State of Israel
Ministry of Health

Health Council

The Israel Institute
for Health Policy and
Health Services Research

# Quality Indicators for Community Health Care in Israel

## PUBLIC REPORT 2005-2007

With the participation of:

The four Israeli HMOs


Program Management Team

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# Acknowledgements

The Quality Indicators for Community Health Care in Israel and the 2007 report would not have been possible without the vision and cooperation of the many people committed to the ongoing improvement of community health services. First and foremost among these are:

The four Israeli HMOs (health funds): Clalit Health Services, Maccabi Healthcare Service, Meuhedet Health Fund and Leumit Health Fund.
The Israel Institute for Policy and Health Services Research
Ministry of Health
Health Council
The Israel Medical Association and the National Association of Nurses in Israel
The professional medical associations
Experts from universities, the national councils, the Brookdale Institute and the Gertner Institute
The Israeli Society for Quality

Thank you for your assistance to date and to your continued assistance in the future…

The Project Management Team

# Message from the Minister of Health

I would like to extend my congratulations on the publication of the Fifth Report of Quality Indicators for Community Health Care in Israel.

Community health care has always been a source of pride for the Israeli health care system, and the program for evaluation of the level of community health care positions Israel among Western countries in terms of evaluation of medical treatment. It is yet another aspect of the tremendous effort being made to improve the quality of community care.

This year, the medical fields selected for evaluation are some of the most important in community health care: Diabetes, cardiovascular disease, asthma, flu and pneumococcal vaccinations as preventive medicine, and screening to identify breast and colorectal cancer as well as indicators for the child population. Among the indicators examined, special emphasis was placed on preventive medicine and treatment of some of the most common diseases to afflict the adult population.

We are pleased that the findings indicate that medical practice in Israel in the selected fields is at a relatively high level compared to Western countries that implement similar health indicator systems: In the three years examined (2005 - 2007), most of the indicators have improved. It was further found that for most of the indicators, health services are provided to the insured parties on an equal opportunity basis. This is, undisputedly, an excellent starting point from which we can continue to improve in the coming years.

The Ministry of Health, which spearheads the program and drove the expansion of the plan to the national level, will continue to support expansion of the quality indicators system to include other fields in the future. I am certain that we can continue to look forward to the full cooperation of the four HMOs, academic experts, the Health Council, the Israel Institute for Health Policy and Health Services Research and the Israel Medical Association in the future.

I extend my gratitude and thanks to all of you who have contributed and continue to contribute to improving the quality of the health care system.

Sincerely,

Yacov Ben Yizri
Minister of Health

# Contents

# 1. Foreword

Quality Indicators for Community Health Care in Israel is an annual report (now in its fifth year) issued by the Israeli National Quality Indicators Program with the active input of the four Israeli HMOs (health funds). The purpose of the report is to monitor national trends in the quality of health care.

National quality indicators for community health care were first published in 2004 to reflect the trends between 2001 and 2003, and then again in 2005 for 2002-2004 and in 2006 for 2003-2005. The current report for 2008 presents data for 2005-2007.

The report presents national data in six key clinical areas of community health care and is based on data provided by four HMOs, for the entire population in Israel. The data were audited and approved by a certified quality auditor.

The report is intended for a variety of readerships and is therefore distributed in several formats. The current format of the report is more detailed and is designed for policymakers, particularly the HMOs and the Ministry of Health. The primary objective of the report is to heighten public awareness to the quality of health care in Israel.

We thank you for your interest in the report and look forward to your feedback through the Israel Institute for Health Policy and Health Services Research website: http://www.israelhpr.org.il

# 2. Executive Summary

## Overview: Good news and less-good news…

**The good news:**

- Continued improvement has been recorded in most of the indicators examined. National performance was rated as high for most indicators, even when compared to standards around the world.
- Continued improvement in control of adult diabetes was found. The percentage of "well-controlled" patients reaches 50%, while the rate percentage of "uncontrolled" patients is 13.2%, a decline of about half a percentage point relative to last year. For the first time, we gained insight into the scope of the problem of diabetes patients who do not receive drug therapy.
- Renewed improvement in the flu vaccination rate.
- Marked increase in the level of documentation of blood pressure among the public. The percentage of the population with documented blood pressure below 140/90 mm Hg. is considered high.
- The areas of reporting were expanded: Pneumococcal vaccine, blood pressure control among the population, evaluation of anemia and child obesity.
- The improvement is the result of ongoing efforts by the four HMOs. The Indicators Program provides impetus for these improvement efforts.
- The report completes the picture derived from study of economic performance of the health system and from surveys on the satisfaction of insured parties.

**The less-good news:**

- Diabetes patients who do not receive medication are not as well controlled and receive fewer vaccinations, although the scope of the problem is limited.
- Some indicators show discrepancies to the detriment of insured parties eligible for a discount/exemption from payment for health services.
- For some of the new indicators, such as indicators for obesity among the population, at this stage the report relates only to the documentation level. The rapid improvement in documentation of these indicators is encouraging.

# Main findings by area

## Asthma

- No change was found in the prevalence of chronic persistent asthma compared to previous years, and it continues to affect approximately 1% of the population in the reported age groups.
- The gap between the prevalence of asthma and those exempt from NII payments and the rest of the population has not been closed. Among those who are exempt from NII payments, the prevalence of chronic persistent asthma was more than double.
- Among young adults, asthma is more prevalent among males. In adults it is more prevalent among women.
- The percentage of patients taking preventative drugs remained high, 78.4%, particularly among young adults, where the rate reaches 84%.
- This year, the rate of flu vaccination rose to 28%, in keeping with the multiyear trend recorded in previous years. [Following a temporary drop in the vaccination rate last year.]
- The rate of patients with NII exemptions who receive preventive treatment was found to be about 10% lower than among the rest of the population. In terms of the flu vaccine, a 16% [absolute] gap in favor of those who are exempt from NII payments was found.

