numerator), among individuals aged 35-74 years after coronary artery bypass surgery and/or interventional cardiac catheterization (denominator)

Figure 76 *by year*

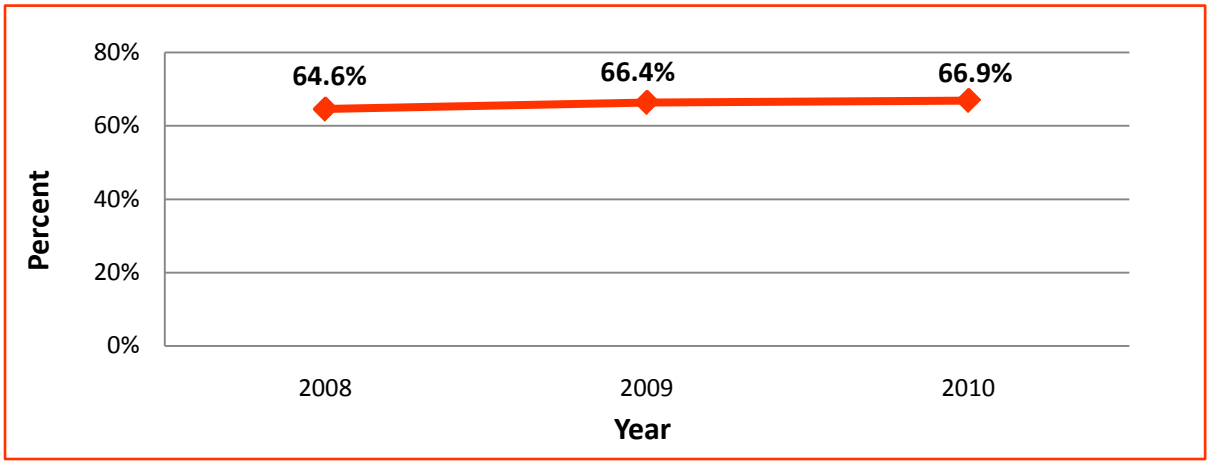


Figure 77 *by age group*

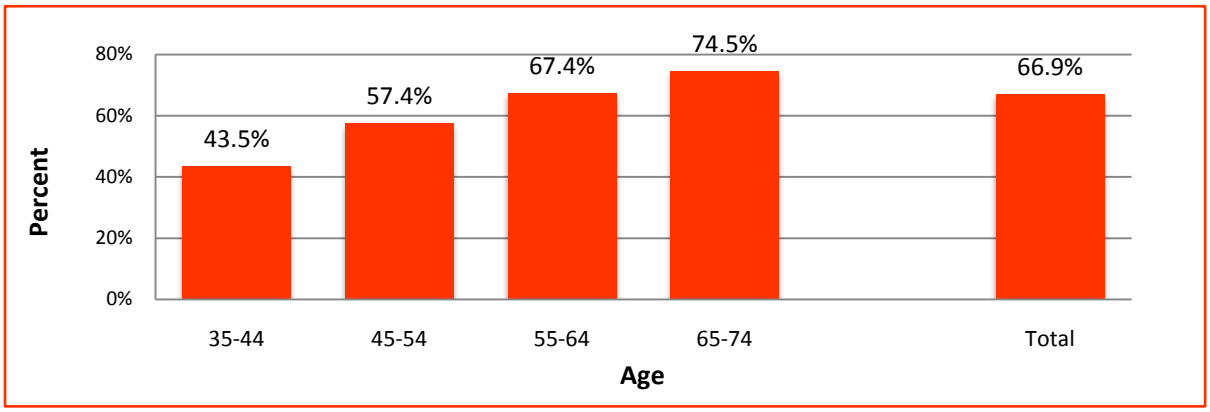


Figure 78 *by sex*

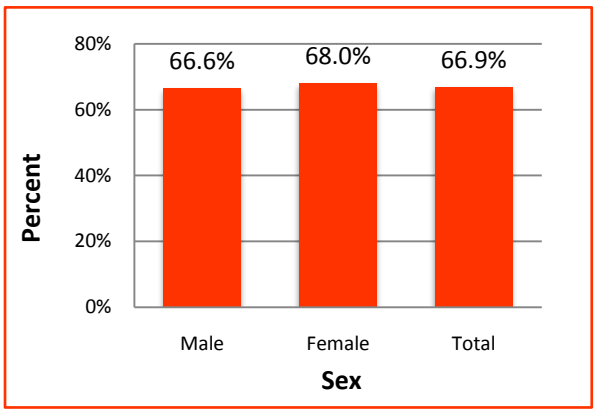
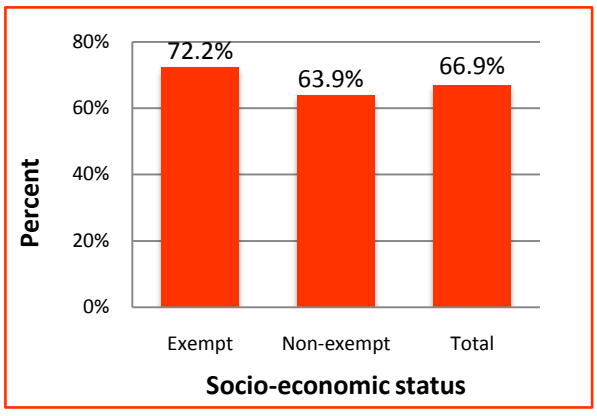


Figure 79 *by SES*



Percentage of patients after coronary artery bypass surgery and/or interventional cardiac catheterization treated with ACEI or ARB (ages 35-74 years)

Individuals who purchased at least three prescriptions for ACEI / ARB (numerator), among individuals aged 35-74 years after coronary artery bypass surgery and/or interventional cardiac catheterization (denominator)

Table 57 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)				
Year		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
2008	Numerator	1,364	7,725	16,878	17,848	43,815
	Denominator	3,213	13,982	25,822	24,853	67,870
	Rate	**42.5%**	**55.2%**	**65.4%**	**71.8%**	**64.6%**
2009	Numerator	1,364	7,773	17,852	18,025	45,014
	Denominator	3,178	13,562	26,665	24,430	67,835
	Rate	**42.9%**	**57.3%**	**66.9%**	**73.8%**	**66.4%**
2010	Numerator	1,336	7,475	18,031	17,802	44,644
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**43.5%**	**57.4%**	**67.4%**	**74.5%**	**66.9%**

Table 58 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)				
Sex		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Male	Numerator	1,191	6,521	14,964	12,988	35,664
	Denominator	2,507	11,183	22,178	17,653	53,521
	Rate	**47.5%**	**58.3%**	**67.5%**	**73.6%**	**66.6%**
Female	Numerator	145	954	3,067	4,814	8,980
	Denominator	562	1,850	4,558	6,245	13,215
	Rate	**25.8%**	**51.6%**	**67.3%**	**77.1%**	**68.0%**
Total	Numerator	1,336	7,475	18,031	17,802	44,644
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**43.5%**	**57.4%**	**67.4%**	**74.5%**	**66.9%**

Table 59 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)				
Socio-economic status		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Exempt	Numerator	334	2,152	6,840	8,183	17,509
	Denominator	661	3,439	9,494	10,651	24,245
	Rate	**50.5%**	**62.6%**	**72.0%**	**76.8%**	**72.2%**
Non-exempt	Numerator	1,002	5,323	11,191	9,619	27,135
	Denominator	2,408	9,594	17,242	13,247	42,491
	Rate	**41.6%**	**55.5%**	**64.9%**	**72.6%**	**63.9%**
Total	Numerator	1,336	7,475	18,031	17,802	44,644
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**43.5%**	**57.4%**	**67.4%**	**74.5%**	**66.9%**

Beta blocker use after coronary artery bypass surgery and/or interventional cardiac catheterization

Description: The percentage of individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization in the past five years and received treatment with beta blocker medications during the measurement year.

Rationale: Coronary artery bypass surgery and interventional cardiac catheterization are invasive procedures performed on patients with progressive illness in the coronary arteries. These patients are at high risk of repeated coronary events. Management should include drug therapy as a secondary prevention measure. The adrenergic (sympathetic) system is involved in the control of heart rate and blood pressure. Beta blockers inhibit the activity of the adrenergic system and lower the risk of additional damage to coronary arteries in patients with heart disease.

Denominator: Individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization during the measurement year or the four years prior to the measurement year.

Numerator: The number of patients in the denominator who purchased at least three prescriptions for beta blockers in three separate months over the course of at least three separate months during the measurement year.

Comments: None.

Results (Tables 60-62 and Figures 80-83)

In 2010, 69.7% of individuals who underwent coronary artery bypass surgery and/or interventional cardiac catheterization purchased beta blocker medications. This rate is similar to that of the previous year and higher than the rate observed in 2008 (67.7%). Purchase rates increased with age, from 55.1% for patients aged 35–44 years to 73.6% for patients aged 65–74 years.

Women had higher purchase rates of beta blocker medication after a cardiac event than men (71.6% compared with 69.3%, respectively). Gender differences varied by age group, however.

Higher purchase rates of beta blocker medication were observed for cardiac patients in the exempt (74.0%) than the non-exempt (67.3%) population.

Percentage of patients after coronary artery bypass surgery or after interventional cardiac catheterization treated with beta blockers (ages 35-74 years)

Percentage of individuals who purchased at least three prescriptions for beta blockers (numerator), among individuals aged 35-74 years after coronary artery bypass surgery or after interventional cardiac catheterization (denominator)

Figure 80 *by year*

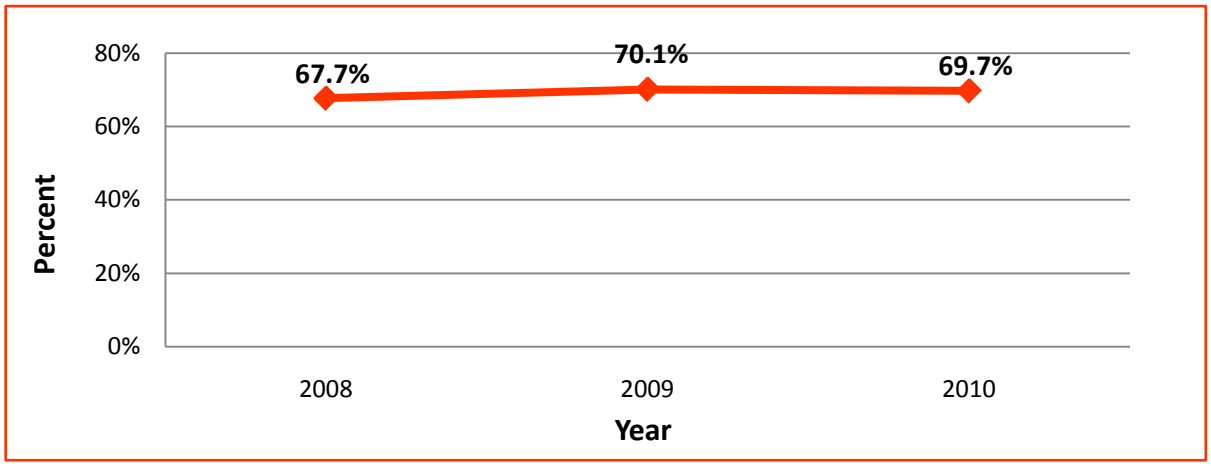


Figure 81 *by age group*

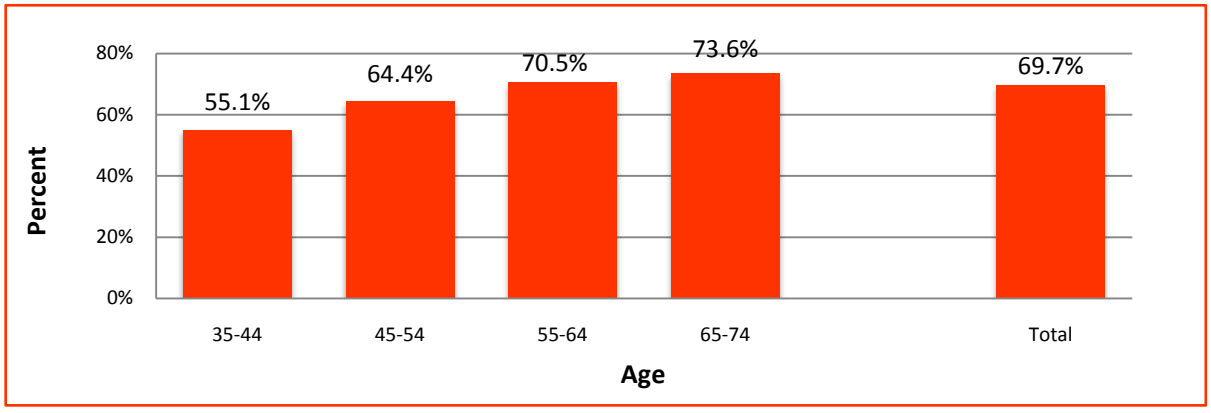


Figure 82 *by sex*

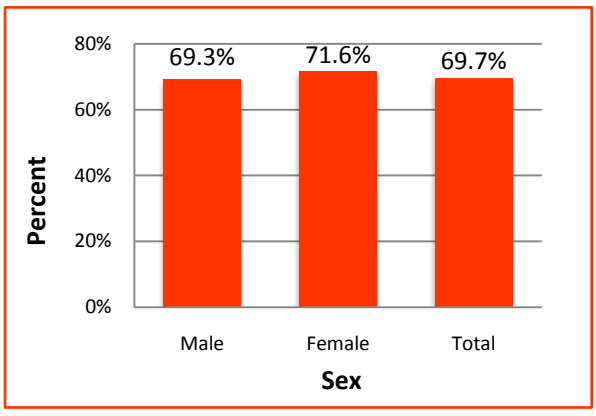
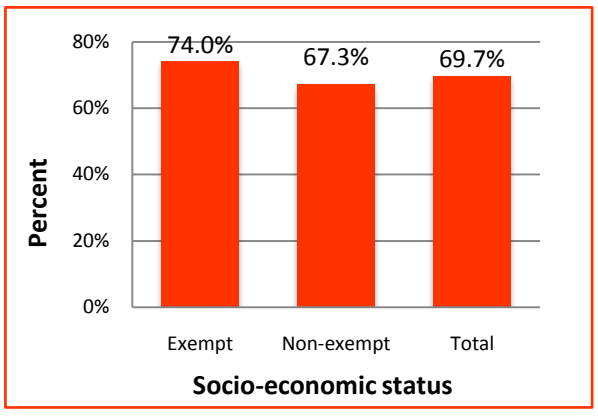


Figure 83 *by SES*



Percentage of patients after coronary artery bypass surgery and/or interventional cardiac catheterization treated with beta blockers (ages 35-74 years)

Individuals who purchased at least three prescriptions for beta blockers (numerator), among individuals aged 35-74 years after coronary artery bypass surgery and/or interventional cardiac catheterization (denominator)

Table 60 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)				
Year		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
2008	Numerator	1,754	8,798	17,658	17,712	45,922
	Denominator	3,213	13,982	25,822	24,853	67,870
	Rate	**54.6%**	**62.9%**	**68.4%**	**71.3%**	**67.7%**
2009	Numerator	1,759	8,850	18,880	18,094	47,583
	Denominator	3,178	13,562	26,665	24,430	67,835
	Rate	**55.3%**	**65.3%**	**70.8%**	**74.1%**	**70.1%**
2010	Numerator	1,690	8,397	18,857	17,592	46,536
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**55.1%**	**64.4%**	**70.5%**	**73.6%**	**69.7%**

Table 61 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)				
Sex		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Male	Numerator	1,464	7,275	15,539	12,792	37,070
	Denominator	2,507	11,183	22,178	17,653	53,521
	Rate	**58.4%**	**65.1%**	**70.1%**	**72.5%**	**69.3%**
Female	Numerator	226	1,122	3,318	4,800	9,466
	Denominator	562	1,850	4,558	6,245	13,215
	Rate	**40.2%**	**60.6%**	**72.8%**	**76.9%**	**71.6%**
Total	Numerator	1,690	8,397	18,857	17,592	46,536
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**55.1%**	**64.4%**	**70.5%**	**73.6%**	**69.7%**

Table 62 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)				
Socio-economic status		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Exempt	Numerator	431	2,408	7,049	8,053	17,941
	Denominator	661	3,439	9,494	10,651	24,245
	Rate	**65.2%**	**70.0%**	**74.2%**	**75.6%**	**74.0%**
Non-exempt	Numerator	1,259	5,989	11,808	9,539	28,595
	Denominator	2,408	9,594	17,242	13,247	42,491
	Rate	**52.3%**	**62.4%**	**68.5%**	**72.0%**	**67.3%**
Total	Numerator	1,690	8,397	18,857	17,592	46,536
	Denominator	3,069	13,033	26,736	23,898	66,736
	Rate	**55.1%**	**64.4%**	**70.5%**	**73.6%**	**69.7%**

Cholesterol levels assessment after coronary artery bypass surgery and/or interventional cardiac catheterization

Description: The percentage of individuals aged 35–74 years who underwent coronary artery bypass surgery and/or interventional cardiac catheterization in the past five years with low-density lipoprotein (LDL) cholesterol levels less than or equal to 100 mg/dL during the measurement year.

Rationale: Coronary artery bypass surgery and interventional cardiac catheterization are invasive procedures performed on patients with progressive illness in the coronary arteries. These patients are at high risk of repeated coronary events. Management should include drug therapy as a secondary prevention measure. Statins are used to lower LDL cholesterol thereby decreasing one of the important risk factors for progression of atherosclerosis. According to international standards, patients with heart disease have a treatment target of LDL cholesterol lower than 100 mg/dL.

Denominator: Individuals aged 35–74 years who underwent coronary artery bypass surgery in the past five years and/or interventional cardiac catheterization during the measurement year or the four years prior to the measurement year and had documented levels of LDL cholesterol in the measurement year.

Numerator: The number of patients in the denominator whose last documented LDL cholesterol level is less than or equal to 100 mg/dL.

Comments: None.

Results (Tables 63-65 and Figures 84-87)

In 2010, 71.8% of patients who underwent coronary artery bypass surgery and/or interventional cardiac catheterization had LDL levels less than or equal to 100 mg/dL. This represents an increase of 1% from 2008. The number of patients with controlled LDL increased with age, from 55.6% for patients aged 35–44 years to 76.9% for patients aged 65–74 years.

Men had higher rates of LDL control than women (73.3% compared with 66.1%, respectively).

Rates of adequate LDL cholesterol control were higher for cardiac patients in the non-exempt (72.6%) than the exempt (70.4%) population.