## Cancer prevention

**Breast cancer screening – mammography:**

- During the reporting period, the rate of mammograms performed improved each year, and in 2007, the average rate was 60%.
- In this area, a striking detrimental difference of 4% [absolute] was found among those with an exemption from National Insurance Institute payments: The mammogram rate among women with an exemption reached 58.1%, compared to 61.2% among other insured women. This figure is 3% lower than in the previous report.

**Screening for colorectal cancer:**

- This indicator of fecal occult blood testing shows a low performance rate: Only 22.0% of the population between the ages of 50-74 underwent this

annual exam in 2007. According to the data for 2007, another approximately 16.2% of the population had colonoscopies (screening or diagnostic) over the past five years and were therefore not included in the target population for fecal occult blood tests.

- Improvement can be seen in performance of the test during the reporting period.
- A difference of approximately 3% in performance was found in favor of women.
- Among people 60 and older, a relative low rate of performance was found among those with an exemption from National Insurance Institute payments relative to others.

## Flu vaccine

- The improvement in performance of the vaccination during the reporting period renewed, and approximately 59% of the population over the age of 65 was vaccinated in 2007.
- A sex-related difference of 4% in favor of men was found in the rate of vaccination.
- People exempt from NII payments had a significantly lower rate of vaccination, 49.4% compared to 60% among the rest of the population.

## Pneumococcal vaccine

- Close to 36.5% of the population over the age of 65 was vaccinated in 2007, an increase of 11% over the previous year.
- A sex-related difference of 5% in favor of men was found in the rate of vaccination among the 74+ age group.
- People exempt from NII payments had a lower rate of vaccination, 33.9% compared to 38.0% among the rest of the population.

## Diabetes

- The prevalence of diabetes treated by medication continued to rise during the reporting period and reached 4.2% of the general population and 6.4% of adults aged 18 and older.

- The rate of those examined for HbA1c at least once a year continues to rise, reaching an average of 91.6%.
- The rate of patients who attained good control of their blood sugar level reached 49.4%, while the rate of uncontrolled patients fell to 13.2% during the reported period (the rest achieved mid-level control).
- Approximately 19.6% of all diabetes patients are treated with insulin. An increase in the rate of patients taking insulin was found among those with unsatisfactory diabetes control, reaching up to 44.6% during the reporting period.
- The rate of testing for LDL cholesterol in diabetes patients continued to rise, reaching 90.9% during the reporting period.
- A striking improvement was also found in the rate of diabetes patients who reached the target LDL level below 100 mg/dl - up to approximately 60.5% during the reporting period.
- The rate of patients who underwent annual testing for urine microalbumin showed continued improvement, reaching 70.7%, and the rate of annual eye exams reached 62.7%.
- The rate of performance of flu vaccinations among diabetes patients increased this year to 49.7%.
- The rate of performance of pneumococcal vaccinations among diabetes patients increased this year to 24.8%.

- **Documentation of obesity among diabetes patients:**

  Documentation of height and weight are required to calculate BMI, a value used to determine body fat.

  - Documentation of BMI among diabetes patients was possible this year for 72.9% of diabetics, a value reflecting a marked improvement over previous years.
  - This level of BMI documentation will make it possible to relate to the values of the measurements themselves and assess the scope of obesity among these patients in the future.

- **Blood pressure control in diabetes patients:**
  - In 2006, documentation of blood pressure measurements at least once a year reached 89.3%, while the control target of a systolic value lower than 130 mmHg and a diastolic value lower than 80 mmHg was attained in 66.8% of diabetes patients. These findings indicate continued improvement over previous years.
  - No difference was found in the rate of blood pressure measurements and control by sex or NII payment exemption status.

## Children

Measurement of BMI components among children:

- BMI documentation was found among 41.9% of the population.
- BMI documentation was slightly better than for teenagers, 43.5% compared to 38.5%.
- Among patients exempt from NII payments, BMI documentation was slightly better than for patients who are not exempt, 57.1% compared to 39.6%.
- Continued improvement of BMI documentation is required, before we can assess obesity among this population.

Measurement of hemoglobin values among babies:

- In 2007, at least one blood test for anemia was performed for 66.34% of the babies during the recommended period.
- No significant difference was found between males and females, and the measurement was not affected by NII payment exemption status.

## Cardiovascular diseases

*Primary prevention* of cardiovascular disease is measured here in terms of screening blood cholesterol levels, documenting weight and height, measuring blood pressure and evaluating the status of the target blood cholesterol levels in the general population.

- **Cholesterol level**
  - Over 76% of the general population underwent testing for blood cholesterol levels, based on the frequency adjusted for the age of the population.
  - In both groups, women underwent more tests than men: In the 35-54 age group and in the 55-74 age group.

- People exempt from National Insurance Institute payments underwent more screening than the rest of the population.
- The age-adjusted control target was achieved in 67% of the target population among young people and in 72% of the target population among adults.
- Differences were found in attaining the target between age groups. Some of the differences can be attributed to the impact of age on cholesterol levels (cholesterol rises with age), and some to the fact that adults receive medication to reduce cholesterol levels.
- Sex-related differences were found in attaining the target, some as a reflection of biological difference in young adults.
- No significant differences were found in achieving targets with respect to NII exemption status.

- **Documentation of height and weight**

  Documentation of height and weight are required to calculate BMI, a value used to determine body fat.

  - BMI documentation among the general population was possible this year for 59.76% of those aged 65-74, and in over 41% of those aged 20-64 at least once over the past five years.
  - A higher level of documentation was found for women and those exempt from NII payments.
  - Continued improvement in documentation of weight and height will make it possible to relate to the rate of obesity among the general adult population in the future.

- **Blood pressure documentation**

  Documentation of blood pressure measurements was examined to estimate the breakdown of this risk factor in the population.

  - Documentation of blood pressure was found for 70.6% of younger age group and for 76.8% of the older age group in the target population. This marks a significant improvement over previous years.
  - Documentation of blood pressure measurements in women and people exempt from NII payments was found to be higher.

- **Blood pressure control**
  - The control target of systolic pressure lower than 140 mmHg and diastolic pressure of lower than 90 mmHg was achieved in 95.6% of the younger age group and in approximately 85.9% of the adult population. No difference in blood pressure control was found by sex or NII payment exemption status.

*Secondary prevention* of cardiovascular disease is presented here with respect to reduced blood cholesterol level and prescription of additional preventive drugs (see below) in patients with atherosclerosis who have undergone therapeutic coronary angiography or coronary bypass surgery.

- **Reduction of blood cholesterol levels**
  - Over 83% of patients purchased cholesterol-lowering medication during the measurement year.
  - Up to the age of 65, women purchase (or need) less statin medication than men. Over the age of 65, the rate of purchase is similar for both sexes.
  - People with NII exemptions purchased statin medication at virtually the same level as other patients, and the difference decreased relative to the findings of last year's report.
  - Approximately 68.3% of the patients who underwent therapeutic coronary angiography or coronary bypass surgery reached the target cholesterol level of 100 mg/dl or less. This is an improvement over previous years.
  - The rate of women who reached the target cholesterol level is somewhat lower than the rate among men.
  - The rate of patients with an exemption from NII payments who reached the target cholesterol level is about 5% lower than among other patients.

- **Protection of heart functioning**
  - Approximately 62% of patients purchased ACEI/ARB medications during the measurement year, reflecting a continued slight improvement in this indicator.
  - No significant sex-related differences were found in the purchase of ACEI/ARB.

- Patients with an exemption from NII payments purchased more ACEI/ARB than other patients.

- **Reduced risk of additional damage to the myocardium**
  - Approximately 68% of the patients purchased beta blockers during the measurement year, similar to last year.
  - No significant sex-related differences were found in the purchase of beta blockers.
  - Patients with an exemption from NII payments purchased slightly more beta blockers than other patients.

- **Aspirin**

  Purchases of aspirin were not examined due to the not insignificant rate at which this medication is purchased privately and not through the HMOs. The assumption is that the vast majority of patients are treated with aspirin.

# 3. Introduction

The HMOs provide community health services for the vast majority of the Israeli population and are responsible for the level of service provided to all insured individuals. The quality of the medical treatment is of the greatest importance for customers of these services, governmental and public organizations (such as the government and the National Insurance Institute) and for the HMOs themselves.

## *What is the motivation for the program?*

In 1995, the National Health Insurance Law took effect. The law guarantees, among other things, a comprehensive, standardized basket of services for all residents and guarantees the financing and provision of services by the HMOs. At the same time, the law provides for the creation of research and evaluation organizations (the Health Council, the Israel Institute for Health Policy and Health Services Research), whose purpose is "to oversee and assess the effect of the law on the quality, effectiveness and cost of health services in Israel."

Within this context, it became necessary to create of a system of indicators for community health care in Israel, which would permit ongoing evaluation of the level of treatment relative to national and international indicators.

## *What is the national indicators system?*

Quality Indicators of Community Health Care in Israel was initiated by researchers in the Faculty of Health Sciences and the Department of Industrial Engineering and Management of Ben-Gurion University of the Negev, in conjunction with the four Israeli HMOs and with the support of the Israel Medical Association and sponsorship of the Israel Institute for Health Policy and Health Services Research.

In March 2004, the Ministry of Health declared this activity to be a national program, and it is led by a steering committee made up of all the participating organizations. The activity is coordinated by teams of experts from the HMOs and academic circles in the fields of medicine, computer science, statistics, organizational development, public health and health policy.

Main objectives of the National Program:

- To improve the quality of community health care in Israel by ongoing measurement of performance.
- To provide information to the public and to policymakers about the quality of health services in Israel.

## *What data is presented in the report?*

Two versions of Report No. 5 are being distributed: a report for policymakers and a report to the general public (this version). Furthermore, there is a website that permits dynamic generation of user-defined reports. The site can be reached through the Israel Institute for Health Policy and Health Services Research: http://www.israelhpr.org.il/heb/code/home.asp or through the Ministry of Health website.

The current report presents a partial nationwide picture of the quality of community health care in Israel for 2005-2007. The data presented in the report relate to six areas of community health care – flu vaccination, screening for detection of colorectal caner and mammography for detection of breast cancer, asthma treatment, treatment of diabetes, treatment of children and cardiology treatment. A chapter of the report is dedicated to each treatment area. These areas of treatment were selected by the steering committee as they are central issues for many health systems around the world and are of concern to a very large population. In the future, we plan to expand the scope of indicators within the plan.

We compare the findings of the 2007 Indicators Program to the findings of the American HEDIS system in 2007 [1]. This comparison can only be made for indicators used in both programs and which are defined the same way. In relating to HEDIS, please keep the following points in mind: 1. While the findings of the 2007 Indicators Program relate to the entire population, HEDIS relates only to patients of HMOs that volunteered to provided information. 2. HEDIS distinguishes between three types of HMOs or insurance: commercial insurance, federal insurance for the underprivileged population (Medicaid) and federal insurance for senior citizens (Medicare). In Israel, the four HMOs insure all citizens, regardless of socioeconomic status or other issues.