Percentage of adults after coronary artery bypass surgery and/or interventional cardiac catheterization with LDL levels less than or equal to 100 mg/dL (ages 35-74 years)

Percentage of individuals with LDL levels less than or equal to 100 mg/dL (numerator) among individuals aged 35-74 years, after interventional cardiac catheterization and/or interventional cardiac catheterization who had a record of LDL cholesterol (denominator)

Figure 84 *by year*

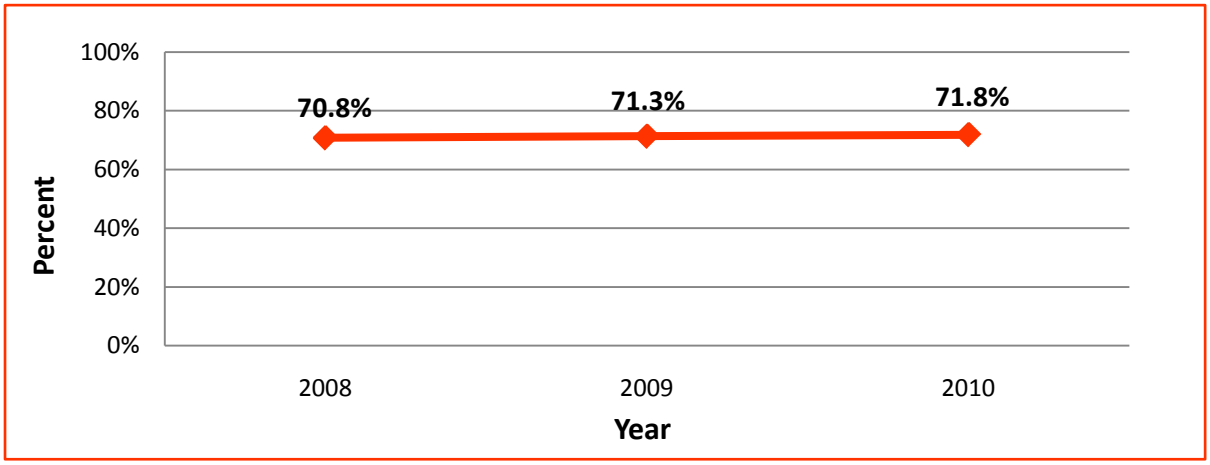


Figure 85 *by age group*

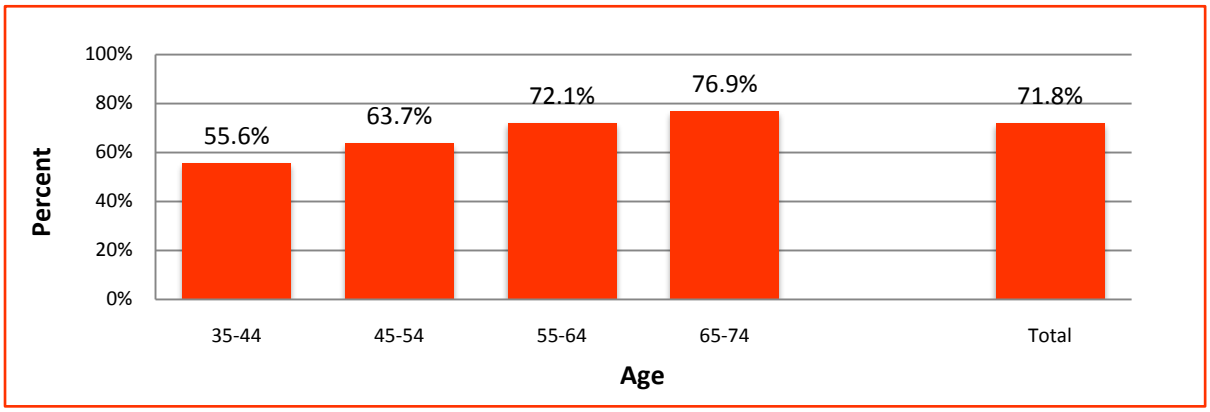


Figure 86 *by sex*

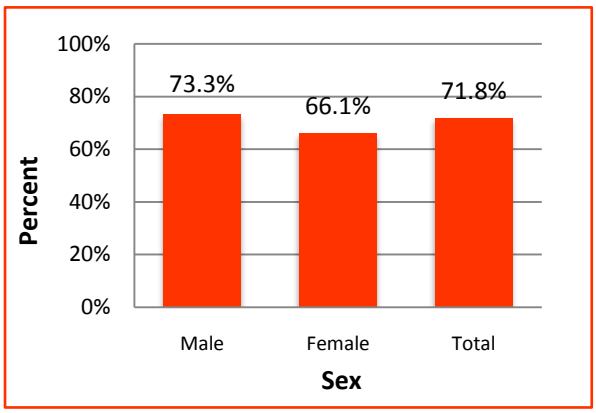
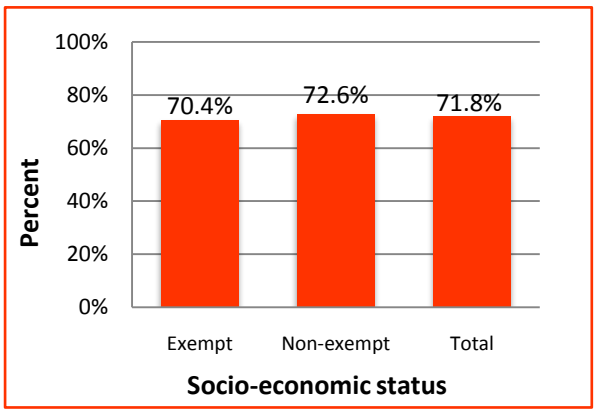


Figure 87 *by SES*



Percentage of adults after coronary artery bypass surgery and/or interventional cardiac catheterization with LDL levels less than or equal to 100 mg/dL (ages 35-74 years)

Individuals with LDL levels less than or equal to 100 mg/dL (numerator) among individuals aged 35-74 years, after interventional cardiac catheterization and/or interventional cardiac catheterization who had a record of LDL cholesterol (denominator)

Table 63 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)				
Year		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
2008	Numerator	1,329	7,058	15,922	17,365	41,674
	Denominator	2,326	11,185	22,425	22,950	58,886
	Rate	**57.1%**	**63.1%**	**71.0%**	**75.7%**	**70.8%**
2009	Numerator	1,291	6,937	16,713	17,168	42,109
	Denominator	2,327	10,909	23,317	22,480	59,033
	Rate	**55.5%**	**63.6%**	**71.7%**	**76.4%**	**71.3%**
2010	Numerator	1,269	6,597	16,720	16,944	41,530
	Denominator	2,282	10,357	23,178	22,026	57,843
	Rate	**55.6%**	**63.7%**	**72.1%**	**76.9%**	**71.8%**

Table 64 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)				
Sex		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Male	Numerator	1,077	5,749	14,001	12,808	33,635
	Denominator	1,849	8,804	19,074	16,178	45,905
	Rate	**58.2%**	**65.3%**	**73.4%**	**79.2%**	**73.3%**
Female	Numerator	192	848	2,719	4,136	7,895
	Denominator	433	1,553	4,104	5,848	11,938
	Rate	**44.3%**	**54.6%**	**66.3%**	**70.7%**	**66.1%**
Total	Numerator	1,269	6,597	16,720	16,944	41,530
	Denominator	2,282	10,357	23,178	22,026	57,843
	Rate	**55.6%**	**63.7%**	**72.1%**	**76.9%**	**71.8%**

Table 65 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)				
Socio-economic status		**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Exempt	Numerator	274	1,660	5,778	7,280	14,992
	Denominator	497	2,748	8,300	9,763	21,308
	Rate	**55.1%**	**60.4%**	**69.6%**	**74.6%**	**70.4%**
Non-exempt	Numerator	995	4,937	10,942	9,664	26,538
	Denominator	1,785	7,609	14,878	12,263	36,535
	Rate	**55.7%**	**64.9%**	**73.5%**	**78.8%**	**72.6%**
Total	Numerator	1,269	6,597	16,720	16,944	41,530
	Denominator	2,282	10,357	23,178	22,026	57,843
	Rate	**55.6%**	**63.7%**	**72.1%**	**76.9%**	**71.8%**

DIABETES

Prevalence of diabetes mellitus

Description: The percentage of individuals with diabetes mellitus. Diabetes mellitus is defined as the purchase of at least three hypoglycemic medications (in three different months) during the measurement year.

Rationale: The prevalence of diabetes mellitus is increasing in Israel and worldwide. The rate of the disease increases with age. In 2000, the prevalence of diabetes mellitus worldwide was 0.2% for persons under age 20 years, 8.6% for adults aged 20–64 years, and 20% for adults aged 65+ years. The prevalence of diabetes mellitus is defined as the percent of individuals treated with medication for diabetes and excludes approximately 15% of the total diabetic population who are not treated with medication.

Denominator: All individuals.

Numerator: The number of individuals in the denominator who purchased at least three prescription hypoglycemic medications (over the course of at least three separate months) during the measurement year.

Comments: Diabetes mellitus is classified according to the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels. This definition does not include individuals treated with diet alone or untreated.

Results **(Tables 66-68 and Figures 88-91)**

In 2010, 355,326 individuals were identified as patients with diabetes mellitus according to their treatment with hypoglycemic medication. The prevalence of diabetes mellitus, based on this classification, is 4.96% in the general population. Over the measurement period, the percentage of individuals with diabetes mellitus increased annually by 0.25%. Prevalence rates increased with age, reaching 24.9% among patients aged 75–84 years.

Men and women had similar prevalence rates of diabetes mellitus (5.03% and 4.89%, respectively). However, for patients 18 years and older, men had higher rates of diabetes mellitus than women did.

Substantial socio-economic disparities in the prevalence of diabetes mellitus were observed. The prevalence of diabetes mellitus among the exempt population was 4.6 times greater than that in the non-exempt population. These differences were observed in all age groups and in particular among children (0–17 years) and older patients (65+ years).

Prevalence of diabetes mellitus

Percentage of individuals who purchased at least three prescription hypoglycemic medications (numerator) among all individuals (denominator)

Figure 88 *by year*

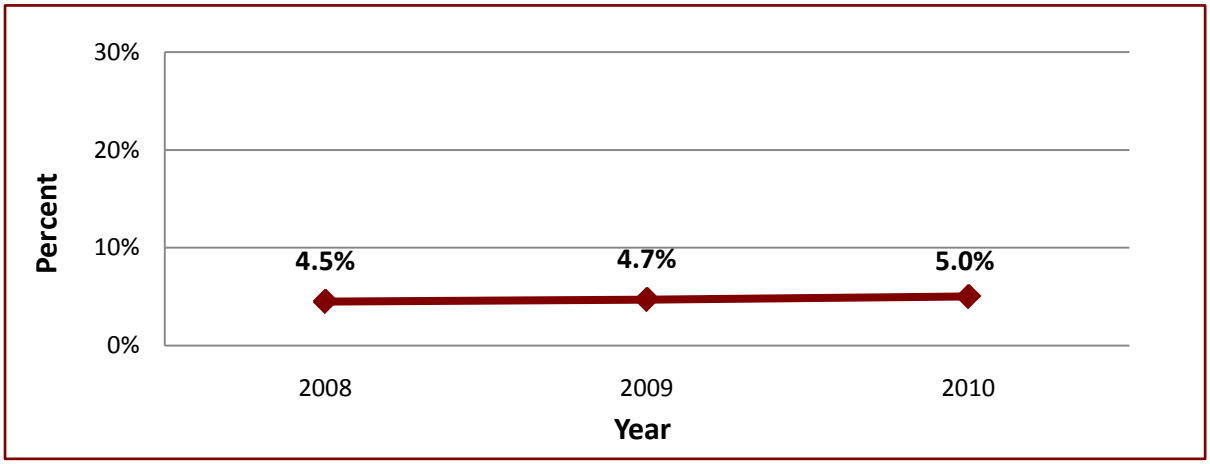


Figure 89 *by age group*

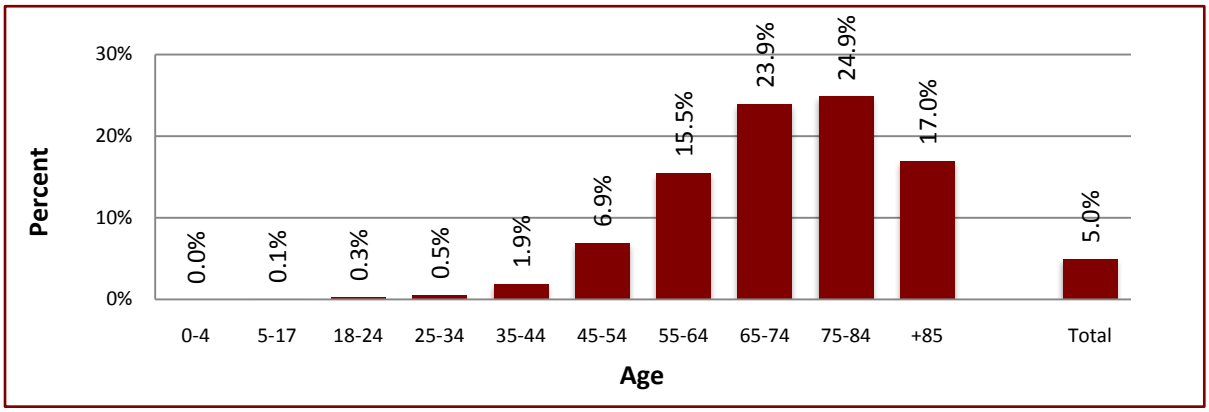


Figure 90 *by sex*

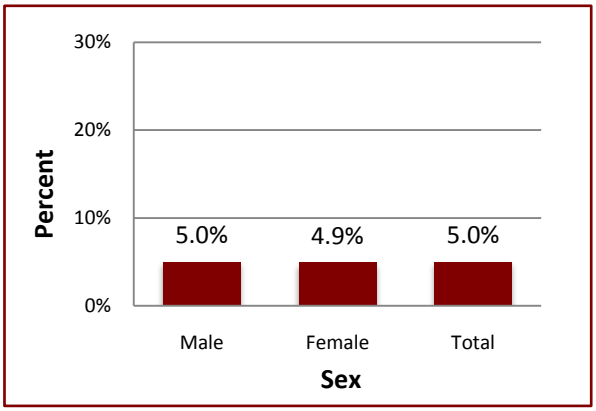
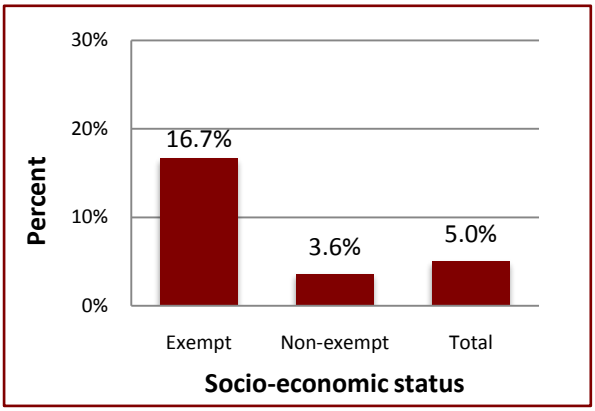


Figure 91 *by SES*



Prevalence of diabetes mellitus

Individuals who purchased at least three prescription hypoglycemic medications (numerator) among all individuals (denominator)

Table 66 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 0-4	5-17	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
2008	Numerator	155	2,150	1,858	4,922	15,262	48,298	86,977	83,063	55,120	11,529	309,334
	Denominator	714,897	1,612,992	619,059	1,043,117	857,739	760,294	619,085	376,776	248,491	76,318	6,928,768
	Rate	**0.02%**	**0.13%**	**0.30%**	**0.47%**	**1.78%**	**6.35%**	**14.05%**	**22.05%**	**22.18%**	**15.11%**	**4.46%**
2009	Numerator	148	2,268	1,970	5,144	16,580	50,896	96,471	87,200	58,941	13,195	332,813
	Denominator	725,634	1,637,574	618,518	1,053,310	880,174	762,100	651,611	379,303	249,677	82,190	7,040,091
	Rate	**0.02%**	**0.14%**	**0.32%**	**0.49%**	**1.88%**	**6.68%**	**14.80%**	**22.99%**	**23.61%**	**16.05%**	**4.73%**
2010	Numerator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Denominator	742,956	1,666,503	618,505	1,062,524	904,649	768,118	678,329	386,878	250,700	87,623	7,166,785
	Rate	**0.02%**	**0.15%**	**0.33%**	**0.50%**	**1.91%**	**6.93%**	**15.50%**	**23.88%**	**24.90%**	**17.04%**	**4.96%**

Table 67 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 0-4	5-17	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Male	Numerator	69	1,214	1,014	2,759	9,918	29,625	55,146	44,141	26,259	5,814	175,959
	Denominator	381,334	855,143	286,452	525,525	443,017	372,409	323,202	176,569	102,549	32,319	3,498,519
	Rate	**0.02%**	**0.14%**	**0.35%**	**0.52%**	**2.24%**	**7.95%**	**17.06%**	**25.00%**	**25.61%**	**17.99%**	**5.03%**
Female	Numerator	70	1,226	1,021	2,584	7,402	23,577	49,968	48,247	36,156	9,116	179,367
	Denominator	361,622	811,360	332,053	536,999	461,632	395,709	355,127	210,309	148,151	55,304	3,668,266
	Rate	**0.02%**	**0.15%**	**0.31%**	**0.48%**	**1.60%**	**5.96%**	**14.07%**	**22.94%**	**24.40%**	**16.48%**	**4.89%**
Total	Numerator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Denominator	742,956	1,666,503	618,505	1,062,524	904,649	768,118	678,329	386,878	250,700	87,623	7,166,785
	Rate	**0.02%**	**0.15%**	**0.33%**	**0.50%**	**1.91%**	**6.93%**	**15.50%**	**23.88%**	**24.90%**	**17.04%**	**4.96%**

Table 68 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 0-4	5-17	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Exempt	Numerator	94	1,048	283	907	3,105	11,773	34,934	40,859	24,478	5,177	122,658
	Denominator	24,040	120,619	17,566	35,878	52,032	79,635	139,681	144,608	91,281	28,917	734,257
	Rate	**0.39%**	**0.87%**	**1.61%**	**2.53%**	**5.97%**	**14.78%**	**25.01%**	**28.26%**	**26.82%**	**17.90**	**16.71%**
Non-exempt	Numerator	45	1,392	1,752	4,436	14,215	41,429	70,180	51,529	37,937	9,753	232,668
	Denominator	718,916	1,545,884	600,939	1,026,646	852,617	688,483	538,648	242,270	159,419	58,706	6,432,528
	Rate	**0.01%**	**0.09%**	**0.29%**	**0.43%**	**1.67%**	**6.02%**	**13.03%**	**21.27%**	**23.80%**	**16.61**	**3.62%**
Total	Numerator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Denominator	742,956	1,666,503	618,505	1,062,524	904,649	768,118	678,329	386,878	250,700	87,623	7,166,785
	Rate	**0.02%**	**0.15%**	**0.33%**	**0.50%**	**1.91%**	**6.93%**	**15.50%**	**23.88%**	**24.90%**	**17.04**	**4.96%**

Hemoglobin A1c levels documentation for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus with documented levels of hemoglobin A1c (HbA1c) during the measurement year.

Rationale: Blood glucose levels of individuals with diabetes mellitus are directly related to the development of disease complications, including cardiovascular disease, blindness, and kidney failure. Monitoring of blood glucose is performed by daily self-monitoring and periodic glycosylated hemoglobin (HbA1c) testing. The HbA1c test reflects the average blood glucose level over the prior three-month period. This test is of great importance for following the status of the disease and should be performed at least once a year.

Denominator: All individuals with diabetes mellitus.

Numerator: The number of individuals in the denominator who performed an HbA1c test during the measurement year.

Comments: Diabetes mellitus is classified according to the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results **(Tables 69-71 and Figures 92-95)**

In 2010, 92.6% of the 355,326 individuals with diabetes mellitus had documented levels of HbA1c. Over the measurement period this rate has shown a gradual improvement, with an annual increase of 0.3–0.6%. Documentation rates vary by age group, with low rates for children aged 0–4 years (67.6%) and higher rates for patients aged 65–74 years (94.9%).

Women had slightly higher documentation rates of HbA1c levels (93.4%) compared with men (91.9%).

Documentation rates were slightly higher for patients in the exempt (93.3%) than the non-exempt (92.3%) population.