## *What are the indicators and how should they be used?*

A quality indicator in medicine provides a quantitative picture of a specific aspect of health (such as morbidity, prevention, quality of treatment, outcome of treatment) for a defined population (such as an HMO or country) at a given point in time (generally one year). In this report, the term “performance indicator” defines the nature of the clinical activity conducted by all of those engaged in it, including physicians, nurses and paramedical professionals. Most of the indicators are affected not only by the decisions of the clinical staff, but also by the ability of the staff to secure patient cooperation.

All of the indicators in the report are defined as relative indicators, or in other words, the percentage of people in a defined group to whom specific conditions apply. For example: the percentage of HMO members over the age of 65 who are vaccinated against the flu; a value of 70% for this indicator indicates that 70 of 100 people aged 65 and older were vaccinated against the flu in the measurement year.

The selection and design of indicators in the program was done systematically, taking into account the severity and prevalence of the disease, current medical knowledge and the ability to generate the indicator from existing information systems. Various experts are involved in this process, and the information systems, processes for deriving the findings and the validity of the findings undergo rigorous auditing. The group of indicators is expanded and updated each year to cover new areas.

The method of calculating an indicator (the indicator specification) is established, to the extent possible, based on the standard indicators throughout the world, in order to allow comparison with international findings. The specifications have been adopted in large part from the American HEDIS system [1] and the British NHS system [2]. The cumulative experience with these systems showed an improvement in performance in the indicators reported to the public. The current program has also shown improved performance in most of the indicators from year to year.

The indicators refer only to the quality of medical treatment. At this stage, the indicators do not deal with supplementary areas, such as quality of service, patient satisfaction, stability of the HMO or economic efficiency.

Several types of medical performance indicators are presented in the report:

- **Morbidity indicators** – the rate of a specified type of morbidity in the population.
- **Prevention indicators** - the rate of performance for activities which have been proven effective in the prevention or early detection of a disease.
- **Performance indicators** – The rate of performance of a given treatment, in accordance with standard medical guidelines.
- **Outcome indicators** – The rate treatment targets are attained, such as recommended control values.
- **Documentation indicators** – the degree to which vital information or a recommended action is documented.

The results of the indicators are based on data provided by the HMOs and are provided for the entire population of insured individuals and for various population groups, such as age or socioeconomic groups. Presentation of the indicators based on these groups is designed to indicate differences in the quality of treatment between groups and to determine whether service was provided equally and fairly to all insured individuals.

For all of the indicators, age groups were selected in accordance with generally accepted practice and in keeping with the opinion of the team of medical experts in each area. Discount/exemption from NII payments served as an indicator of low socioeconomic status. The exemption covers approximately one tenth of the insured population, according to HMO records for 2007, approximately 707,630 people. In the reporting period, a partial or full exemption from NII payments was granted according to several different criteria, including recipients of old-age pensions, disability payments and families with four or more children.

The findings must be interpreted with caution. Interpretation of the indicator results is complex, because the differences between their values may be the result of additional factors (such as comorbidity variables, other socioeconomic factors) and do not necessarily reflect differences in quality of treatment. Therefore, we must not conclude that a difference or change, such as from one year to the next or between different age groups, necessarily indicates improvement or deterioration. Thus, for each indicator, the report includes interpretation of the findings provided by experts in the specific clinical field.

When several indicators refer to the same clinical field, such as those related to diabetes, it is important not to attribute decisive importance to a single indicator, but rather to the trend of all of the indicators for that field taken together. When a particular clinical field has only one indicator, the indicator must be seen solely as an indication of a specific aspect only of the area it measures, and not of total clinical activity in the area.

### *What is the source and nature of the data?*

The source of the data presented in this report is the information supplied by the four HMOs in Israel. The data for 2005-2207 was provided by the HMOs freely and voluntarily. Beginning in 2004, the HMOs were requested by the Ministry of Health to continue providing the information required for the program regularly, and they gladly complied with the request.

Data for all of the insured individuals, which the HMOs submit via information systems, are anonymous. Data are provided without identifying the names of the insured individuals and without other identifying information. In this way, medical confidentiality is maintained with respect to the insured individuals, which is a fundamental principle of the program.

The fact that the program is based on data for the entire population of people insured by the HMOs in Israel, and not on a sampling taken from it bolsters the ability to study the indicators in different cross-sections such as age, sex and socioeconomic status. The use of data for the entire population does, in fact, eliminate sampling error (which occurs when a sample of any kind is taken), but it does not eliminate errors of measurement that may take place as part of the process of documentation, coding and data processing used for calculating the indicators.

To reduce this error, an independent audit is conducted on the nature of the information sources, indicator production processes at the HMOs and at the program office. The audit is conducted by a certified outside agency.

To grant further validity to the indicator results, the findings were compared to external sources of information, if such exist. Thus, for example, a comparison was made between the prevalence of chronic diseases indicated by the HMO data and the survey conducted by the Central Bureau of Statistics in the applicable years.

## *How can the HMOs, policymakers and the public make use of the information?*

The primary objective of this report is to encourage improvement in the quality of medical care provided by the HMOs and to thus improve the health and increase the satisfaction of the insured individuals.

This report reflects the commitment of the Israeli health care system to public accounting, and in doing so to ensure that the health objectives of the population are met in the best manner possible.

Another reason it is important to disclose the information presented in this report to the general public is because the public is an active and key partner in the clinical process reflected in the indicator results. The insured individuals can bring about improvements in all areas of treatment and service shown by the indicators, by heightened awareness and taking personal responsibility for their health, which will be reflected in agreeing to the suggested medical treatment, taking recommended medical tests at the desired intervals, and using the various services offered by the health care system properly.