Percentage of individuals with diabetes mellitus with documented levels of hemoglobin A1c (HbA1c)

Percentage of individuals with diabetes mellitus with documented levels of HbA1c during the measurement year (numerator) among all individuals with diabetes mellitus (denominator)

Figure 92 *by year*

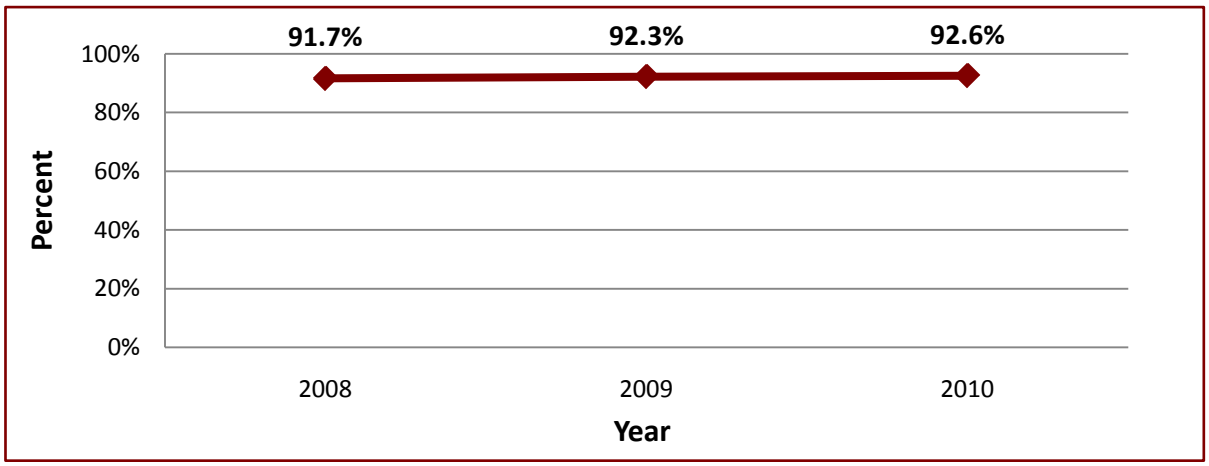


Figure 93 *by age group*

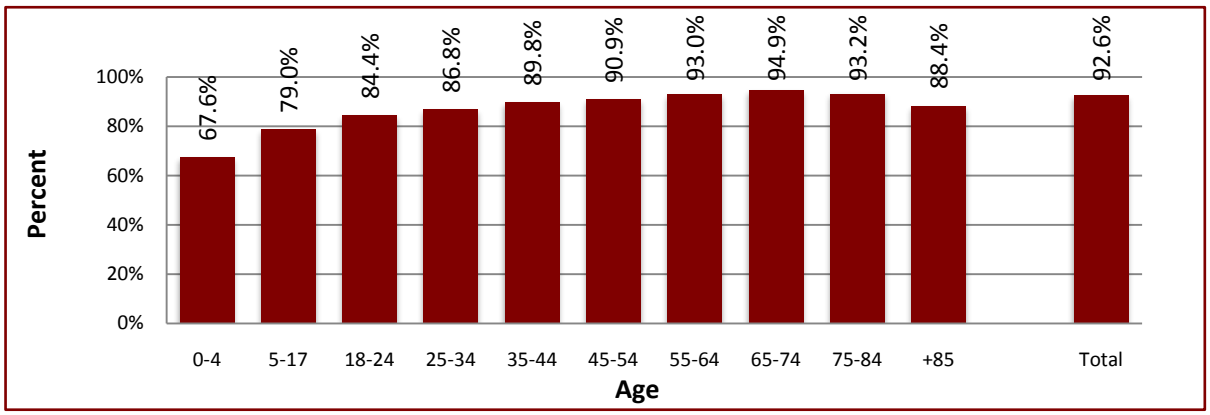


Figure 94 *by sex*

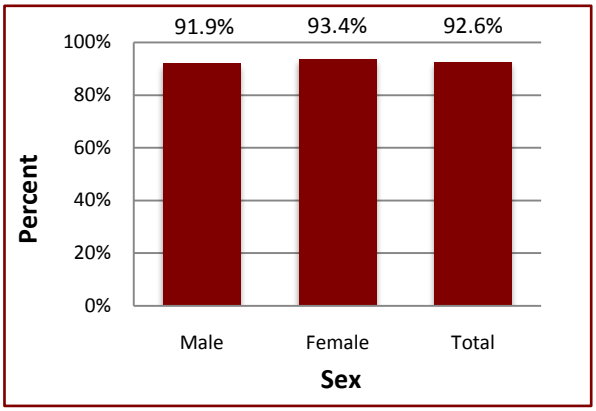
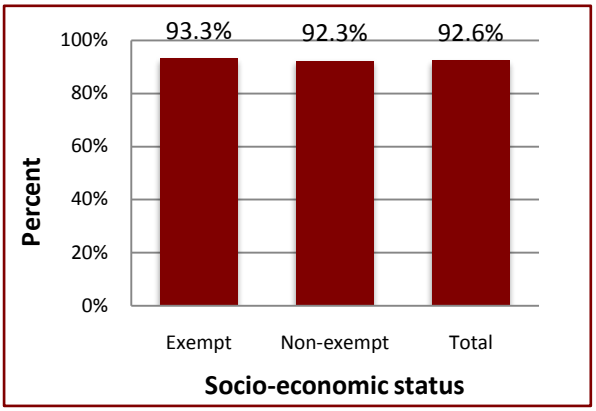


Figure 95 *by SES*



Percentage of individuals with diabetes mellitus with documented levels of hemoglobin A1c (HbA1c)

Individuals with diabetes mellitus with documented levels of HbA1c during the measurement year (numerator) among all individuals with diabetes mellitus (denominator)

Table 69 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)										
Year		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	107	1,733	1,532	4,145	13,454	43,614	80,223	78,102	50,636	10,026	283,572
	Denominator	155	2,150	1,858	4,922	15,262	48,298	86,977	83,063	55,120	11,529	309,334
	Rate	**69.0%**	**80.6%**	**82.5%**	**84.2%**	**88.2%**	**90.3%**	**92.2%**	**94.0%**	**91.9%**	**87.0%**	**91.7%**
2009	Numerator	101	1,862	1,667	4,391	14,802	46,412	89,615	82,523	54,319	11,465	307,157
	Denominator	148	2,268	1,970	5,144	16,580	50,896	96,471	87,200	58,941	13,195	332,813
	Rate	**68.2%**	**82.1%**	**84.6%**	**85.4%**	**89.3%**	**91.2%**	**92.9%**	**94.6%**	**92.2%**	**86.9%**	**92.3%**
2010	Numerator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	58,192	13,191	329,185
	Denominator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Rate	**67.6%**	**79.0%**	**84.4%**	**86.8%**	**89.8%**	**90.9%**	**93.0%**	**94.9%**	**93.2%**	**88.4%**	**92.6%**

Table 70 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)										
Sex		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	52	957	840	2,400	8,715	26,515	50,724	41,701	24,531	5,200	161,635
	Denominator	69	1,214	1,014	2,759	9,918	29,625	55,146	44,141	26,259	5,814	175,959
	Rate	**75.4%**	**78.8%**	**82.8%**	**87.0%**	**87.9%**	**89.5%**	**92.0%**	**94.5%**	**93.4%**	**89.4%**	**91.9%**
Female	Numerator	42	971	878	2,236	6,837	21,867	47,046	46,021	33,661	7,991	167,550
	Denominator	70	1,226	1,021	2,584	7,402	23,577	49,968	48,247	36,156	9,116	179,367
	Rate	**60.0%**	**79.2%**	**86.0%**	**86.5%**	**92.4%**	**92.7%**	**94.2%**	**95.4%**	**93.1%**	**87.7%**	**93.4%**
Total	Numerator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	58,192	13,191	329,185
	Denominator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Rate	**67.6%**	**79.0%**	**84.4%**	**86.8%**	**89.8%**	**90.9%**	**93.0%**	**94.9%**	**93.2%**	**88.4%**	**92.6%**

Table 71 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)										
Socio-economic status		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	61	827	245	795	2,814	10,810	32,766	38,809	22,730	4,532	114,389
	Denominator	94	1,048	283	907	3,105	11,773	34,934	40,859	24,478	5,177	122,658
	Rate	**64.9%**	**78.9%**	**86.6%**	**87.7%**	**90.6%**	**91.8%**	**93.8%**	**95.0%**	**92.9%**	**87.5%**	**93.3%**
Non-exempt	Numerator	33	1,101	1,473	3,841	12,738	37,572	65,004	48,913	35,462	8,659	214,796
	Denominator	45	1,392	1,752	4,436	14,215	41,429	70,180	51,529	37,937	9,753	232,668
	Rate	**73.3%**	**79.1%**	**84.1%**	**86.6%**	**89.6%**	**90.7%**	**92.6%**	**94.9%**	**93.5%**	**88.8%**	**92.3%**
Total	Numerator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	58,192	13,191	329,185
	Denominator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Rate	**67.6%**	**79.0%**	**84.4%**	**86.8%**	**89.8%**	**90.9%**	**93.0%**	**94.9%**	**93.2%**	**88.4%**	**92.6%**

Adequate hemoglobin A1c control for individuals aged 0–74 years with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus with a record of hemoglobin A1c (HbA1c) of less than or equal to 7.0% (adequate glycemic control) during the measurement year.

Rationale: Blood glucose levels of individuals with diabetes mellitus are directly related to the development of disease complications, including cardiovascular disease, blindness, and kidney failure. Monitoring of blood glucose is performed by daily self-monitoring and periodic glycosylated hemoglobin (HbA1c) testing. The HbA1c test reflects the average blood glucose level over the prior three-month period. For most patients with diabetes mellitus, an acceptable level of HbA1c is less than or equal to 7% (adequate glycemic control). This indicator reflects the percentage of individuals aged 0–74 years with diabetes mellitus who have their disease under control.

Denominator: Individuals aged 0–74 years with diabetes mellitus who performed an HbA1c test during the measurement year.

Numerator: The number of individuals in the denominator with HbA1c less than or equal to 7%.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results **(Tables 72-74 and Figures 96-99)**

In 2010, 47.2% of individuals aged 0–74 years with diabetes mellitus had adequate glycemic control (HbA1c less than or equal to 7%). This rate represents an increase of approximately 2% from previous years. The percent of patients with adequate glycemic control increased with age, from 11.7% for children aged 0–4 years to 52.4% for adults aged 65–74 years.

Women had higher rates of adequate glycemic control (48.3%) compared to men (46.2%).

Rates of adequate glycemic control were higher for patients in the non-exempt (48.4%) than the exempt (44.9%) population.

Percentage of individuals with diabetes mellitus with HbA1c less than or equal to 7.0% (ages 0-74 years)

Percentage of individuals with HbA1c less than or equal to 7.0% (numerator) among individuals aged 0-74 years with diabetes mellitus with a record of HbA1c during the measurement year (denominator)

Figure 96 *by year*

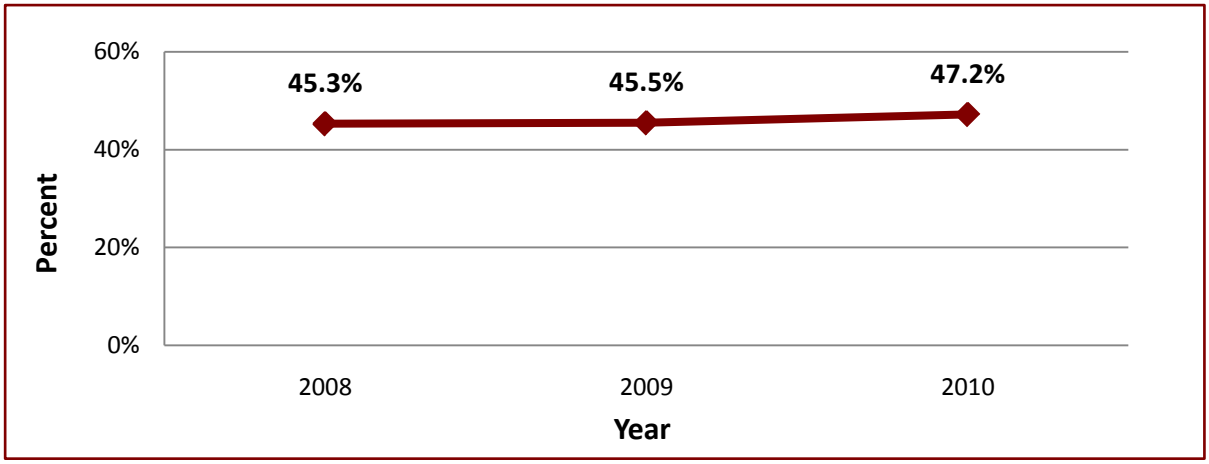


Figure 97 *by age group*

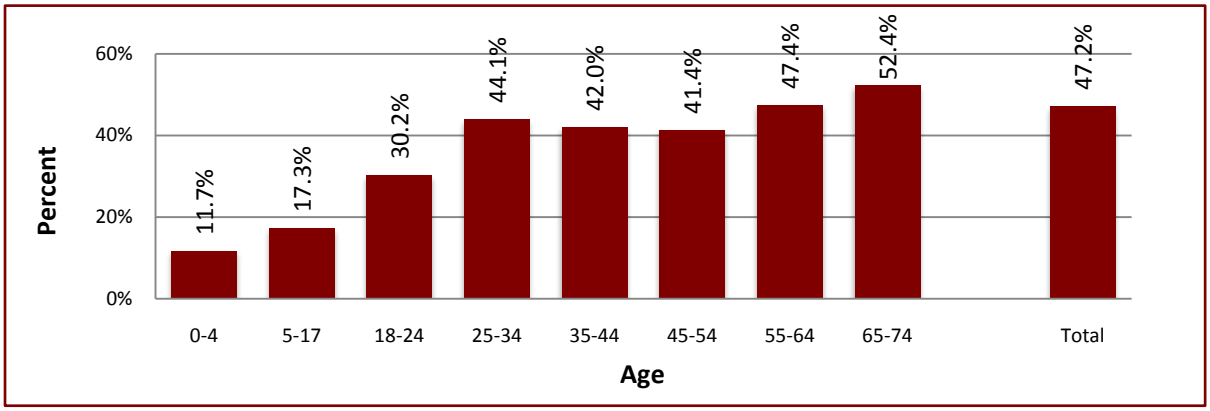


Figure 98 *by sex*

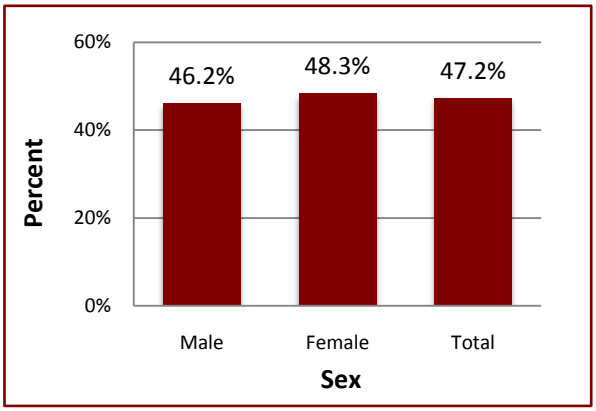
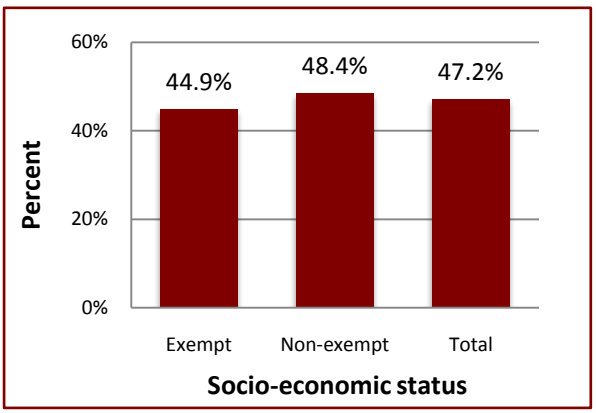


Figure 99 *by SES*



Percentage of individuals with diabetes mellitus with HbA1c less than or equal to 7.0% (ages 0-74 years)

Individuals with HbA1c less than or equal to 7.0% (numerator) among individuals aged 0-74 years with diabetes mellitus with a record of HbA1c during the measurement year (denominator)

Table 72 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)								
Year		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**Total**
2008	Numerator	14	291	451	1,789	5,311	17,030	35,936	40,086	100,908
	Denominator	107	1,733	1,532	4,145	13,454	43,614	80,223	78,102	222,910
	Rate	**13.1%**	**16.8%**	**29.4%**	**43.2%**	**39.5%**	**39.0%**	**44.8%**	**51.3%**	**45.3%**
2009	Numerator	17	283	503	1,869	5,910	18,396	40,676	42,233	109,887
	Denominator	101	1,862	1,667	4,391	14,802	46,412	89,615	82,523	241,373
	Rate	**16.8%**	**15.2%**	**30.2%**	**42.6%**	**39.9%**	**39.6%**	**45.4%**	**51.2%**	**45.5%**
2010	Numerator	11	333	518	2,043	6,536	20,020	46,348	45,941	121,750
	Denominator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	257,802
	Rate	**11.7%**	**17.3%**	**30.2%**	**44.1%**	**42.0%**	**41.4%**	**47.4%**	**52.4%**	**47.2%**

Table 73 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)								
Sex		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Male	Numerator	8	165	251	925	3,416	10,842	23,645	21,642	60,894
	Denominator	52	957	840	2,400	8,715	26,515	50,724	41,701	131,904
	Rate	**15.4%**	**17.2%**	**29.9%**	**38.5%**	**39.2%**	**40.9%**	**46.6%**	**51.9%**	**46.2%**
Female	Numerator	3	168	267	1,118	3,120	9,178	22,703	24,299	60,856
	Denominator	42	971	878	2,236	6,837	21,867	47,046	46,021	125,898
	Rate	**7.1%**	**17.3%**	**30.4%**	**50.0%**	**45.6%**	**42.0%**	**48.3%**	**52.8%**	**48.3%**
Total	Numerator	11	333	518	2,043	6,536	20,020	46,348	45,941	121,750
	Denominator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	257,802
	Rate	**11.7%**	**17.3%**	**30.2%**	**44.1%**	**42.0%**	**41.4%**	**47.4%**	**52.4%**	**47.2%**

Table 74 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)								
Socio-economic status		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**Total**
Exempt	Numerator	5	131	96	310	1,129	4,107	14,114	19,270	39,162
	Denominator	61	827	245	795	2,814	10,810	32,766	38,809	87,127
	Rate	**8.2%**	**15.8%**	**39.2%**	**39.0%**	**40.1%**	**38.0%**	**43.1%**	**49.7%**	**44.9%**
Non-exempt	Numerator	6	202	422	1,733	5,407	15,913	32,234	26,671	82,588
	Denominator	33	1,101	1,473	3,841	12,738	37,572	65,004	48,913	170,675
	Rate	**18.2%**	**18.3%**	**28.6%**	**45.1%**	**42.4%**	**42.4%**	**49.6%**	**54.5%**	**48.4%**
Total	Numerator	11	333	518	2,043	6,536	20,020	46,348	45,941	121,750
	Denominator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	257,802
	Rate	**11.7%**	**17.3%**	**30.2%**	**44.1%**	**42.0%**	**41.4%**	**47.4%**	**52.4%**	**47.2%**

Adequate hemoglobin A1c control for individuals aged 75–84 years with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus with a record of hemoglobin A1c (HbA1c) of less than or equal to 8.0% (adequate glycemic control) during the measurement year.

Rationale: Blood glucose levels of individuals with diabetes mellitus are directly related to the development of disease complications, including cardiovascular disease, blindness, and kidney failure. Monitoring of blood glucose is performed by daily self-monitoring and periodic glycosylated hemoglobin (HbA1c) testing. The HbA1c test reflects the average blood glucose level over the prior three-month period. For most patients with diabetes mellitus, an acceptable level of HbA1c is less than or equal to 7% (adequate glycemic control); however less stringent goals should be considered for older adults at risk for hypoglycemia, have other underlying comorbidities, and have highly variable life expectancies.

Denominator: Individuals aged 75–84 years with diabetes mellitus who performed an HbA1c test during the measurement year.

Numerator: The number of individuals in the denominator with HbA1c less than or equal to 8%.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results **(Tables 75-77 and Figures 100-103)**

In 2010, 83.8% of individuals aged 75–84 years with diabetes mellitus had adequate glycemic control (HbA1c less than or equal to 8%). This rate represents a 0.2% annual increase throughout the measurement period.

Men and women in this age group had similar rates of glycemic control.

Rates of adequate glycemic control were higher for patients in the non-exempt (84.4%) than the exempt (83.0%) population.