At this stage, the report does not present comparative data for the different HMOs, but each fund received a detailed report that will allow it to compare its performance to the average national level.

The development of medical knowledge requires that the indicator specifications be updated regularly. For this reason, each year we work together with medical experts in each medical field included the report to rethink things and, if necessary, we update, cancel or expand each indicator. Therefore, indicator comparison has been made in each of the past few years by new specifications, even if a particular indicator was calculated differently in the past. Differences may, therefore, exist between reports issued in different years with respect to the value of a given indicator in a given year. Another cause of these differences is the ongoing effort to improve the information systems and processes for documentation of the medical data throughout the health care system.

The indicator tables presented below show results on a nationwide basis by Age, sex, year and socio-economic status. The indicators are presented according to the order

of the fields, as follows: treatment of asthma, screening for breast and colorectal cancer, vaccination against the flu, diabetes treatment, treatment of children and treatment for cardiovascular disease.

References for Introduction:

I. The State of Health Care Quality 2007. NCQA: National Committee for Quality Assurance, USA. http://www.ncqa.org

II. Fiscella K, Franks P, Gold MR, Clancy CM. Inequality in quality: Addressing socioeconomic, racial, and ethnic disparities in health care. *JAMA* 2000; 283: 2579-2584.

# 4. Findings

This chapter presents the main findings at the national level of the indicators in the six areas examined. Interpretation of the findings is limited to clarifications, indication of trends and international comparison, when possible. The conclusion provides an assessment of the program and the infrastructures upon which it is based as well as operative recommendations in that regard.

## Preventive drug treatment of asthmatics

### Background

Many patients suffering from chronic persistent asthma receive appropriate preventive drug therapy. Danny Israeli, a teacher from Holon, was in his forties when he was diagnosed with asthma. For years, he only used an inhaler for quick relief when having an attack. He had serious and frequent difficulty breathing both during the day and at night, and he relates that more than once his students would say that they did not believe "he would make it through the lesson alive." Fortunately, Danny's family physician, in consultation with a specialist, decided that he must receive preventive drugs and designed a detailed treatment plan. Today, he breathes more easily, sleeps well and teaches his classes without fear.

Asthma, the most common chronic disease among children and adolescents, is responsible for the most hospitalizations and missed school days due to chronic diseases among this age group. Its prevalence is estimated at about 4.5% in the West, where half of the cases are discovered by the age of 10, and a further third by the age of 40. Among children, the disease is twice as prevalent in boys as girls, but the ratio evens out by the age of 30 [3].

A survey conducted by the Central Bureau of Statistics in 1999-2000 [23] found that approximately 3.6% of Israeli children (aged 0-17) suffer from asthma. In Israel, too, the disease is twice as common among boys as girls. The prevalence of the disease is also high among adults.

Asthma is a chronic inflammatory respiratory disease that is characterized by attacks of labored breathing caused by narrowing of the respiratory airways. These attacks

are characterized by shortness of breath, feeling of tightness in the chest, wheezing during exhalation and coughing. The severity of these symptoms varies, even up to the point where patients cannot breathe. In extreme cases, asthma attacks can be life threatening if not treated properly.

Treatment and prevention of the attacks allow most asthma patients to lead normal and regular lives, with almost no physical restrictions, including participation in sports and other strenuous activities. It is recommended that asthmatics learn to recognize the early symptoms of an attack, avoid contact with asthma triggers, adopt a healthy life style and take medication properly and regularly. This behavior can significantly reduce the frequency of attacks. In some cases, the disease may virtually disappear over time.

Medicine distinguishes between periodic, intermittent asthma characterized by periods of remission, and more severe (persistent) asthma, characterized by a high frequency of attacks. Accordingly, medical guidelines recommend medical treatment that differs somewhat for each type of asthma. The current report focuses on chronic persistent asthma patients, for whom medication to prevent attacks is recommended during most months of the year. This preventive treatment may reduce the frequency and severity of attacks, decrease the frequency of hospitalizations caused by the disease, prevent missed school days and activity, and improve the patient's quality of life.

The following findings are based on data provided by the HMOs and are presented for the entire population of insured individuals by age group (5-9, 10-17, 18-44, 45-56) and socioeconomic status (exempt/not exempt from NII payments):

## The prevalence of chronic persistent asthma

Definition of the indicator:

The chronic persistent asthma patient population is defined as patients who purchase anti-asthma medication during the course of at least four different months. (This definition is more restrictive than that specified in the 2004 report.)

Main Findings:

- The morbidity rate for chronic persistent asthma in the population was 1.09% in 2007: approximately 54,089 patients, of which about 14,480 were children and adolescents. A similar rate was measured in 2006 (Figure 1). This rate is somewhat lower than that reported in 2003, in which chronic persistent asthma was defined as at least three prescriptions a year, compared to at least four prescriptions a year in the current report.
- The morbidity rate by age group in 2007 was as follows: 1.15% in the insured 5-9 age group, 0.74% in the 10-17 age group, 0.89% in the 18-44 age group and 1.89% in the 45-56 age group (Figure 1). We should emphasize here that the data of the Central Bureau of Statistics referred to above, according to which approximately 3.6% of the children in Israel were reported as suffering from asthma, refer to both types of asthma (chronic and intermittent), while the present indicator refers solely to chronic persistent asthma.
- Among children and young adults, asthma is more prevalent among males, while in adults it is more prevalent among women (Figure 2).
- Among insured individuals who are exempt from NII payments, 2007 showed a chronic persistent asthma rate of 2.39%, compared to only 1.0% among the rest of insured individuals. In other words, the disease is far more common among insured individuals with a lower socioeconomic status (Figure 3).