Percentage of individuals with diabetes mellitus with HbA1c less than or equal to 8.0% (ages 75-84 years)

Percentage of individuals with HbA1c less than or equal to 8.0% (numerator) among individuals aged 75-84 with diabetes mellitus with a record of HbA1c during the measurement year (denominator)

Figure 100 *by year*

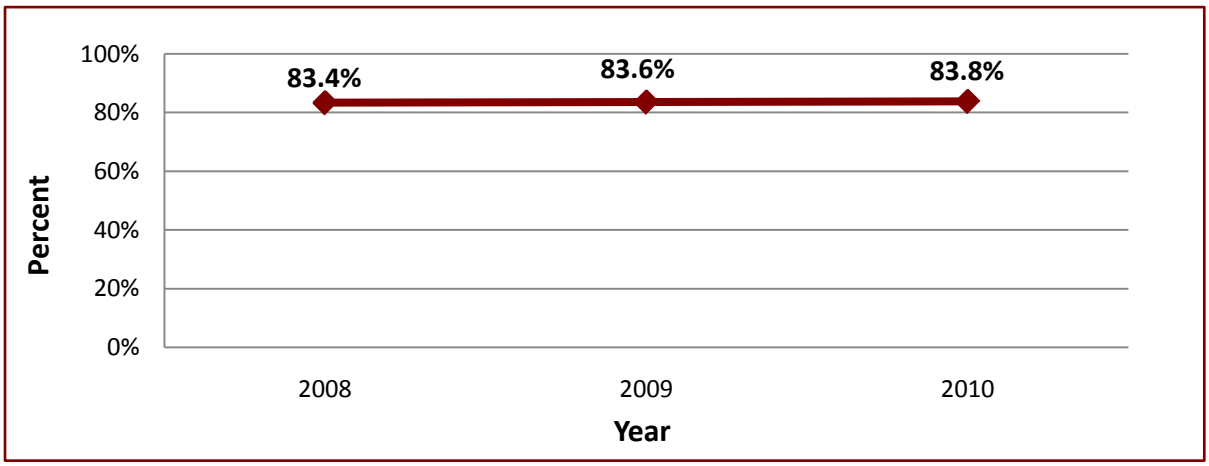


Figure 101 *by age group*

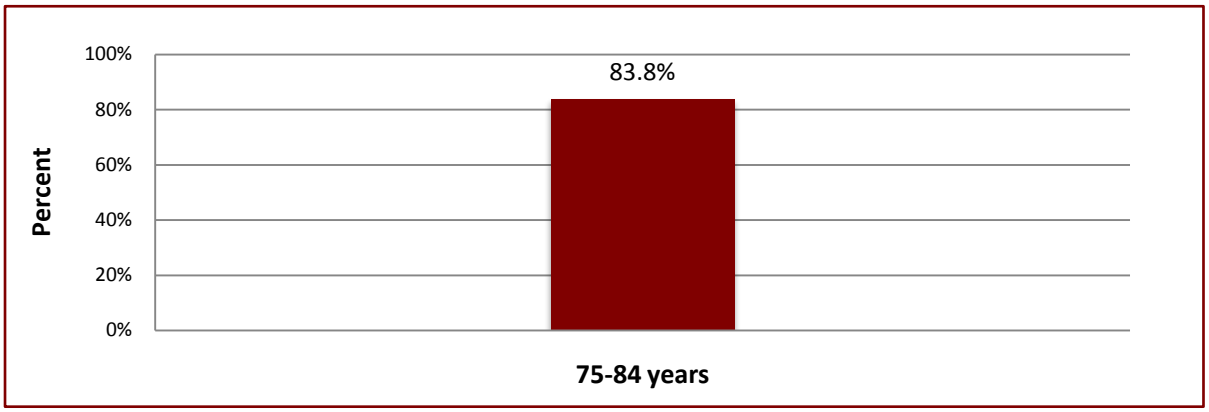


Figure 102 *by sex*

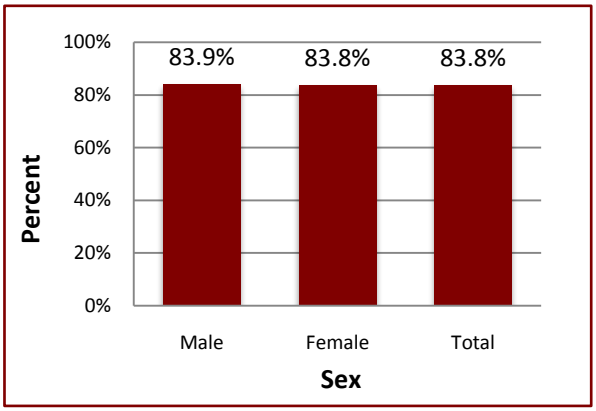
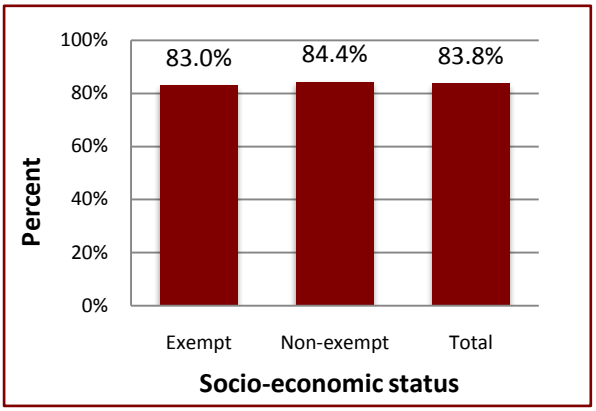


Figure 103 *by SES*



Percentage of individuals with diabetes mellitus with HbA1c less than or equal to 8.0% (ages 75-84 years)

Individuals with HbA1c less than or equal to 8.0% (numerator) among individuals aged 75-84 with diabetes mellitus with a record of HbA1c during the measurement year (denominator)

Table 75 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)
Year		**75-84**
2008	Numerator	42,232
	Denominator	50,636
	Rate	**83.4%**
2009	Numerator	45,384
	Denominator	54,319
	Rate	**83.6%**
2010	Numerator	48,789
	Denominator	58,192
	Rate	**83.8%**

Table 76 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)
Sex		**75-84**
Male	Numerator	20,577
	Denominator	24,531
	Rate	**83.9%**
Female	Numerator	28,212
	Denominator	33,661
	Rate	**83.8%**
Total	Numerator	48,789
	Denominator	58,192
	Rate	**83.8%**

Table 77 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)
Socio-economic status		**75-84**
Exempt	Numerator	18,876
	Denominator	22,730
	Rate	**83.0%**
Non-exempt	Numerator	29,913
	Denominator	35,462
	Rate	**84.4%**
Total	Numerator	48,789
	Denominator	58,192
	Rate	**83.8%**

Inadequate hemoglobin A1c control for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus with a record of hemoglobin A1c (HbA1c) of greater than 9% (inadequate glycemic control) during the measurement year.

Rationale: Blood glucose levels of individuals with diabetes mellitus are directly related to the development of disease complications, including cardiovascular disease, blindness, and kidney failure. Monitoring of blood glucose is performed by daily self-monitoring and periodic glycosylated hemoglobin (HbA1c) testing. This HbA1c test reflects the average blood glucose level over the prior three-month period. For most patients with diabetes mellitus, an acceptable level of HbA1c (adequate glycemic control) is less than or equal to 7%; uncontrolled levels are above 9% (inadequate glycemic control). This indicator reflects the percentage of individuals with diabetes mellitus who do not have their disease under sufficient control.

Denominator: Individuals with diabetes mellitus who performed an HbA1c test in the measurement year.

Numerator: The number of individuals in the denominator with HbA1c greater than 9%.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 78-80 and Figures 104-107)

In 2010, 12.6% of patients with diabetes mellitus had inadequate glycemic control (HbA1c greater than 9%). This rate decreased slightly over the measurement period, from 13.5% in 2008. The percent of patients with inadequate glycemic control differed by age group, with higher rates in the younger population (5–17 years) and lower rates for older patients (55+ years).

Rates of inadequate glycemic control were higher for men (13.1%) compared to women (12.1%) and among patients in the exempt (13.7%) than the non-exempt (12.0%) population.

Percentage of individuals with diabetes mellitus with HbA1c greater than 9.0%

Percentage of individuals with HbA1c greater than 9.0% (numerator) among individuals with diabetes mellitus with a record of HbA1c during the measurement year (denominator)

Figure 104 *by year*

Figure 105 *by age group*

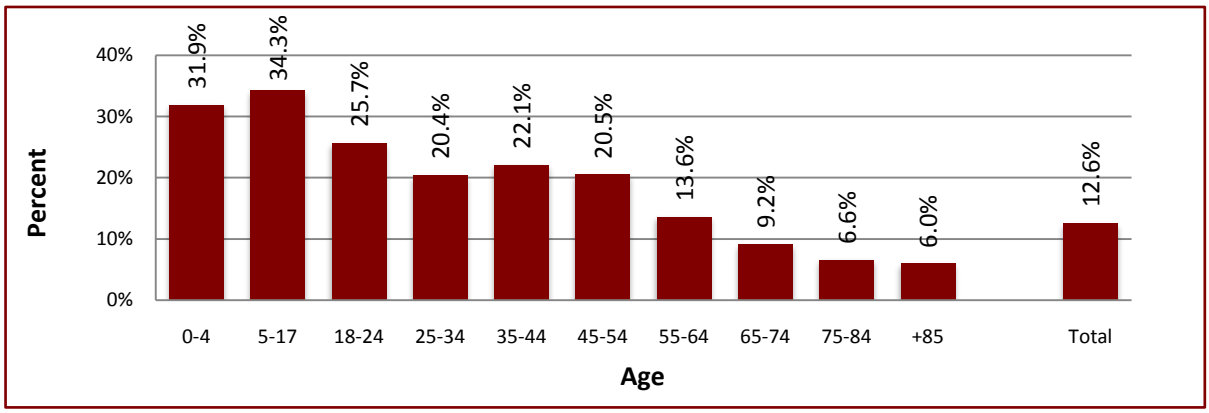


Figure 106 *by sex*

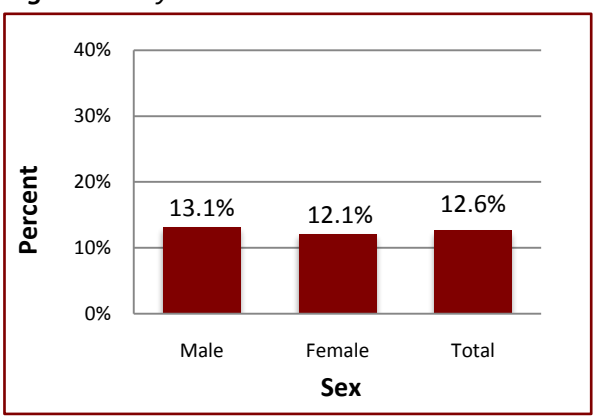
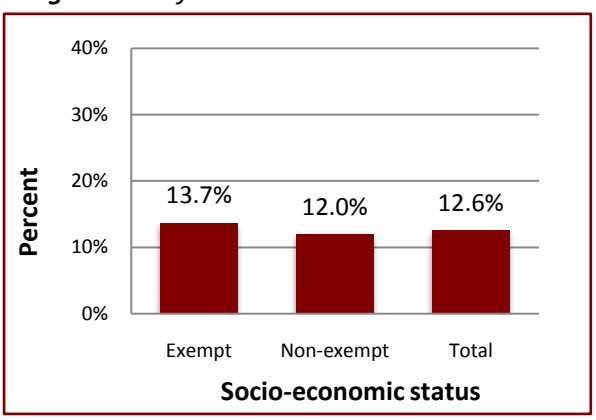


Figure 107 *by SES*



Percentage of individuals with diabetes mellitus with HbA1c greater than 9.0%

Individuals with HbA1c greater than 9.0% (numerator) among individuals with diabetes mellitus with a record of HbA1c during the measurement year (denominator)

Table 78 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)										
Year		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	34	631	424	855	3,246	9,646	11,924	7,381	3,462	637	38,240
	Denominator	107	1,733	1,532	4,145	13,454	43,614	80,223	78,102	50,636	10,026	283,572
	Rate	**31.8%**	**36.4%**	**27.7%**	**20.6%**	**24.1%**	**22.1%**	**14.9%**	**9.5%**	**6.8%**	**6.4%**	**13.5%**
2009	Numerator	25	636	426	879	3,375	9,841	12,636	7,486	3,504	676	39,484
	Denominator	101	1,862	1,667	4,391	14,802	46,412	89,615	82,523	54,319	11,465	307,157
	Rate	**24.8%**	**34.2%**	**25.6%**	**20.0%**	**22.8%**	**21.2%**	**14.1%**	**9.1%**	**6.5%**	**5.9%**	**12.9%**
2010	Numerator	30	661	442	944	3,430	9,938	13,338	8,058	3,816	792	41,449
	Denominator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	58,192	13,191	329,185
	Rate	**31.9%**	**34.3%**	**25.7%**	**20.4%**	**22.1%**	**20.5%**	**13.6%**	**9.2%**	**6.6%**	**6.0%**	**12.6%**

Table 79 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)										
Sex		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	15	329	199	547	2,048	5,469	6,873	3,819	1,571	334	21,204
	Denominator	52	957	840	2,400	8,715	26,515	50,724	41,701	24,531	5,200	161,635
	Rate	**28.8%**	**34.4%**	**23.7%**	**22.8%**	**23.5%**	**20.6%**	**13.5%**	**9.2%**	**6.4%**	**6.4%**	**13.1%**
Female	Numerator	15	332	243	397	1,382	4,469	6,465	4,239	2,245	458	20,245
	Denominator	42	971	878	2,236	6,837	21,867	47,046	46,021	33,661	7,991	167,550
	Rate	**35.7%**	**34.2%**	**27.7%**	**17.8%**	**20.2%**	**20.4%**	**13.7%**	**9.2%**	**6.7%**	**5.7%**	**12.1%**
Total	Numerator	30	661	442	944	3,430	9,938	13,338	8,058	3,816	792	41,449
	Denominator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	58,192	13,191	329,185
	Rate	**31.9%**	**34.3%**	**25.7%**	**20.4%**	**22.1%**	**20.5%**	**13.6%**	**9.2%**	**6.6%**	**6.0%**	**12.6%**

Table 80 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)										
Socio-economic status		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	17	282	68	212	710	2,709	5,522	4,256	1,600	285	15,661
	Denominator	61	827	245	795	2,814	10,810	32,766	38,809	22,730	4,532	114,389
	Rate	**27.9%**	**34.1%**	**27.8%**	**26.7%**	**25.2%**	**25.1%**	**16.9%**	**11.0%**	**7.0%**	**6.3%**	**13.7%**
Non-exempt	Numerator	13	379	374	732	2,720	7,229	7,816	3,802	2,216	507	25,788
	Denominator	33	1,101	1,473	3,841	12,738	37,572	65,004	48,913	35,462	8,659	214,796
	Rate	**39.4%**	**34.4%**	**25.4%**	**19.1%**	**21.4%**	**19.2%**	**12.0%**	**7.8%**	**6.2%**	**5.9%**	**12.0%**
Total	Numerator	30	661	442	944	3,430	9,938	13,338	8,058	3,816	792	41,449
	Denominator	94	1,928	1,718	4,636	15,552	48,382	97,770	87,722	58,192	13,191	329,185
	Rate	**31.9%**	**34.3%**	**25.7%**	**20.4%**	**22.1%**	**20.5%**	**13.6%**	**9.2%**	**6.6%**	**6.0%**	**12.6%**

Cholesterol levels documentation for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus with documented levels of low-density lipoprotein (LDL) cholesterol during the measurement year.

Rationale: Individuals with diabetes mellitus are at high risk of developing and dying from cardiovascular disease. Intensive LDL-cholesterol lowering therapy benefits individuals with diabetes mellitus within two years of therapy by decreasing risks of stroke and heart attack. Periodic monitoring of cholesterol levels is an essential part of this treatment and should be performed at least once a year.

Denominator: Individuals with diabetes mellitus.

Numerator: The number of individuals in the denominator with LDL cholesterol documentation during the measurement year.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 81-83 and Figures 108-111)

In 2010, 90.3% of individuals with diabetes mellitus had LDL cholesterol documentation. This rate did not represent a significant change from previous years. The percent of patients with diabetes mellitus with documented levels of LDL cholesterol increased with age, from 54.0% for ages 0–4 years to 93.6% for ages 65–74 years. A gradual decrease in documentation rates was observed for adults aged 75+ years.

Documentation rates for LDL cholesterol levels were higher for women (91.5%) than men (89.0%), although this trend reversed for adults over 75–years-of-age.

Small differences in LDL cholesterol control according to socio-economic status were observed.

Percentage of individuals with diabetes mellitus with documented levels of LDL cholesterol during the measurement year

Percentage of individuals with documented levels of LDL cholesterol during the measurement year (numerator) among individuals with diabetes mellitus (denominator)

Figure 108 *by year*

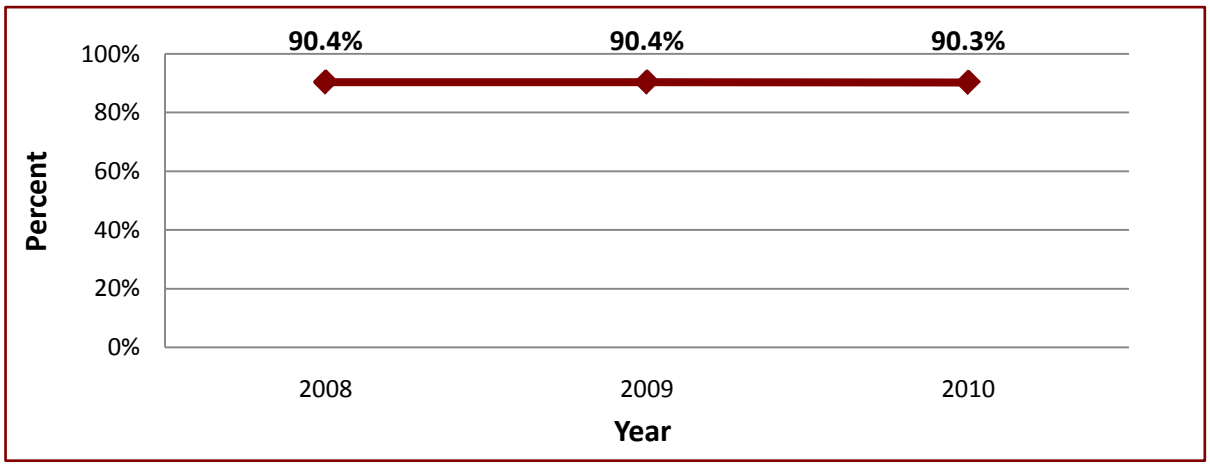


Figure 109 *by age group*

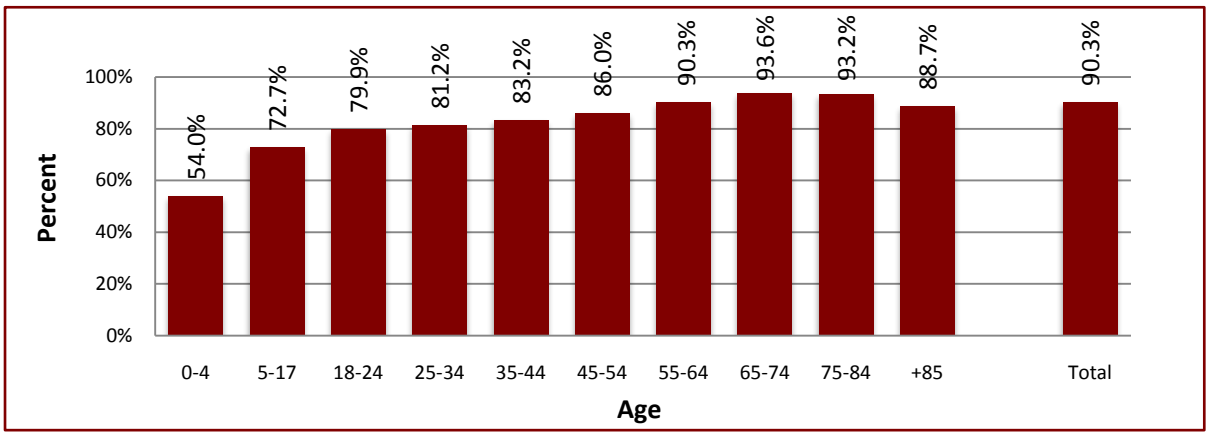


Figure 110 *by sex*

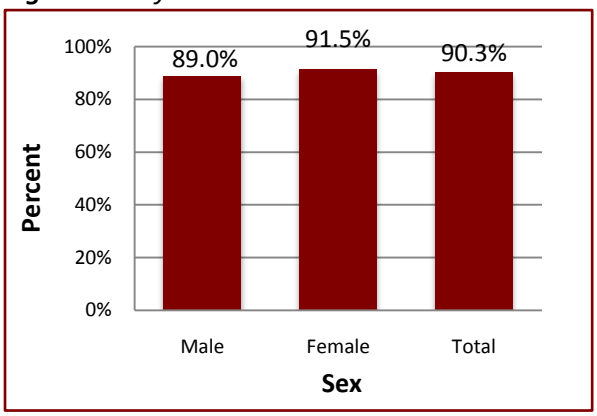
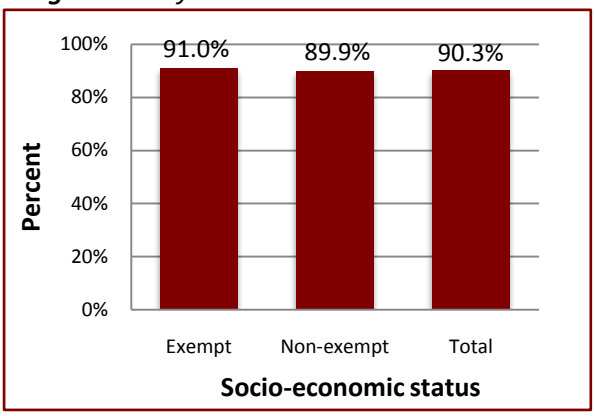


Figure 111 *by SES*



Percentage of individuals with diabetes mellitus with documented levels of LDL cholesterol during the measurement year

Individuals with documented levels of LDL cholesterol during the measurement year (numerator) among individuals with diabetes mellitus (denominator)