Figure 1: Morbidity rate for chronic persistent asthma among insured individuals by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 5-9 | 1.11 % | 1.17 % | 1.15 % | 6,965 | 7,525 | 7,584 | 629,103 | 645,412 | 657,979 |
| 10-17 | 0.71 % | 0.75 % | 0.74 % | 6,484 | 6,881 | 6,896 | 914,206 | 921,732 | 931,599 |
| 18-44 | 0.87 % | 0.89 % | 0.89 % | 20,822 | 21,644 | 22,046 | 2,392,910 | 2,436,888 | 2,474,881 |
| 45-56 | 1.86 % | 1.89 % | 1.94 % | 16,386 | 16,911 | 17,563 | 878,862 | 894,800 | 904,192 |
| **Total** | **1.05 %** | **1.08 %** | **1.09 %** | **50,657** | **52,961** | **54,089** | **4,815,081** | **4,898,832** | **4,968,651** |

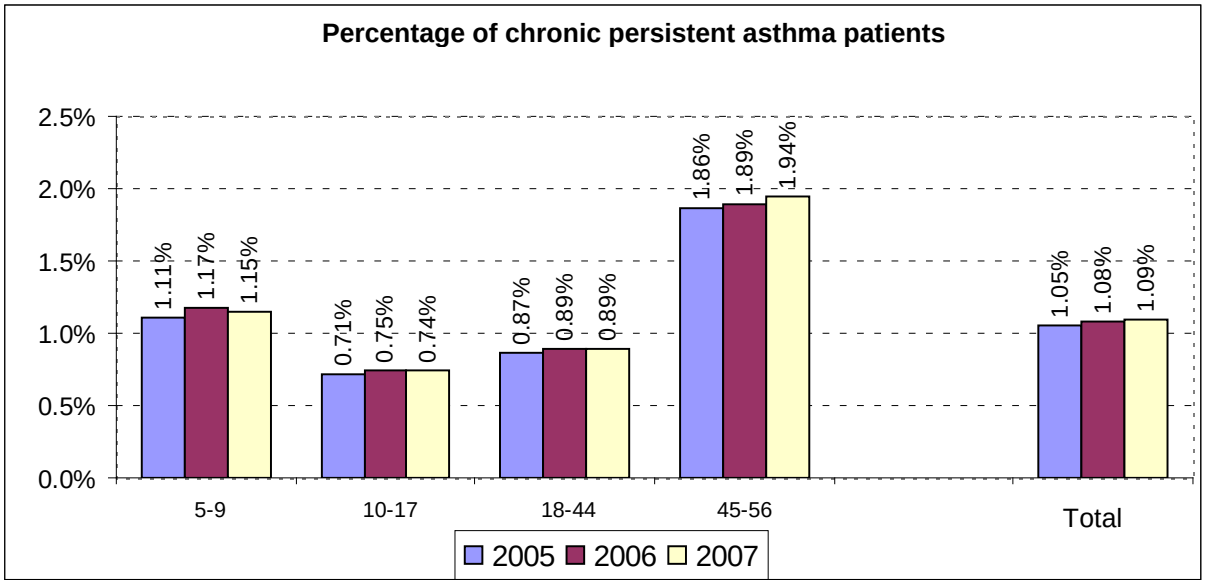



Figure 2: Morbidity rate for chronic persistent asthma among insured individuals in 2007 by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 5-9 | 1.44 % | 0.84 % | 1.15 % | 4,888 | 2,696 | 7,584 | 338,484 | 319,495 | 657,979 |
| 10-17 | 0.91 % | 0.57 % | 0.74 % | 4,321 | 2,575 | 6,896 | 476,707 | 454,892 | 931,599 |
| 18-44 | 0.90 % | 0.88 % | 0.89 % | 10,747 | 11,299 | 22,046 | 1,197,444 | 1,277,437 | 2,474,881 |
| 45-56 | 1.78 % | 2.09 % | 1.94 % | 7,759 | 9,804 | 17,563 | 436,150 | 468,042 | 904,192 |
| **Total** | **1.13 %** | **1.05 %** | **1.09 %** | **27,715** | **26,374** | **54,089** | **2,448,785** | **2,519,866** | **4,968,651** |