Table 81 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years)										
		0-4	5-17	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
2008	Numerator	85	1,547	1,454	3,945	12,697	41,841	78,608	77,720	51,373	10,286	279,556
	Denominator	155	2,150	1,858	4,922	15,262	48,298	86,977	83,063	55,120	11,529	309,334
	Rate	**54.8%**	**72.0%**	**78.3%**	**80.2%**	**83.2%**	**86.6%**	**90.4%**	**93.6%**	**93.2%**	**89.2%**	**90.4%**
2009	Numerator	77	1,677	1,588	4,176	13,912	44,162	87,407	81,508	54,592	11,692	300,791
	Denominator	148	2,268	1,970	5,144	16,580	50,896	96,471	87,200	58,941	13,195	332,813
	Rate	**52.0%**	**73.9%**	**80.6%**	**81.2%**	**83.9%**	**86.8%**	**90.6%**	**93.5%**	**92.6%**	**88.6%**	**90.4%**
2010	Numerator	75	1,773	1,626	4,341	14,409	45,732	94,906	86,455	58,147	13,241	320,705
	Denominator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Rate	**54.0%**	**72.7%**	**79.9%**	**81.2%**	**83.2%**	**86.0%**	**90.3%**	**93.6%**	**93.2%**	**88.7%**	**90.3%**

Table 82 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years)										
		0-4	5-17	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Male	Numerator	41	877	783	2,211	7,960	24,815	49,100	41,049	24,573	5,239	156,648
	Denominator	69	1,214	1,014	2,759	9,918	29,625	55,146	44,141	26,259	5,814	175,959
	Rate	**59.4%**	**72.2%**	**77.2%**	**80.1%**	**80.3%**	**83.8%**	**89.0%**	**93.0%**	**93.6%**	**90.1%**	**89.0%**
Female	Numerator	34	896	843	2,130	6,449	20,917	45,806	45,406	33,574	8,002	164,057
	Denominator	70	1,226	1,021	2,584	7,402	23,577	49,968	48,247	36,156	9,116	179,367
	Rate	**48.6%**	**73.1%**	**82.6%**	**82.4%**	**87.1%**	**88.7%**	**91.7%**	**94.1%**	**92.9%**	**87.8%**	**91.5%**
Total	Numerator	75	1,773	1,626	4,341	14,409	45,732	94,906	86,455	58,147	13,241	320,705
	Denominator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Rate	**54.0%**	**72.7%**	**79.9%**	**81.2%**	**83.2%**	**86.0%**	**90.3%**	**93.6%**	**93.2%**	**88.7%**	**90.3%**

Table 83 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years)										
		0-4	5-17	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Exempt	Numerator	57	772	225	738	2,602	10,131	31,700	38,145	22,692	4,515	111,577
	Denominator	94	1,048	283	907	3,105	11,773	34,934	40,859	24,478	5,177	122,658
	Rate	**60.6%**	**73.7%**	**79.5%**	**81.4%**	**83.8%**	**86.1%**	**90.7%**	**93.4%**	**92.7%**	**87.2%**	**91.0%**
Non-exempt	Numerator	18	1,001	1,401	3,603	11,807	35,601	63,206	48,310	35,455	8,726	209,128
	Denominator	45	1,392	1,752	4,436	14,215	41,429	70,180	51,529	37,937	9,753	232,668
	Rate	**40.0%**	**71.9%**	**80.0%**	**81.2%**	**83.1%**	**85.9%**	**90.1%**	**93.8%**	**93.5%**	**89.5%**	**89.9%**
Total	Numerator	75	1,773	1,626	4,341	14,409	45,732	94,906	86,455	58,147	13,241	320,705
	Denominator	139	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,326
	Rate	**54.0%**	**72.7%**	**79.9%**	**81.2%**	**83.2%**	**86.0%**	**90.3%**	**93.6%**	**93.2%**	**88.7%**	**90.3%**

Cholesterol levels assessment for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus with low-density lipoprotein (LDL) cholesterol levels less than or equal to 100 mg/dL during the measurement year.

Rationale: According to the American Diabetes Association and American Heart Association, LDL cholesterol levels of less than 100 mg/dL are optimal for individuals with diabetes mellitus. Stricter levels of LDL cholesterol of less than 70 mg/dL are recommended for individuals with diabetes mellitus who also suffer from atherosclerosis.

Denominator: Individuals with diabetes mellitus with documented levels of LDL cholesterol during the measurement year.

Numerator: The number of individuals in the denominator whose last documented LDL level is less than or equal to 100 mg/dL.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 84-86 and Figures 112-115)

In 2010, 66.1% of the 320,705 individuals with diabetes mellitus who had documented LDL cholesterol levels reached the target LDL cholesterol level of less than or equal to 100 mg/dL. This rate represents a gradual increasing trend from 64.7% in 2008.

Rates of controlled LDL cholesterol were higher for men (69.2%) than women (63.1%) with diabetes mellitus.

Small differences in LDL cholesterol control according to socio-economic status were observed.

Percentage of individuals with diabetes mellitus with LDL levels less than or equal to 100 mg/dL

Percentage of individuals with LDL levels less than or equal to 100 mg/dL (numerator) among individuals with diabetes mellitus with a record of LDL (denominator)

Figure 112 *by year*

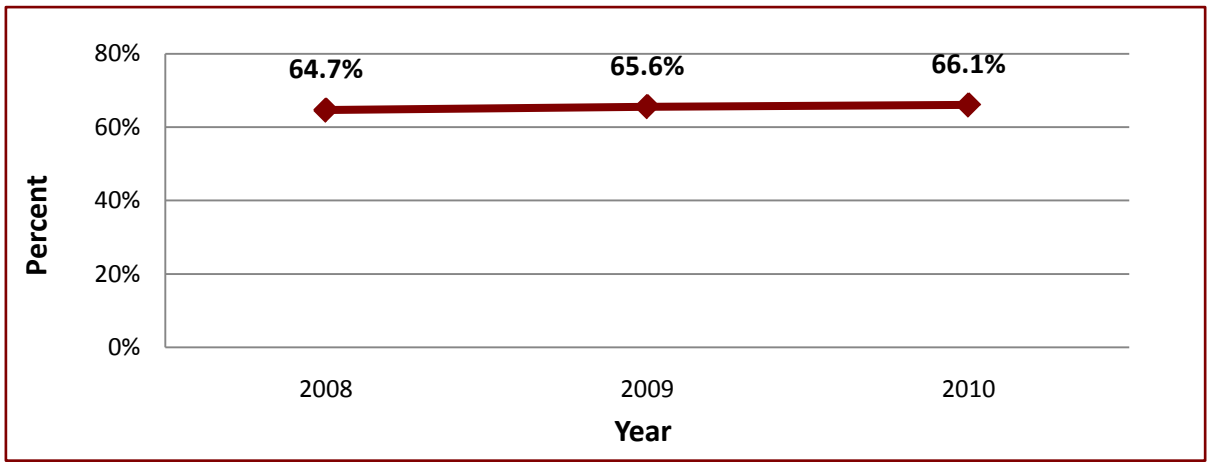


Figure 113 *by age group*

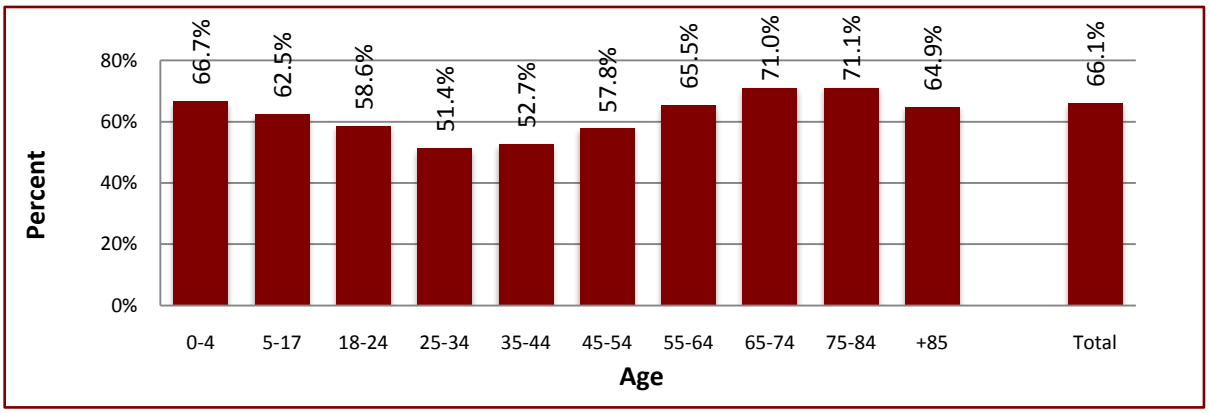


Figure 114 *by sex*

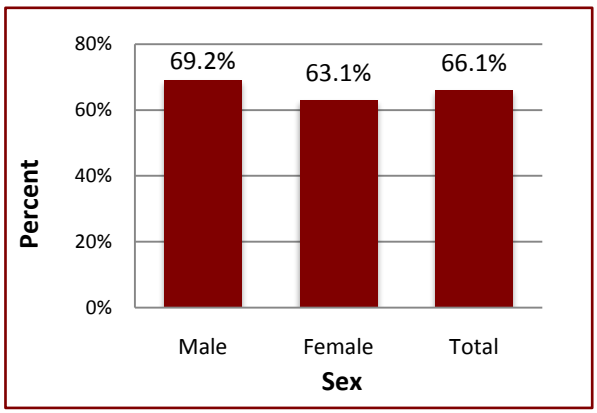
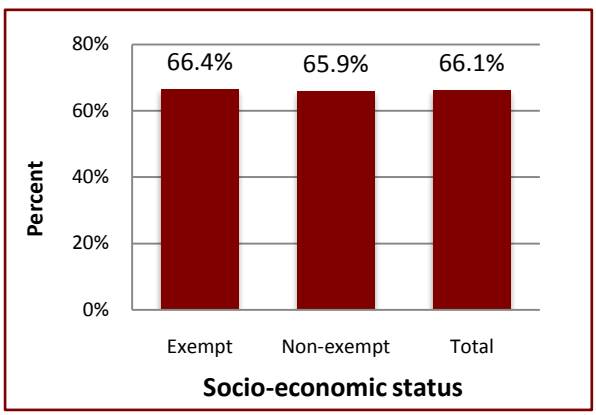


Figure 115 *by SES*



Percentage of individuals with diabetes mellitus with LDL levels less than or equal to 100 mg/dL

Individuals with LDL levels less than or equal to 100 mg/dL (numerator) among individuals with diabetes mellitus with a record of LDL (denominator)

Table 84 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)										
Year		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	56	991	888	1,989	6,701	23,794	50,525	54,037	35,542	6,395	180,918
	Denominator	85	1,547	1,454	3,945	12,697	41,841	78,608	77,720	51,373	10,286	279,556
	Rate	**65.9%**	**64.1%**	**61.1%**	**50.4%**	**52.8%**	**56.9%**	**64.3%**	**69.5%**	**69.2%**	**62.2%**	**64.7%**
2009	Numerator	47	1,057	951	2,107	7,218	25,418	57,116	57,631	38,492	7,421	197,458
	Denominator	77	1,677	1,588	4,176	13,912	44,162	87,407	81,508	54,592	11,692	300,791
	Rate	**61.0%**	**63.0%**	**59.9%**	**50.5%**	**51.9%**	**57.6%**	**65.3%**	**70.7%**	**70.5%**	**63.5%**	**65.6%**
2010	Numerator	50	1,108	953	2,230	7,597	26,443	62,177	61,400	41,341	8,590	211,889
	Denominator	75	1,773	1,626	4,341	14,409	45,732	94,906	86,455	58,147	13,241	320,705
	Rate	**66.7%**	**62.5%**	**58.6%**	**51.4%**	**52.7%**	**57.8%**	**65.5%**	**71.0%**	**71.1%**	**64.9%**	**66.1%**

Table 85 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)										
Sex		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	26	607	512	1,189	4,294	14,971	33,709	30,606	18,724	3,789	108,427
	Denominator	41	877	783	2,211	7,960	24,815	49,100	41,049	24,573	5,239	156,648
	Rate	**63.4%**	**69.2%**	**65.4%**	**53.8%**	**53.9%**	**60.3%**	**68.7%**	**74.6%**	**76.2%**	**72.3%**	**69.2%**
Female	Numerator	24	501	441	1,041	3,303	11,472	28,468	30,794	22,617	4,801	103,462
	Denominator	34	896	843	2,130	6,449	20,917	45,806	45,406	33,574	8,002	164,057
	Rate	**70.6%**	**55.9%**	**52.3%**	**48.9%**	**51.2%**	**54.8%**	**62.1%**	**67.8%**	**67.4%**	**60.0%**	**63.1%**
Total	Numerator	50	1,108	953	2,230	7,597	26,443	62,177	61,400	41,341	8,590	211,889
	Denominator	75	1,773	1,626	4,341	14,409	45,732	94,906	86,455	58,147	13,241	320,705
	Rate	**66.7%**	**62.5%**	**58.6%**	**51.4%**	**52.7%**	**57.8%**	**65.5%**	**71.0%**	**71.1%**	**64.9%**	**66.1%**

Table 86 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)										
Socio-economic status		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	39	481	139	417	1,448	6,002	20,788	26,484	15,452	2,795	74,045
	Denominator	57	772	225	738	2,602	10,131	31,700	38,145	22,692	4,515	111,577
	Rate	**68.4%**	**62.3%**	**61.8%**	**56.5%**	**55.6%**	**59.2%**	**65.6%**	**69.4%**	**68.1%**	**61.9%**	**66.4%**
Non-exempt	Numerator	11	627	814	1,813	6,149	20,441	41,389	34,916	25,889	5,795	137,844
	Denominator	18	1,001	1,401	3,603	11,807	35,601	63,206	48,310	35,455	8,726	209,128
	Rate	**61.1%**	**62.6%**	**58.1%**	**50.3%**	**52.1%**	**57.4%**	**65.5%**	**72.3%**	**73.0%**	**66.4%**	**65.9%**
Total	Numerator	50	1,108	953	2,230	7,597	26,443	62,177	61,400	41,341	8,590	211,889
	Denominator	75	1,773	1,626	4,341	14,409	45,732	94,906	86,455	58,147	13,241	320,705
	Rate	**66.7%**	**62.5%**	**58.6%**	**51.4%**	**52.7%**	**57.8%**	**65.5%**	**71.0%**	**71.1%**	**64.9%**	**66.1%**

Eye care documentation for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus who had an eye examination by an ophthalmologist during the measurement year.

Rationale: Diabetes is the leading cause of blindness in Western countries and diabetic retinopathy (damage to the retina) is a common complication of the disease. Laser surgery is an effective treatment for diabetic retinopathy and a preventive measure against eyesight deterioration. The effectiveness of treatment increases with care at an earlier stage. Periodic eye examinations are important for the detection of diabetic retinopathy. Retinal disease may develop in Types 1 and 2 diabetes. Since Type 2 diabetes develops long before it is diagnosed, newly diagnosed individuals should undergo periodic retinal screenings. Individuals with Type 1 diabetes rarely develop diabetic retinopathy at onset of the disease or several years thereafter and, therefore, eye examinations can be deferred. The recommended frequency of retinal screening for individuals with Type 1 or Type 2 diabetes is once a year.

Denominator: Individuals with diabetes mellitus.

Numerator: The number of individuals in the denominator who had an eye examination by an ophthalmologist during the measurement year.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 87-89 and Figures 116-119)

In 2010, 64.5% of the 355,326 individuals with diabetes mellitus had an eye examination during the measurement year. This rate was similar to rates from previous years. The percent of patients with diabetes mellitus who underwent an annual eye examination increased gradually with age from 36.0% for patients aged 0–4 years to 71.9% for those aged 65–74 years.

Eye examination rates were higher for women (66.2%) than men (62.7%) with diabetes mellitus, although this trend reversed for adults over 75 years. Rates were higher for patients in the exempt than the non-exempt population while a reverse trend was observed for older patients (75+ years).

Percentage of individuals with diabetes mellitus with an eye examination

Percentage of individuals with an eye examination in the measurement year (numerator) among individuals with diabetes mellitus (denominator)

Figure 116 *by year*

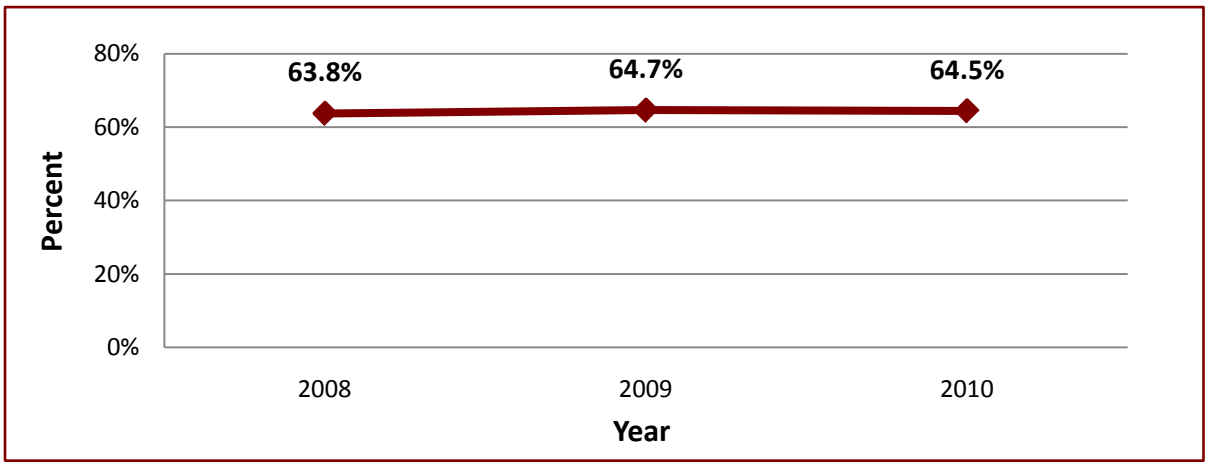


Figure 117 *by age group*

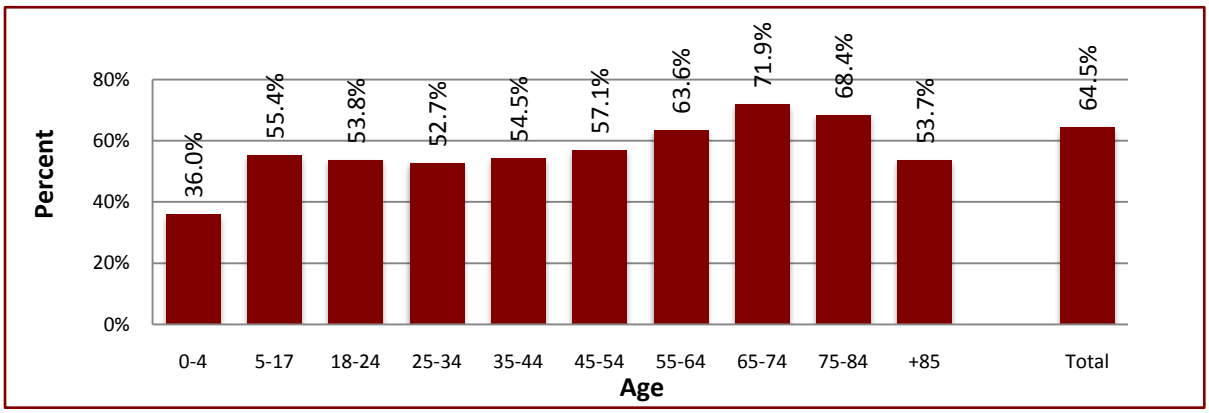


Figure 118 *by sex*

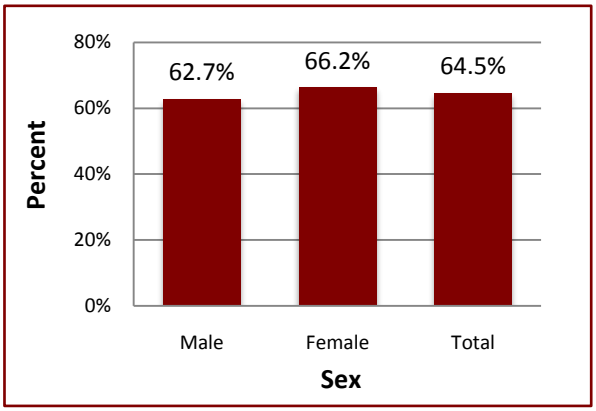
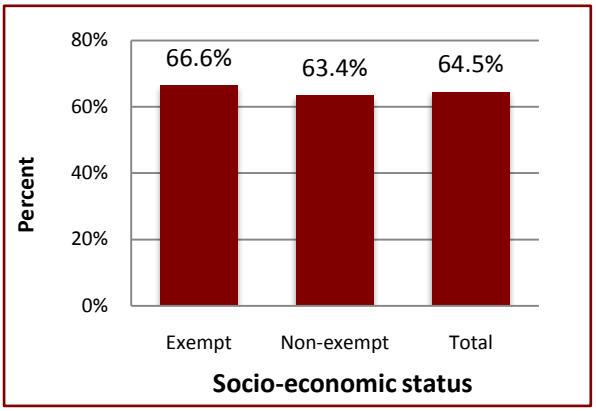


Figure 119 *by SES*



Percentage of individuals with diabetes mellitus with an eye examination

Individuals with an eye examination in the measurement year (numerator) among individuals with diabetes mellitus (denominator)

Table 87 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)										
Year		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	55	1,271	1,010	2,589	8,261	27,395	54,997	58,756	36,928	6,210	197,472
	Denominator	155	2,150	1,858	4,922	15,263	48,297	86,977	83,065	55,118	11,529	309,334
	Rate	**35.5%**	**59.1%**	**54.4%**	**52.6%**	**54.1%**	**56.7%**	**63.2%**	**70.7%**	**67.0%**	**53.9%**	**63.8%**
2009	Numerator	57	1,353	1,059	2,834	9,306	29,840	62,004	62,412	39,381	6,976	215,222
	Denominator	148	2,268	1,970	5,144	16,580	50,897	96,472	87,199	58,939	13,196	332,813
	Rate	**38.5%**	**59.7%**	**53.8%**	**55.1%**	**56.1%**	**58.6%**	**64.3%**	**71.6%**	**66.8%**	**52.9%**	**64.7%**
2010	Numerator	50	1,352	1,094	2,818	9,438	30,362	66,872	66,411	42,695	8,013	229,105
	Denominator	139	2,440	2,035	5,343	17,320	53,203	105,123	92,378	62,415	14,930	355,326
	Rate	**36.0%**	**55.4%**	**53.8%**	**52.7%**	**54.5%**	**57.1%**	**63.6%**	**71.9%**	**68.4%**	**53.7%**	**64.5%**

Table 88 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)										
Sex		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	29	670	513	1,403	5,140	15,972	33,411	31,149	18,597	3,486	110,370
	Denominator	69	1,214	1,014	2,759	9,918	29,626	55,151	44,135	26,259	5,814	175,959
	Rate	**42.0%**	**55.2%**	**50.6%**	**50.9%**	**51.8%**	**53.9%**	**60.6%**	**70.6%**	**70.8%**	**60.0%**	**62.7%**
Female	Numerator	21	682	581	1,415	4,298	14,390	33,461	35,262	24,098	4,527	118,735
	Denominator	70	1,226	1,021	2,584	7,402	23,577	49,972	48,243	36,156	9,116	179,367
	Rate	**30.0%**	**55.6%**	**56.9%**	**54.8%**	**58.1%**	**61.0%**	**67.0%**	**73.1%**	**66.7%**	**49.7%**	**66.2%**
Total	Numerator	50	1,352	1,094	2,818	9,438	30,362	66,872	66,411	42,695	8,013	229,105
	Denominator	139	2,440	2,035	5,343	17,320	53,203	105,123	92,378	62,415	14,930	355,326
	Rate	**36.0%**	**55.4%**	**53.8%**	**52.7%**	**54.5%**	**57.1%**	**63.6%**	**71.9%**	**68.4%**	**53.7%**	**64.5%**

Table 89 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)										
Socio-economic status		**0-4**	**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	37	607	156	504	1,772	7,172	23,373	29,269	16,203	2,588	81,681
	Denominator	94	1,048	283	907	3,105	11,774	34,936	40,856	24,478	5,177	122,658
	Rate	**39.4%**	**57.9%**	**55.1%**	**55.6%**	**57.1%**	**60.9%**	**66.9%**	**71.6%**	**66.2%**	**50.0%**	**66.6%**
Non-exempt	Numerator	13	745	938	2,314	7,666	23,190	43,499	37,142	26,492	5,425	147,424
	Denominator	45	1,392	1,752	4,436	14,215	41,429	70,187	51,522	37,937	9,753	232,668
	Rate	**28.9%**	**53.5%**	**53.5%**	**52.2%**	**53.9%**	**56.0%**	**62.0%**	**72.1%**	**69.8%**	**55.6%**	**63.4%**
Total	Numerator	50	1,352	1,094	2,818	9,438	30,362	66,872	66,411	42,695	8,013	229,105
	Denominator	139	2,440	2,035	5,343	17,320	53,203	105,123	92,378	62,415	14,930	355,326
	Rate	**36.0%**	**55.4%**	**53.8%**	**52.7%**	**54.5%**	**57.1%**	**63.6%**	**71.9%**	**68.4%**	**53.7%**	**64.5%**

Influenza vaccination for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus aged 5+ years who received a seasonal influenza vaccination during the measurement year**.**

Rationale: Individuals with a chronic illness are susceptible to the influenza virus and its complications. Patients with diabetes mellitus have a 2–4 times greater mortality risk from influenza-related complications relative to healthy persons. In addition, individuals with diabetes mellitus are more vulnerable to the influenza virus, especially during seasonal outbreaks. According to the Ministry of Health recommendations, individuals with diabetes mellitus should receive an annual influenza vaccination.

Denominator: Individuals with diabetes mellitus aged 5+ years.

Numerator: The number of individuals in the denominator who received an influenza vaccination during the fall and winter months of the measurement year.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 90-92 and Figures 120-123)

In 2010, 55.3% of individuals with diabetes mellitus aged 5+ years received a seasonal influenza vaccination. This rate represents a 4% increase from 2008. Immunization rates increased with age, from 36.2% for individuals aged 5–17 years, to 66.9% for individuals aged 75–84 years.

Influenza vaccination rates were higher for men (56.3%) than women (54.5%) with diabetes mellitus.

Socio-economic disparities were observed between vaccination rates for individuals with diabetes mellitus. For patients less than 65 years-of-age with diabetes mellitus, vaccination rates were higher in the exempt than the non-exempt population; a reverse trend was observed for older patients (65+ years).

Influenza vaccination rates for individuals with diabetes mellitus (ages 5+ years)

Percentage of individuals who received a seasonal influenza vaccination (numerator) among individuals with diabetes mellitus aged 5+ years (denominator)

Figure 120 *by year*

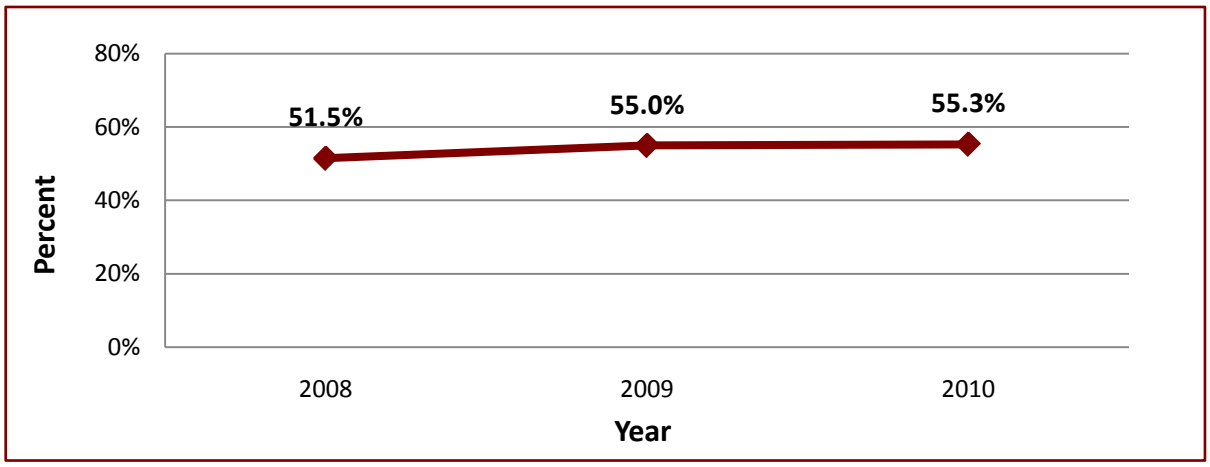


Figure 121 *by age group*

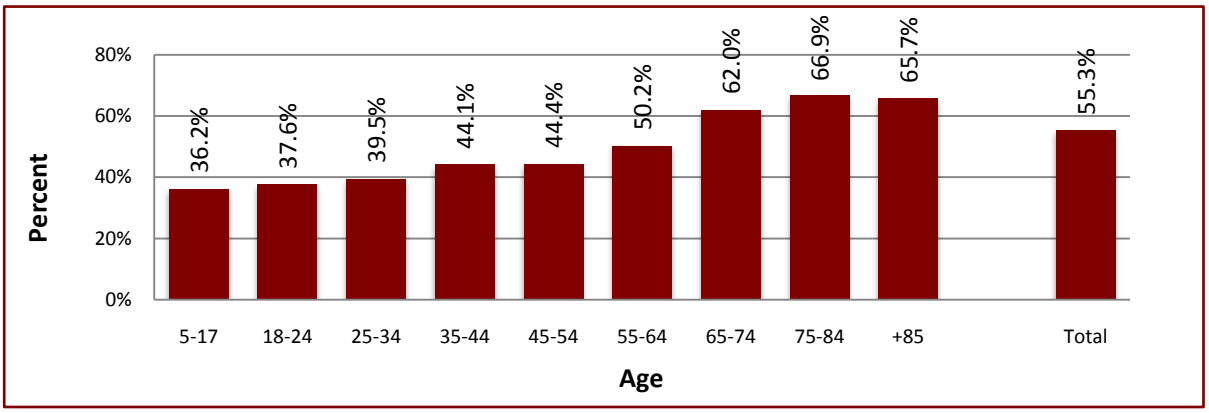


Figure 122 *by sex*

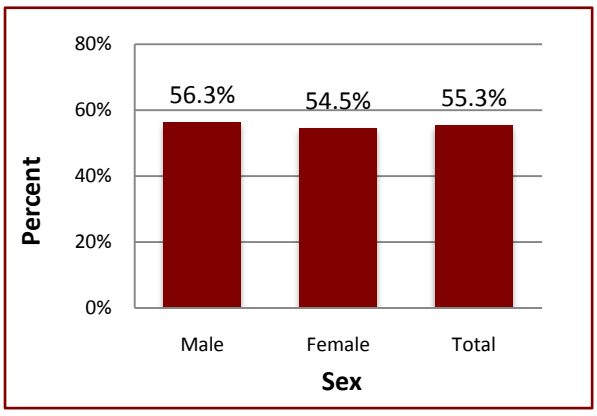
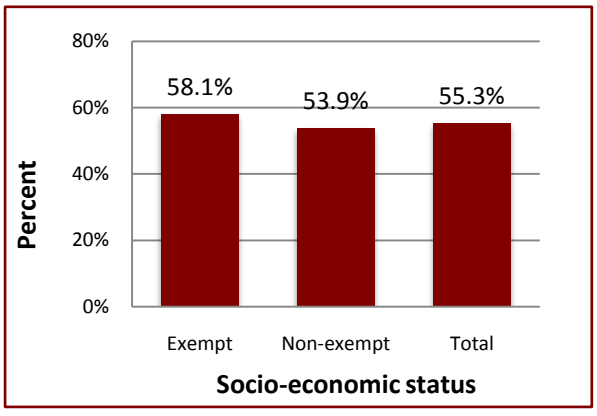


Figure 123 *by SES*



Influenza vaccination rates for individuals with diabetes mellitus (ages 5+ years)

Individuals who received a seasonal influenza vaccination (numerator) among individuals with diabetes mellitus aged 5+ years (denominator)

Table 90 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)									
Year		**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	649	558	1,595	5,689	18,555	39,867	49,240	35,391	7,653	159,197
	Denominator	2,150	1,858	4,922	15,262	48,298	86,977	83,063	55,120	11,529	309,179
	Rate	**30.2%**	**30.0%**	**32.4%**	**37.3%**	**38.4%**	**45.8%**	**59.3%**	**64.2%**	**66.4%**	**51.5%**
2009	Numerator	901	766	2,036	7,381	22,709	48,488	53,484	38,642	8,717	183,124
	Denominator	2,268	1,970	5,144	16,580	50,896	96,471	87,200	58,941	13,195	332,665
	Rate	**39.7%**	**38.9%**	**39.6%**	**44.5%**	**44.6%**	**50.3%**	**61.3%**	**65.6%**	**66.1%**	**55.0%**
2010	Numerator	883	765	2,109	7,637	23,637	52,754	57,265	41,728	9,812	196,590
	Denominator	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,187
	Rate	**36.2%**	**37.6%**	**39.5%**	**44.1%**	**44.4%**	**50.2%**	**62.0%**	**66.9%**	**65.7%**	**55.3%**

Table 91 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)									
Sex		**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	434	403	1,127	4,281	12,996	28,215	28,614	18,784	4,106	98,960
	Denominator	1,214	1,014	2,759	9,918	29,625	55,146	44,141	26,259	5,814	175,890
	Rate	**35.7%**	**39.7%**	**40.8%**	**43.2%**	**43.9%**	**51.2%**	**64.8%**	**71.5%**	**70.6%**	**56.3%**
Female	Numerator	449	362	982	3,356	10,641	24,539	28,651	22,944	5,706	97,630
	Denominator	1,226	1,021	2,584	7,402	23,577	49,968	48,247	36,156	9,116	179,297
	Rate	**36.6%**	**35.5%**	**38.0%**	**45.3%**	**45.1%**	**49.1%**	**59.4%**	**63.5%**	**62.6%**	**54.5%**
Total	Numerator	883	765	2,109	7,637	23,637	52,754	57,265	41,728	9,812	196,590
	Denominator	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,187
	Rate	**36.2%**	**37.6%**	**39.5%**	**44.1%**	**44.4%**	**50.2%**	**62.0%**	**66.9%**	**65.7%**	**55.3%**

Table 92 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)									
Socio-economic status		**5-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	416	130	463	1,711	6,384	19,488	24,748	14,793	3,102	71,235
	Denominator	1,048	283	907	3,105	11,773	34,934	40,859	24,478	5,177	122,564
	Rate	**39.7%**	**45.9%**	**51.0%**	**55.1%**	**54.2%**	**55.8%**	**60.6%**	**60.4%**	**59.9%**	**58.1%**
Non-exempt	Numerator	467	635	1,646	5,926	17,253	33,266	32,517	26,935	6,710	125,355
	Denominator	1,392	1,752	4,436	14,215	41,429	70,180	51,529	37,937	9,753	232,623
	Rate	**33.5%**	**36.2%**	**37.1%**	**41.7%**	**41.6%**	**47.4%**	**63.1%**	**71.0%**	**68.8%**	**53.9%**
Total	Numerator	883	765	2,109	7,637	23,637	52,754	57,265	41,728	9,812	196,590
	Denominator	2,440	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	355,187
	Rate	**36.2%**	**37.6%**	**39.5%**	**44.1%**	**44.4%**	**50.2%**	**62.0%**	**66.9%**	**65.7%**	**55.3%**

Pneumoccocal vaccination for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus aged 65–71 years who received a pneumococcal vaccination.

Rationale: Individuals with a chronic illness are susceptible to the *Pneumococcus* bacterium and its complications. Patients with diabetes mellitus have greater morbidity and mortality risks from pneumonia, bacteremia, and meningitis that result from the pneumococcal bacteria. According to the Ministry of Health recommendations, individuals with diabetes mellitus should receive the pneumococcal vaccination.

Denominator: Individuals aged 65–71 years

Numerator: The number of individuals in the denominator who received a pneumococcal vaccination once after age 65 years or within the past five years.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels. This indicator relates to the 23-valent formulation of the pneumococcal polysaccharide vaccine. The age range used for the present report (2008–2010) is a function of data availability.

Results (Tables 93-95 and Figures 124-127)

In 2010, 77.0% of individuals with diabetes mellitus aged 65–71 years were vaccinated against the *Pneumococcus* bacterium. This rate was similar to that of previous years.

Pneumococcal vaccination rates were higher for men (78.4%) than women (75.5%) with diabetes mellitus.

No differences in pneumococcal vaccination rates were observed between the exempt and non-exempt population.

Pneumococcal vaccination status for individuals with diabetes mellitus (ages 65-71 years)

Percentage of individuals who received a seasonal influenza vaccination (numerator) among individuals with diabetes mellitus aged 5+ years (denominator)

Figure 124 *by year*

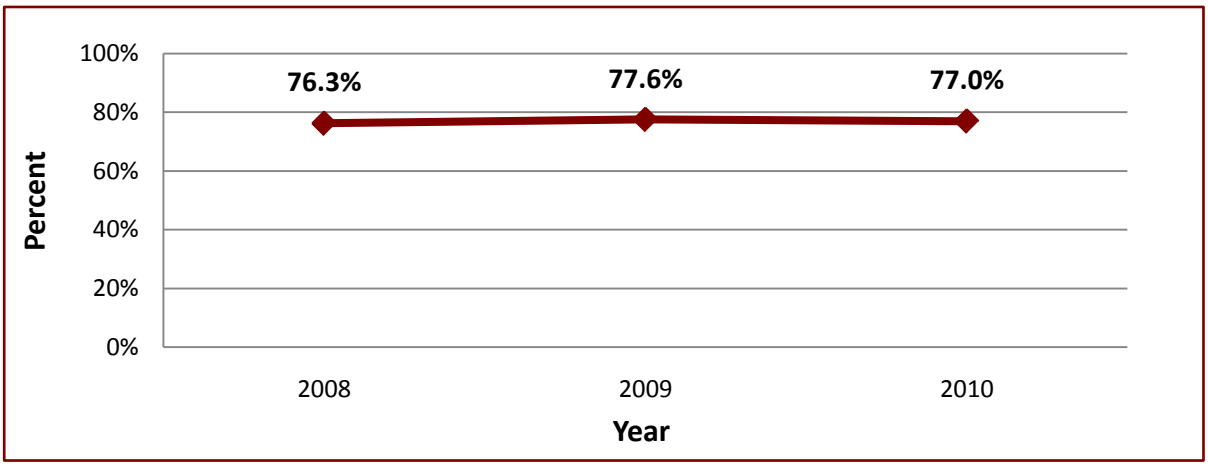


Figure 125 *by age group*

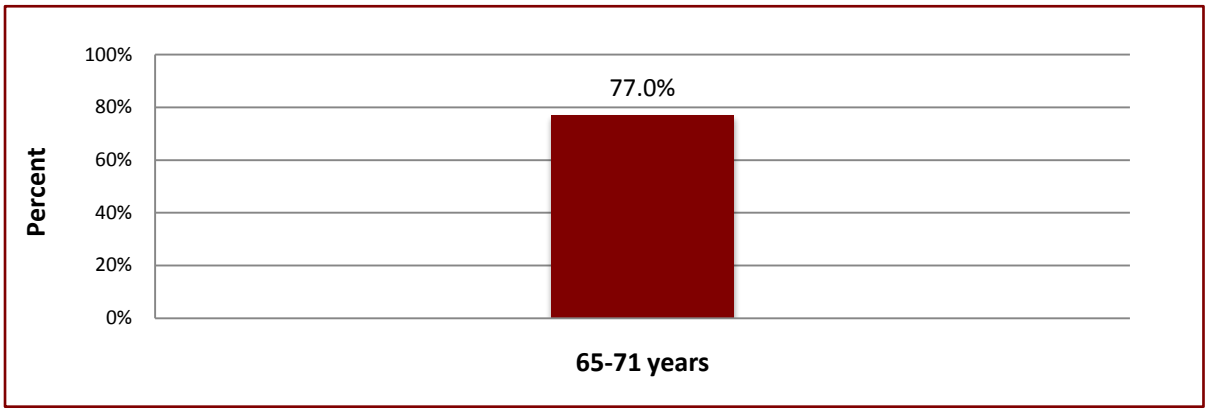


Figure 126 *by sex*

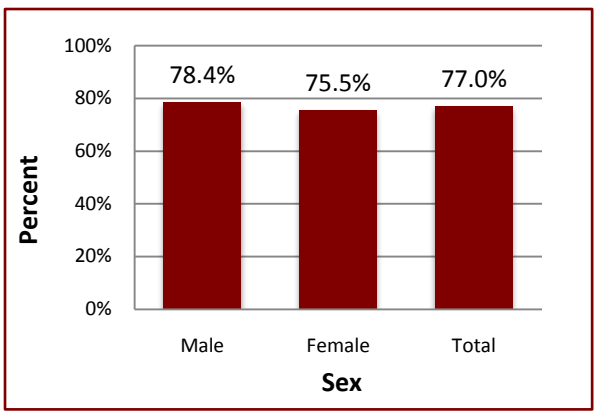
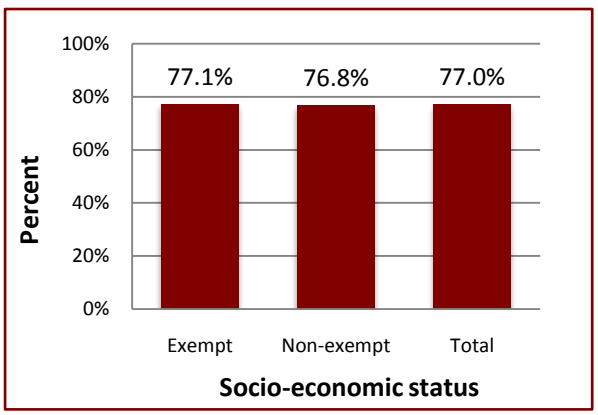


Figure 127 *by SES*



Pneumococcal vaccination status for individuals with diabetes mellitus (ages 65-71 years)

Individuals who received a seasonal influenza vaccination (numerator) among individuals with diabetes mellitus aged 5+ years (denominator)

Table 93 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)
Year		**65-71**
2008	Numerator	43,059
	Denominator	56,446
	Rate	**76.3%**
2009	Numerator	45,780
	Denominator	58,958
	Rate	**77.6%**
2010	Numerator	47,378
	Denominator	61,567
	Rate	**77.0%**

Table 94 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)
Sex		**65-71**
Male	Numerator	23,703
	Denominator	30,215
	Rate	**78.4%**
Female	Numerator	23,675
	Denominator	31,352
	Rate	**75.5%**
Total	Numerator	47,378
	Denominator	61,567
	Rate	**77.0%**

Table 95 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)
Socio-economic status		**65-71**
Exempt	Numerator	20,644
	Denominator	26,765
	Rate	**77.1%**
Non-exempt	Numerator	26,734
	Denominator	34,802
	Rate	**76.8%**
Total	Numerator	47,378
	Denominator	61,567
	Rate	**77.0%**

Blood pressure measurement documentation for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus aged 18+ years with blood pressure measurement documentation during the measurement year.