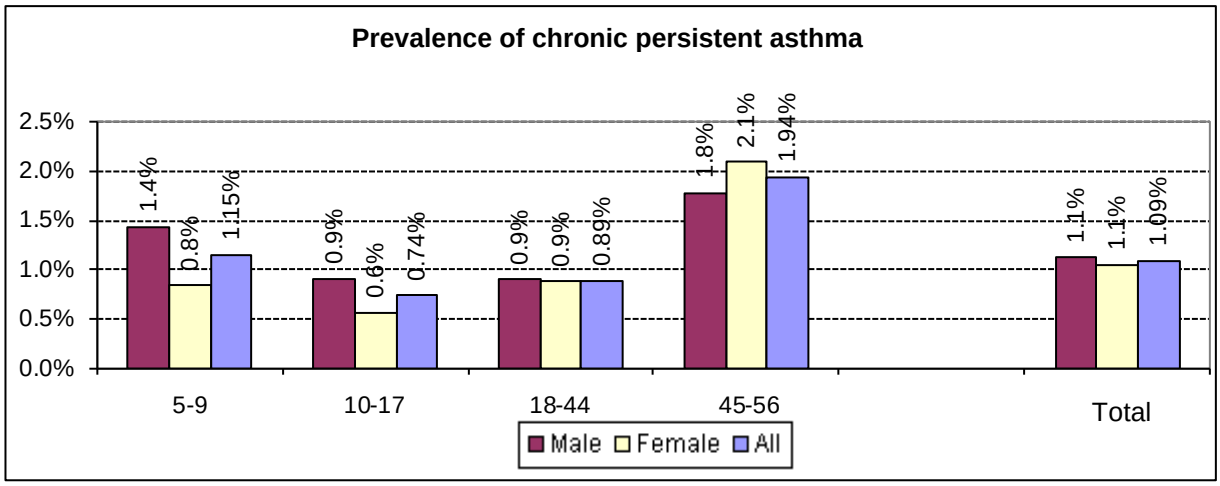
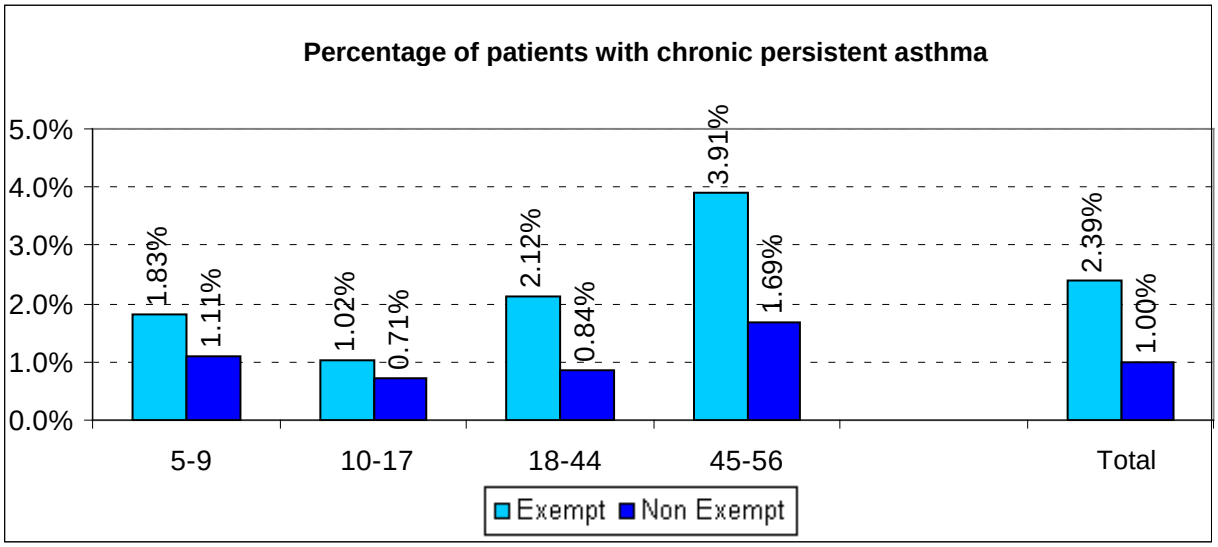


Figure 3: Morbidity rate for chronic persistent asthma among insured individuals in 2007 by socioeconomic status and age

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 5-9 | 1.83 % | 1.11 % | 1.15 % | 667 | 6,917 | 7,584 | 36,379 | 621,600 | 657,979 |
| 10-17 | 1.02 % | 0.71 % | 0.74 % | 810 | 6,086 | 6,896 | 79,149 | 852,450 | 931,599 |
| 18-44 | 2.12 % | 0.84 % | 0.89 % | 2,127 | 19,919 | 22,046 | 100,176 | 2,374,705 | 2,474,881 |
| 45-56 | 3.91 % | 1.69 % | 1.94 % | 3,957 | 13,606 | 17,563 | 101,133 | 803,059 | 904,192 |
| **Total** | **2.39 %** | **1.00 %** | **1.09 %** | **7,561** | **46,528** | **54,089** | **316,837** | **4,651,814** | **4,** |



# The quality of treatment for chronic persistent asthma

## A. Treatment with preventive drugs

Definition of the indicator:

The percentage of insured individuals with chronic persistent asthma in the 5-56 age range who purchased preventive drugs for long-term treatment at least three times in the measurement year. The purpose of the indicator is to determine the appropriateness of treatment with preventive drugs for chronic persistent asthma patients, as people who require drug therapy throughout the year.

Limitations of the indicator: The indicator does not examine treatment for all asthma patients or for patients who require medication less frequently. Moreover, the indicator refers to patients who purchased the drugs and does not examine whether the patient actually took the medication.

Main Findings:

- According to the data provided by the HMOs, preventive drugs were purchased by 78.0% of patients in 2007. This is approximately 2.2% higher than in 2006 (Figure 4). Experts view this as a high and impressive rate. According to the 2007 NCQA report, in which the target population was defined as having been hospitalized or having visited the emergency room visit or having had at least four outpatient visits related to asthma or four or more asthma medications dispensed during the measurement year; the rate of performance of the indicator fluctuates between 87.1% - 91.6%, depending on the type of insurance [1].
- Among young adults, the highest results were found in the 5-17 age group: Approximately 84% of them purchased preventive drugs in 2007. Among adults aged 45-56, the rate of purchase of preventive drugs in 2007 was 76.8% (Figure 4).
- No sex-related differences were found in the rate of preventive drug purchases (Figure 5).
- In 2007, 69.12% of people exempt from NII payments purchased preventive drugs as opposed to 79.45% of other insured individuals (Figure 6).