Rationale: High blood pressure may accelerate diabetes complications in patients with diabetes mellitus. The UK Prospective Diabetes Study shows that for the prevention of diabetes-related complications, controlling blood pressure is at least as important as controlling blood sugar levels. Guidelines for treating diabetes mellitus include periodic measurement of blood pressure and treatment and control of high blood pressure.

Denominator: Individuals with diabetes mellitus aged 18+ years.

Numerator: The number of individuals in the denominator with record of at least one blood pressure measurement in the measurement year.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 96-98 and Figure 128-131)

In 2010, 92.1% of the 352,747 individuals with diabetes mellitus aged 18+ years had a recorded blood pressure measurement. This rate remained similar during the observation period. Performance rates increased with age until age 65 years, after which the rate decreased.

Blood pressure measurement rates were similar for men and women with diabetes mellitus (92.5% and 91.8%, respectively).

Documentation rates were slightly higher for individuals in the exempt (93.3%) than the non-exempt (91.5%) population.

Percentage of individuals with diabetes mellitus with documentation of blood pressure measurement (ages 18+ years)

Percentage of individuals with documentation of blood pressure measurement (numerator) among individuals with diabetes mellitus aged 18+ years (denominator)

Figure 128 *by year*

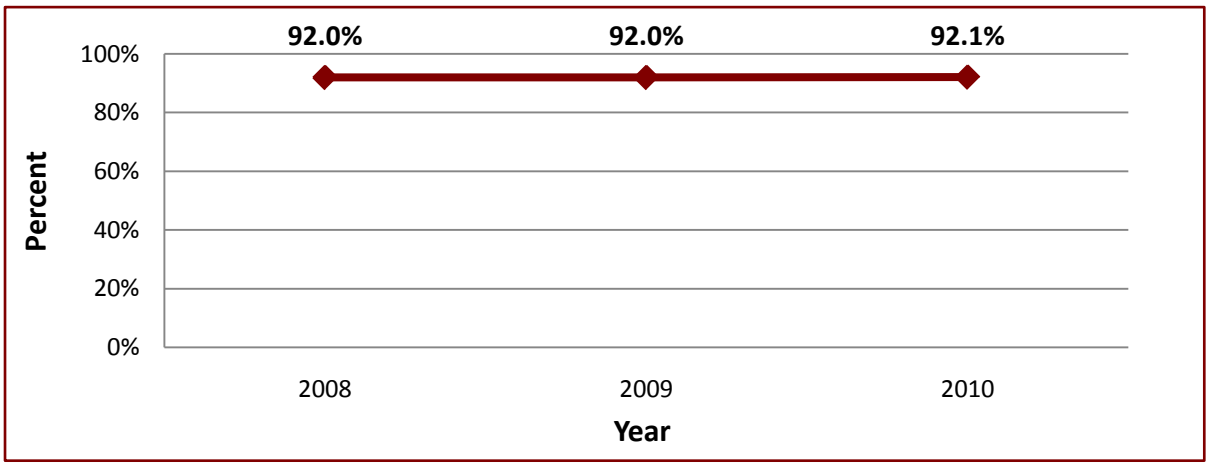


Figure 129 *by age group*

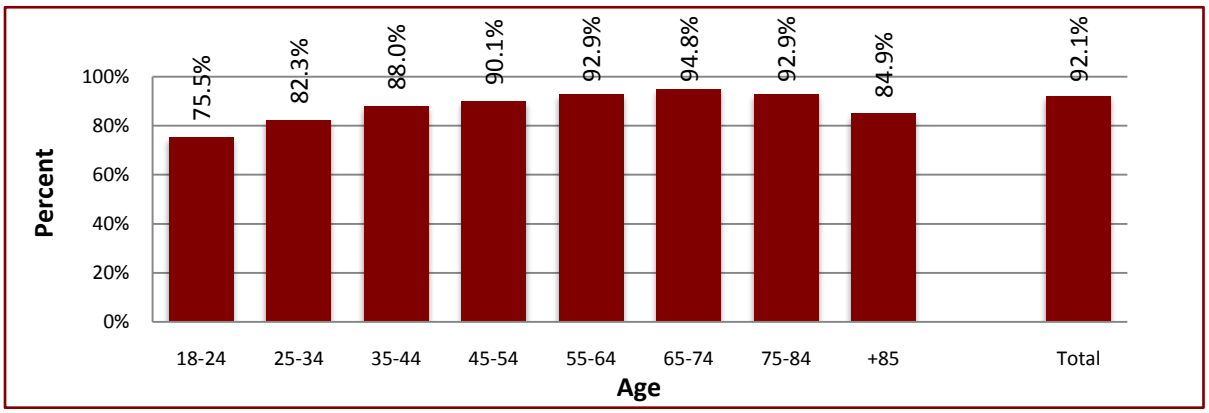


Figure 130 *by sex*

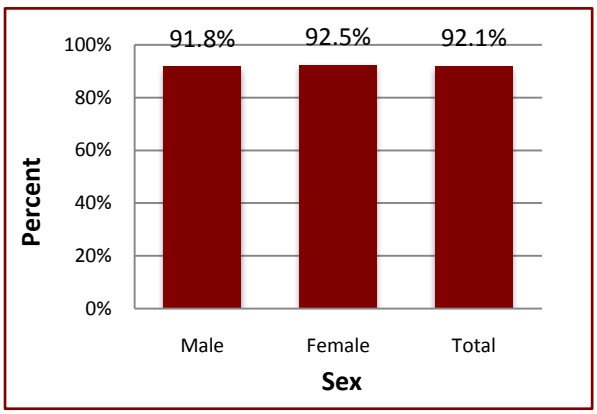
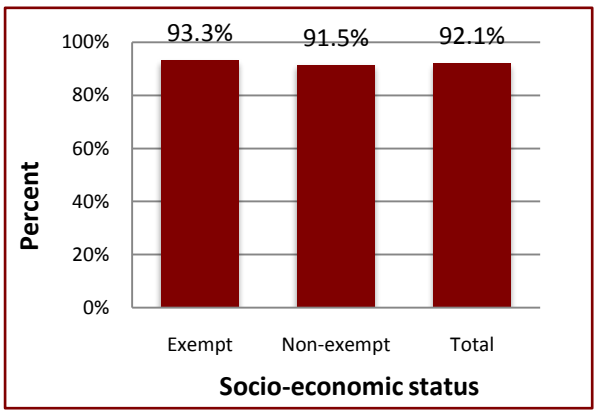


Figure 131 *by SES*



Percentage of individuals with diabetes mellitus with documentation of blood pressure measurement (ages 18+ years)

Individuals with documentation of blood pressure measurement (numerator) among individuals with diabetes mellitus aged 18+ years (denominator)

Table 96 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)								
Year		**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	1,372	4,032	13,515	43,871	80,262	78,592	50,988	9,788	282,420
	Denominator	1,858	4,922	15,262	48,298	86,977	83,063	55,120	11,529	307,029
	Rate	**73.8%**	**81.9%**	**88.6%**	**90.8%**	**92.3%**	**94.6%**	**92.5%**	**84.9%**	**92.0%**
2009	Numerator	1,468	4,230	14,516	45,971	89,688	82,591	54,307	11,069	303,840
	Denominator	1,970	5,144	16,580	50,896	96,471	87,200	58,941	13,195	330,397
	Rate	**74.5%**	**82.2%**	**87.6%**	**90.3%**	**93.0%**	**94.7%**	**92.1%**	**83.9%**	**92.0%**
2010	Numerator	1,537	4,395	15,234	47,919	97,664	87,566	57,959	12,682	324,956
	Denominator	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	352,747
	Rate	**75.5%**	**82.3%**	**88.0%**	**90.1%**	**92.9%**	**94.8%**	**92.9%**	**84.9%**	**92.1%**

Table 97 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)								
Sex		**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	738	2,245	8,646	26,333	50,799	41,680	24,688	5,147	160,276
	Denominator	1,014	2,759	9,918	29,625	55,146	44,141	26,259	5,814	174,676
	Rate	**72.8%**	**81.4%**	**87.2%**	**88.9%**	**92.1%**	**94.4%**	**94.0%**	**88.5%**	**91.8%**
Female	Numerator	799	2,150	6,588	21,586	46,865	45,886	33,271	7,535	164,680
	Denominator	1,021	2,584	7,402	23,577	49,968	48,247	36,156	9,116	178,071
	Rate	**78.3%**	**83.2%**	**89.0%**	**91.6%**	**93.8%**	**95.1%**	**92.0%**	**82.7%**	**92.5%**
Total	Numerator	1,537	4,395	15,234	47,919	97,664	87,566	57,959	12,682	324,956
	Denominator	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	352,747
	Rate	**75.5%**	**82.3%**	**88.0%**	**90.1%**	**92.9%**	**94.8%**	**92.9%**	**84.9%**	**92.1%**

Table 98 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)								
Socio-economic status		**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	202	762	2,753	10,753	32,889	38,865	22,689	4,408	113,321
	Denominator	283	907	3,105	11,773	34,934	40,859	24,478	5,177	121,516
	Rate	**71.4%**	**84.0%**	**88.7%**	**91.3%**	**94.1%**	**95.1%**	**92.7%**	**85.1%**	**93.3%**
Non-exempt	Numerator	1,335	3,633	12,481	37,166	64,775	48,701	35,270	8,274	211,635
	Denominator	1,752	4,436	14,215	41,429	70,180	51,529	37,937	9,753	231,231
	Rate	**76.2%**	**81.9%**	**87.8%**	**89.7%**	**92.3%**	**94.5%**	**93.0%**	**84.8%**	**91.5%**
Total	Numerator	1,537	4,395	15,234	47,919	97,664	87,566	57,959	12,682	324,956
	Denominator	2,035	5,343	17,320	53,202	105,114	92,388	62,415	14,930	352,747
	Rate	**75.5%**	**82.3%**	**88.0%**	**90.1%**	**92.9%**	**94.8%**	**92.9%**	**84.9%**	**92.1%**

Blood pressure assessment for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes aged 18+ years with blood pressure measurement documentation less than or equal to 130/80 mm Hg in the measurement year.

Rationale: High blood pressure is a common risk factor for cardiovascular disease. Stroke, heart failure, myocardial infarction, and kidney damage are all complications of high blood pressure. Individuals with diabetes mellitus need to be especially careful about their blood pressure levels and in this population, blood pressure is considered high for levels greater than 130/80 mm Hg.

Denominator: Individuals with diabetes mellitus aged 18+ years with record of at least one blood pressure examination during the measurement year.

Numerator: The number of individuals in the denominator whose last blood pressure value is less than or equal to 130/80 mm Hg.

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, including insulin, indicated for the lowering of glucose levels.

Results (Tables 99-101 and Figures 132-135)

In 2010, 70.1% of the 324,956 individuals with diabetes mellitus aged 18+ years with a record of blood pressure measurement had blood pressure levels within the target value of less than or equal to 130/80 mm Hg. This rate increased steadily throughout the measurement period and represented a 2.4% increase from 2008. Controlled blood pressure rates were higher among individuals younger than 45 years (77.0%) compared to those over 45 years (69.6%)

Women had slightly higher rates of blood pressure within target levels than men (71.2% compared with 68.9%).

No differences in controlled blood pressure rates were observed between the exempt and non-exempt population.

Percentage of individuals with diabetes mellitus with blood pressure less than or equal to 130/80 mm Hg (ages 18+ years)

Percentage of individuals with blood pressure less than or equal to 130/80 mm Hg (numerator) among individuals with diabetes mellitus aged 18+ years with a record of blood pressure during the measurement year (denominator)

Figure 132 *by year*

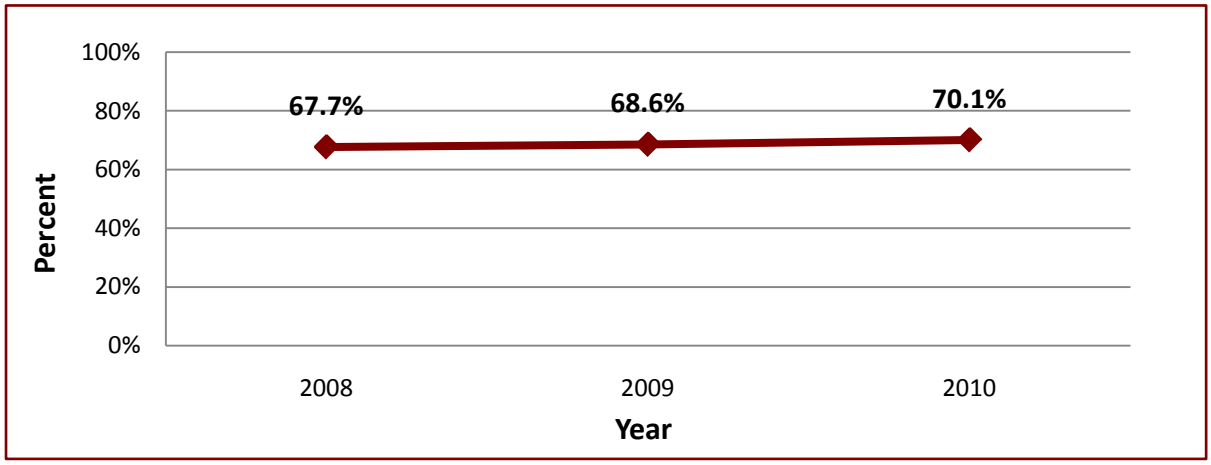


Figure 133 *by age group*

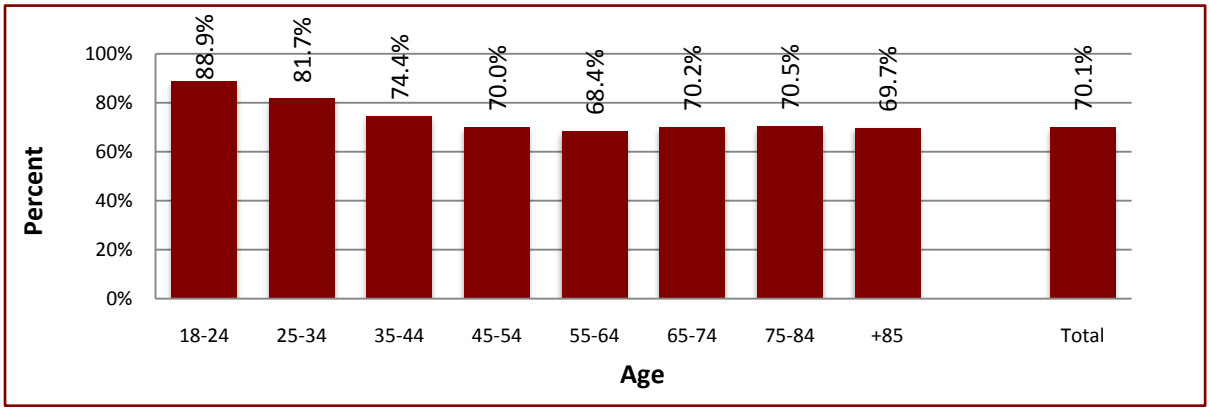


Figure 134 *by sex*

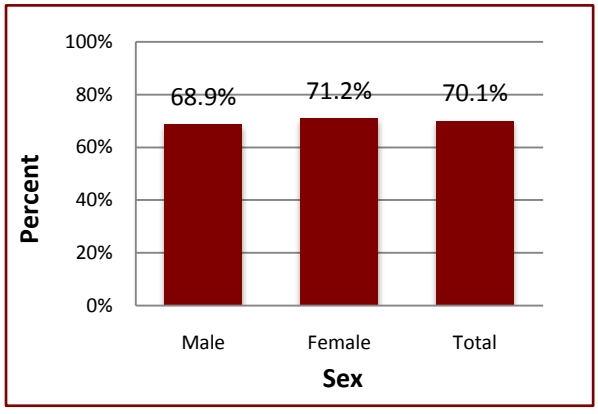
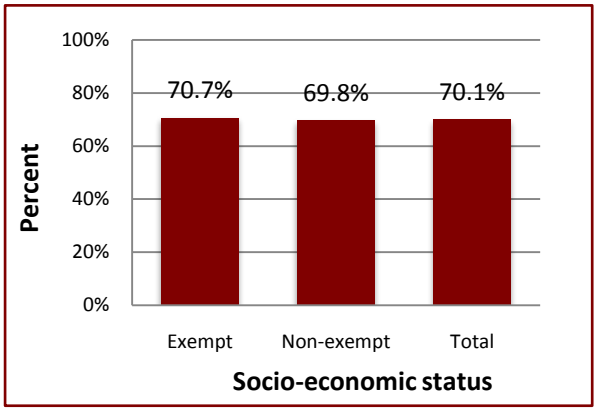


Figure 135 *by SES*



Percentage of individuals with diabetes mellitus with blood pressure less than or equal to 130/80 mm Hg (ages 18+ years)

Individuals with blood pressure less than or equal to 130/80 mm Hg (numerator) among individuals with diabetes mellitus aged 18+ years with a record of blood pressure during the measurement year (denominator)

Table 99 *by age group, 2008 - 2010 (absolute numbers and rates)*

Year		Age (Years) 18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
2008	Numerator	1,210	3,269	9,741	29,921	52,579	52,686	35,134	6,780	191,320
	Denominator	1,372	4,032	13,515	43,871	80,262	78,592	50,988	9,788	282,420
	Rate	**88.2%**	**81.1%**	**72.1%**	**68.2%**	**65.5%**	**67.0%**	**68.9%**	**69.3%**	**67.7%**
2009	Numerator	1,293	3,461	10,598	31,555	59,902	56,199	37,712	7,709	208,429
	Denominator	1,468	4,230	14,516	45,971	89,688	82,591	54,307	11,069	303,840
	Rate	**88.1%**	**81.8%**	**73.0%**	**68.6%**	**66.8%**	**68.0%**	**69.4%**	**69.6%**	**68.6%**
2010	Numerator	1,366	3,590	11,335	33,540	66,818	61,429	40,837	8,844	227,759
	Denominator	1,537	4,395	15,234	47,919	97,664	87,566	57,959	12,682	324,956
	Rate	**88.9%**	**81.7%**	**74.4%**	**70.0%**	**68.4%**	**70.2%**	**70.5%**	**69.7%**	**70.1%**

Table 100 *by age group and sex, 2010 (absolute numbers and rates)*

Sex		Age (Years) 18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Male	Numerator	645	1,756	6,192	17,618	33,825	29,110	17,637	3,724	110,507
	Denominator	738	2,245	8,646	26,333	50,799	41,680	24,688	5,147	160,276
	Rate	**87.4%**	**78.2%**	**71.6%**	**66.9%**	**66.6%**	**69.8%**	**71.4%**	**72.4%**	**68.9%**
Female	Numerator	721	1,834	5,143	15,922	32,993	32,319	23,200	5,120	117,252
	Denominator	799	2,150	6,588	21,586	46,865	45,886	33,271	7,535	164,680
	Rate	**90.2%**	**85.3%**	**78.1%**	**73.8%**	**70.4%**	**70.4%**	**69.7%**	**67.9%**	**71.2%**
Total	Numerator	1,366	3,590	11,335	33,540	66,818	61,429	40,837	8,844	227,759
	Denominator	1,537	4,395	15,234	47,919	97,664	87,566	57,959	12,682	324,956
	Rate	**88.9%**	**81.7%**	**74.4%**	**70.0%**	**68.4%**	**70.2%**	**70.5%**	**69.7%**	**70.1%**

Table 101 *by age group and SES, 2010 (absolute numbers and rates)*

Socio-economic status		Age (Years) 18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Exempt	Numerator	176	619	2,117	7,958	23,285	27,249	15,708	3,017	80,129
	Denominator	202	762	2,753	10,753	32,889	38,865	22,689	4,408	113,321
	Rate	**87.1%**	**81.2%**	**76.9%**	**74.0%**	**70.8%**	**70.1%**	**69.2%**	**68.4%**	**70.7%**
Non-exempt	Numerator	1,190	2,971	9,218	25,582	43,533	34,180	25,129	5,827	147,630
	Denominator	1,335	3,633	12,481	37,166	64,775	48,701	35,270	8,274	211,635
	Rate	**89.1%**	**81.8%**	**73.9%**	**68.8%**	**67.2%**	**70.2%**	**71.2%**	**70.4%**	**69.8%**
Total	Numerator	1,366	3,590	11,335	33,540	66,818	61,429	40,837	8,844	227,759
	Denominator	1,537	4,395	15,234	47,919	97,664	87,566	57,959	12,682	324,956
	Rate	**88.9%**	**81.7%**	**74.4%**	**70.0%**	**68.4%**	**70.2%**	**70.5%**	**69.7%**	**70.1%**

Body mass index (BMI) documentation for individuals with diabetes mellitus

Description: The percentage of individuals with diabetes mellitus aged 18+ years with a documented body mass index (BMI; height and weight measurements) during the measurement year.

Rationale: Obesity is an independent risk factor for cardiovascular disease. Approximately 80% of cases of Type 2 diabetes are related to obesity, an additional risk factor for cardiovascular disease. Guidelines for management of diabetes mellitus include monitoring and maintaining a reasonable body weight, particularly through proper nutrition and regular exercise. Body mass index is based on a ratio of body weight to height (weight in kilograms divided by height in meters squared).

Denominator: Individuals with diabetes mellitus aged 18+ years.

Numerator: The number of individuals in the denominator with a documented BMI (weight and height – a record of weight during the measurement year and height during the measurement year or the four years prior to the measurement year).

Comments: Diabetes mellitus is defined by the purchase of hypoglycemic medication, indicated for the lowering of glucose levels, including insulin.

Results (Tables 102-104 and Figures 136-139)

In 2010, 85.8% of individuals with diabetes mellitus aged 18+ years had documentation of body weight and height (BMI). This marks an increase from previous years, although the rate of change is diminishing over time – a change of 2.6% from 2008–2009 and 1.7% from 2009–2010. Documentation rates for BMI increased with age from 75.4% for individuals aged 18–24 years to 86.9% for individuals aged 65–74 years and decreased for older adults aged 75+ years.

Documentation rates for BMI did not differ by sex and were slightly higher for individuals in the exempt (86.7%) compared to the non-exempt (85.2%) population.

Percentage of individuals with diabetes mellitus with a documented BMI (ages 18+ years)

Percentage of individuals with a documented BMI (numerator) among individuals with diabetes mellitus aged 18+ years (denominator)

Figure 136 *by year*

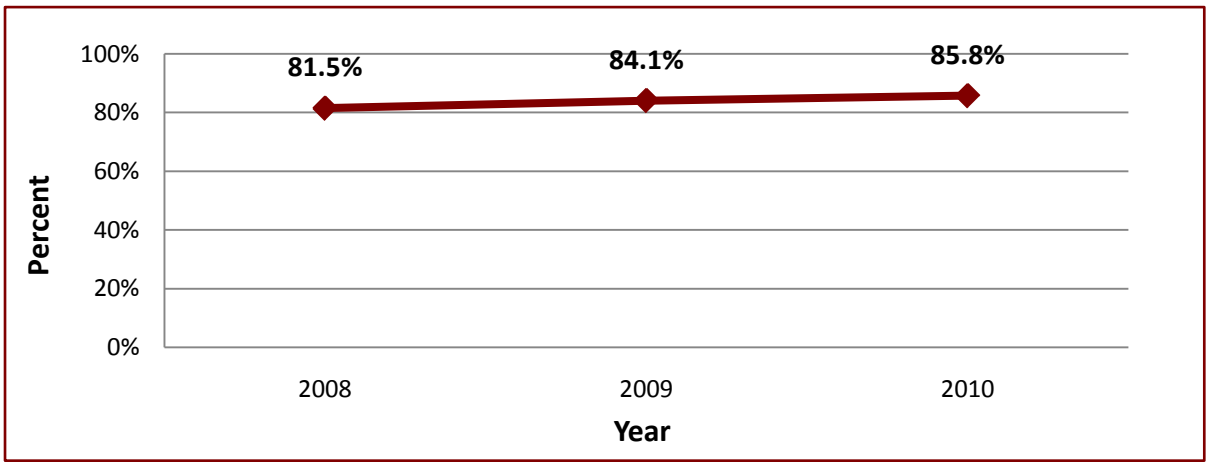


Figure 137 *by age group*

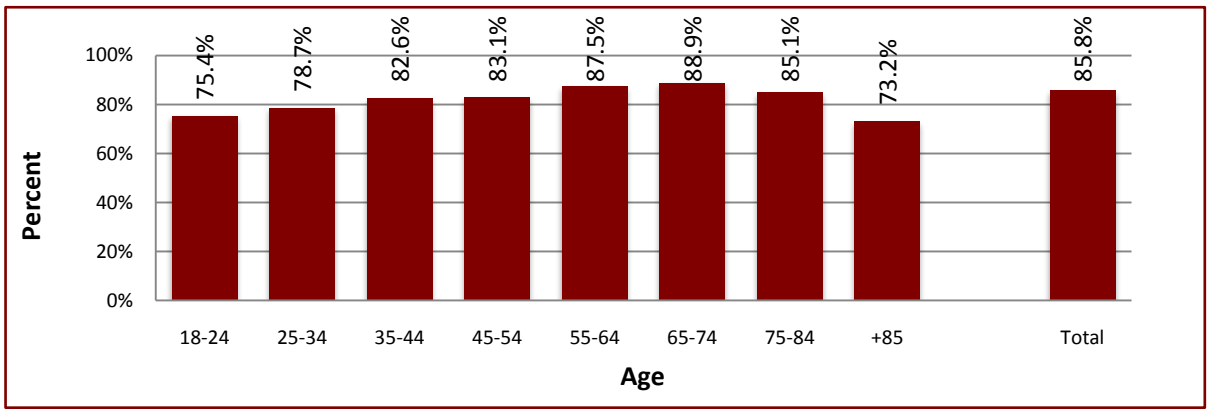


Figure 138 *by sex*

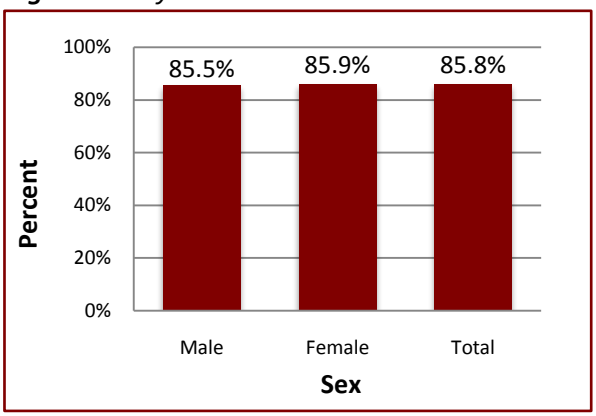
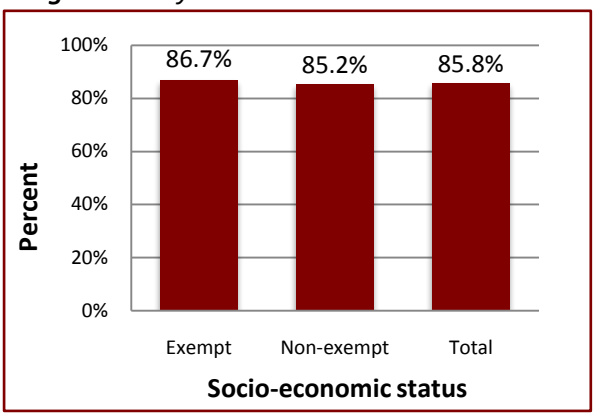


Figure 139 *by SES*



Percentage of individuals with diabetes mellitus with a documented BMI (ages 18+ years)

Individuals with a documented BMI (numerator) among individuals with diabetes mellitus aged 18+ years (denominator)

Table 102 *by age group, 2008 - 2010 (absolute numbers and rates)*

		Age (Years)								
Year		**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
2008	Numerator	1,036	3,172	11,037	37,593	70,352	68,653	43,379	7,604	242,826
	Denominator	1,640	4,539	14,456	46,400	84,443	80,882	54,108	11,355	297,823
	Rate	**63.2%**	**69.9%**	**76.3%**	**81.0%**	**83.3%**	**84.9%**	**80.2%**	**67.0%**	**81.5%**
2009	Numerator	1,286	3,596	12,710	40,052	80,888	74,117	47,674	8,977	269,300
	Denominator	1,749	4,714	15,707	48,817	93,573	84,812	57,876	13,006	320,254
	Rate	**73.5%**	**76.3%**	**80.9%**	**82.0%**	**86.4%**	**87.4%**	**82.4%**	**69.0%**	**84.1%**
2010	Numerator	1,347	3,846	13,496	42,364	89,195	79,907	52,150	10,768	293,073
	Denominator	1,787	4,885	16,343	51,005	101,881	89,851	61,306	14,714	341,772
	Rate	**75.4%**	**78.7%**	**82.6%**	**83.1%**	**87.5%**	**88.9%**	**85.1%**	**73.2%**	**85.8%**

Table 103 *by age group and sex, 2010 (absolute numbers and rates)*

		Age (Years)								
Sex		**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Male	Numerator	663	1,929	7,549	23,095	46,431	38,042	22,517	4,495	144,721
	Denominator	904	2,495	9,298	28,363	53,588	42,965	25,816	5,737	169,166
	Rate	**73.3%**	**77.3%**	**81.2%**	**81.4%**	**86.6%**	**88.5%**	**87.2%**	**78.4%**	**85.5%**
Female	Numerator	684	1,917	5,947	19,269	42,764	41,865	29,633	6,273	148,352
	Denominator	883	2,390	7,045	22,642	48,293	46,886	35,490	8,977	172,606
	Rate	**77.5%**	**80.2%**	**84.4%**	**85.1%**	**88.6%**	**89.3%**	**83.5%**	**69.9%**	**85.9%**
Total	Numerator	1,347	3,846	13,496	42,364	89,195	79,907	52,150	10,768	293,073
	Denominator	1,787	4,885	16,343	51,005	101,881	89,851	61,306	14,714	341,772
	Rate	**75.4%**	**78.7%**	**82.6%**	**83.1%**	**87.5%**	**88.9%**	**85.1%**	**73.2%**	**85.8%**

Table 104 *by age group and SES, 2010 (absolute numbers and rates)*

		Age (Years)								
Socio-economic status		**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75-84**	**85+**	**Total**
Exempt	Numerator	189	680	2,456	9,627	30,119	35,238	19,992	3,706	102,007
	Denominator	270	853	2,943	11,315	33,767	39,506	23,883	5,082	117,619
	Rate	**70.0%**	**79.7%**	**83.5%**	**85.1%**	**89.2%**	**89.2%**	**83.7%**	**72.9%**	**86.7%**
Non-exempt	Numerator	1,158	3,166	11,040	32,737	59,076	44,669	32,158	7,062	191,066
	Denominator	1,517	4,032	13,400	39,690	68,114	50,345	37,423	9,632	224,153
	Rate	**76.3%**	**78.5%**	**82.4%**	**82.5%**	**86.7%**	**88.7%**	**85.9%**	**73.3%**	**85.2%**
Total	Numerator	1,347	3,846	13,496	42,364	89,195	79,907	52,150	10,768	293,073
	Denominator	1,787	4,885	16,343	51,005	101,881	89,851	61,306	14,714	341,772
	Rate	**75.4%**	**78.7%**	**82.6%**	**83.1%**	**87.5%**	**88.9%**	**85.1%**	**73.2%**	**85.8%**

AFTERWORD

AFTERWORD

This report presents the results of quality indicators from the community healthcare system in Israel for 2008–2010. Assessing the quality of medical treatment is a necessary first step toward the improvement of medical care; however, this step alone is insufficient. A thorough evaluation of the results and their translation into policy must ensue at all levels of service providers (e.g., local doctors, medical clinics, and health plans). Simultaneously, the National Program for Quality Indicators in Community Healthcare should continue to develop and re-evaluate itself in order to ensure its efficiency. The following are key points included in these processes.

Report and Discussion of Results

The present (and past) *National Program for Quality Indicators in Community Healthcare in Israel Report* should be distributed to relevant institutions, including health plans, the Ministry of Health, professional unions (e.g., physicians, nurses), policymakers, and educational institutions. Discussion of the results of the report in various forums might contribute to identifying areas that demand further investigation, intervention, and improvement.

The Set of Indicators

Quality indicators for community healthcare should be examined and updated periodically; relevant indicators should be prioritized and added or removed; documentation indicators should be converted into outcome indicators when appropriate; additional areas should be considered for measurement; and additional aspects of the quality of care, such as availability, accessibility, and coordination should be examined.

Characteristics of the Insured

In order to identify socio-economic inequalities in the population and in other groups requiring special attention, the results need to be stratified according to a more refined definition of socio-economic position than entitlement to an exemption or reduction in the payment of deductibles or copayment for health services. An alternate indicator of socio-economic status might be the census-derived socio-economic status score for small

statistical areas. This ranking system is calculated by the Israel Central Bureau of Statistics and is currently being updated.

Methodology

Methodological considerations should encompass all aspects of data collection and quality. Data collection efforts should seek to enhance the data platform, such as the creation of a national coding system for medical procedures, secure data transfer of relevant information from service providers to health plans, an assessment of the development of a national registrar, and the completion of a national medical database. The assessment of data quality should include an examination of the influence of missing data and incomplete years of membership on national rates, and the estimation of measurement error. All stages of the auditing process need to be examined in order to detect areas that require improvement or a broader scope of evaluation.

In addition, tools should be developed for healthcare professionals to utilize the information presented in this report to improve the quality of the service they provide.

Research

This report could be used as the basis for the identification of new research areas and the creation of a research agenda for the relevant issues. Research will support a better understanding of the findings of the program, as well as an evaluation of the processes that lead to changes in the quality of medical care. Included is the assessment of changes in health outcomes from national health reports that parallel changes in quality indicators, an evaluation of the financial ramifications of the quality indicator program, creating a scientific database for international comparisons, monitoring gaps in indicator results over time between sub-populations, and researching possible explanations for these disparities.

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LIST OF ABBREVIATIONS

ACEI	Angiotensin converting enzyme inhibitors
ARB	Angiotensin receptor blockers
BMI	Body mass index
CDC	Center for Disease Control and Prevention
FOBT	Fecal occult blood test
HbA1c	Glycosylated hemoglobin
HEDIS	Healthcare Effectiveness Data and Information Set
LDL	Low-density lipoprotein
mm Hg	Millimeters of mercury
SES	Socio-economic status

APPENDICES

Appendix A

Index of Quality Indicators, 2010

77	Angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB) use after coronary artery bypass surgery and/or interventional cardiac catheterization (ages 35-74 years)	66.9%
80	Beta blocker use after coronary artery bypass surgery and/or interventional cardiac catheterization (ages 35-74 years)	69.7%
83	Assessment of cholesterol levels after coronary artery bypass surgery and/or interventional cardiac catheterization (ages 35-74 years)	71.8%
	Diabetes	
87	Prevalence of diabetes mellitus	4.7%
90	Documentation of hemoglobin A1c levels for individuals with diabetes mellitus	92.6%
93	Assessment of adequate control of hemoglobin A1c for individuals with diabetes mellitus (ages 0-74 years)	47.2%
96	Assessment of adequate control of hemoglobin A1c for individuals with diabetes mellitus (ages 75-84 years)	83.8%
99	Assessment of inadequate control of hemoglobin A1c for individuals with diabetes mellitus	12.6%
102	Documentation of cholesterol levels for individuals with diabetes mellitus	90.3%
105	Assessment of cholesterol levels for individuals with diabetes mellitus	66.1%
108	Documentation of eye care for individuals with diabetes mellitus	64.5%
111	Influenza vaccination for individuals with diabetes mellitus (ages 5+ years)	55.3%
114	Pneumococcal vaccination for individuals with diabetes mellitus (ages 65-74 years)	77.0%
117	Documentation of blood pressure measurement for individuals with diabetes mellitus (ages 18+ years)	92.1%
120	Assessment of blood pressure measurement for individuals with diabetes mellitus (ages 18+ years)	70.1%
123	Documentation of body mass index (BMI) for individuals with diabetes mellitus (ages 18+ years)	85.8%

Appendix B

International Comparison of Quality Indicators: Israel and United States[1]

Field	Measure definition	Rate
Asthma		
Israel	Prescribed medication for long term control of bronchial asthma, ages 5-56 years	78.8%
US	Prescribed medication for long term control of bronchial asthma, ages 5-50 years Note: Asthma is defined by use of medication (Israel and US) or according to diagnostic codes (US).	91.2%
Cancer screening		
Israel	Mammogram to screen for breast cancer in past two years, ages 51-74 years	67.8%
US	Mammogram to screen for breast cancer in past two years, ages 40-69 years Note: Ages are not parallel	69.4%
Israel	Fecal occult blood in last year, ages 50-74, or colonoscopy in the last five years	46.9%
US	Any of the following: Fecal occult blood in last year, sigmoidoscopy in last four years, double contrast barium enema in last four years or colonoscopy in last nine years, ages 50-80 years Note: Different periods; in the US tests include barium enema and the denominator includes people who had a colonoscopy	61.1%
Immunizations for older adults		
Israel	Influenza immunization during last flu season (Fall-Winter), ages 65+ years	57.1%
US	Influenza immunization during last flu season (Fall-Winter), ages 65+ years Note: The rate in the US is based on reports	64.5%

Field	Measure definition	Rate
Cardiovascular health		
Israel	Adult BMI assessment, ages 20-74	77.4%
US	Adult BMI assessment, ages 18-74	40.7% - 50.4%
	Note: Measurement periods were not identical	
Diabetes		
Israel	Documentation of HbA1c in patients with diabetes, ages 18-74 years	92.9%
US	Documentation of HbA1c in patients with diabetes, ages 18-75 years	89.3%
	Note: Diabetes is defined by use of medication (Israel and US) or according to diagnostic codes (US). Ages are not the same.	
Israel	Prevalence of HbA1c >9 in patients with diabetes, ages 18-74 years	14.1%
US	Prevalence of HbA1c >9 in patients with diabetes, ages 18-75 years	28.5%
	Note: Diabetes is defined by use of medication (Israel and US) or according to diagnostic codes (US). Ages not parallel.	
Israel	Visit to ophthalmologist in patients with diabetes, ages 18-74 years	64.3%
US	Referral to ophthalmologist in patients with diabetes, ages 18-75 years	59.3%
	Note: Ages not parallel. Diabetes is defined by use of medication (Israel and US) or according to diagnostic codes (US).	
Israel	Blood lipids recorded in patients with diabetes, ages 18-74 years	89.9%
US	Blood lipids recorded in patients with diabetes, ages 18-75 years	85.2%
	Note: Ages not parallel. Diabetes is defined by use of medication (Israel and US) or according to diagnostic codes (US).	
Israel	LDL Cholesterol < 100 mg/dL in patients with diabetes, ages 18-74 years	65.0%
US	LDL Cholesterol < 100 mg/dL in patients with diabetes, ages 18-75 years	47.7%
	Note: Ages not parallel. Diabetes is defined by use of medication (Israel and US) or according to diagnostic codes (US).	
Israel	BP < 130/80 mmHg in patients with diabetes, ages 18-74 years	70.0%
US	BP < 130 mmHg systolic in patients with diabetes, ages 18-75 years	33.6%
	Note: Ages not parallel. Diabetes is defined by use of medication (Israel and US) or according to diagnostic codes (US).	

[1] Israel data are for 2009. US data are weighted averages from 2009 data from the National Committee for Quality Assurance, *The State of Health Care Quality, 2010*.