Figure 4: Rate of chronic persistent asthma patients treated with preventive drugs, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 5-9 | 82.24 % | 82.15 % | 83.54 % | 5,728 | 6,182 | 6,336 | 6,965 | 7,525 | 7,584 |
| 10-17 | 82.87 % | 82.07 % | 84.09 % | 5,373 | 5,647 | 5,799 | 6,484 | 6,881 | 6,896 |
| 18-44 | 71.55 % | 72.87 % | 75.14 % | 14,898 | 15,773 | 16,565 | 20,822 | 21,644 | 22,046 |
| 45-56 | 72.85 % | 74.28 % | 76.83 % | 11,938 | 12,562 | 13,493 | 16,386 | 16,911 | 17,563 |
| **Total** | **74.89 %** | **75.84 %** | **78.01 %** | **37,937** | **40,164** | **42,193** | **50,657** | **52,961** | **54,089** |

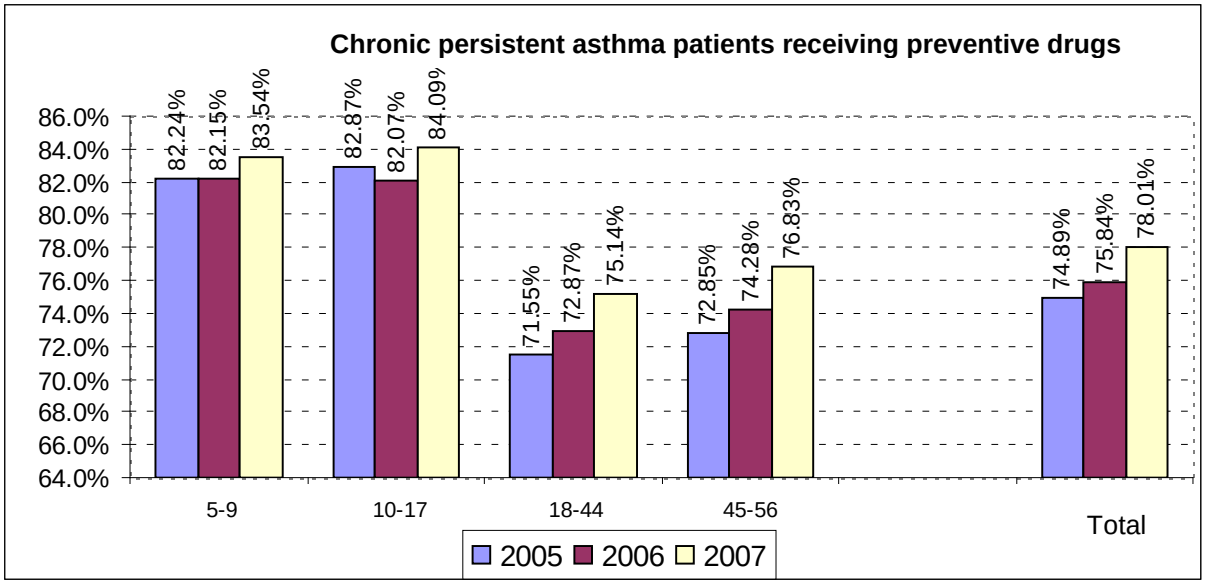



Figure 5: Rate of patients with chronic persistent asthma treated with preventive drugs in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 5-9 | 83.98 % | 82.75 % | 83.54 % | 4,105 | 2,231 | 6,336 | 4,888 | 2,696 | 7,584 |
| 10-17 | 84.84 % | 82.83 % | 84.09 % | 3,666 | 2,133 | 5,799 | 4,321 | 2,575 | 6,896 |
| 18-44 | 74.19 % | 76.04 % | 75.14 % | 7,973 | 8,592 | 16,565 | 10,747 | 11,299 | 22,046 |
| 45-56 | 75.32 % | 78.02 % | 76.83 % | 5,844 | 7,649 | 13,493 | 7,759 | 9,804 | 17,563 |
| **Total** | **77.89 %** | **78.13 %** | **78.01 %** | **21,588** | **20,605** | **42,193** | **27,715** | **26,374** | **54,089** |

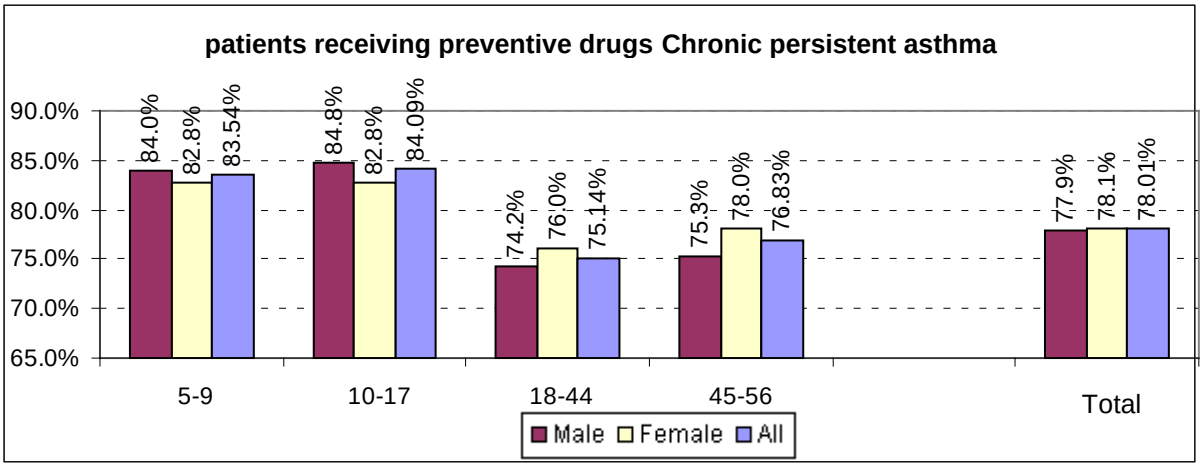
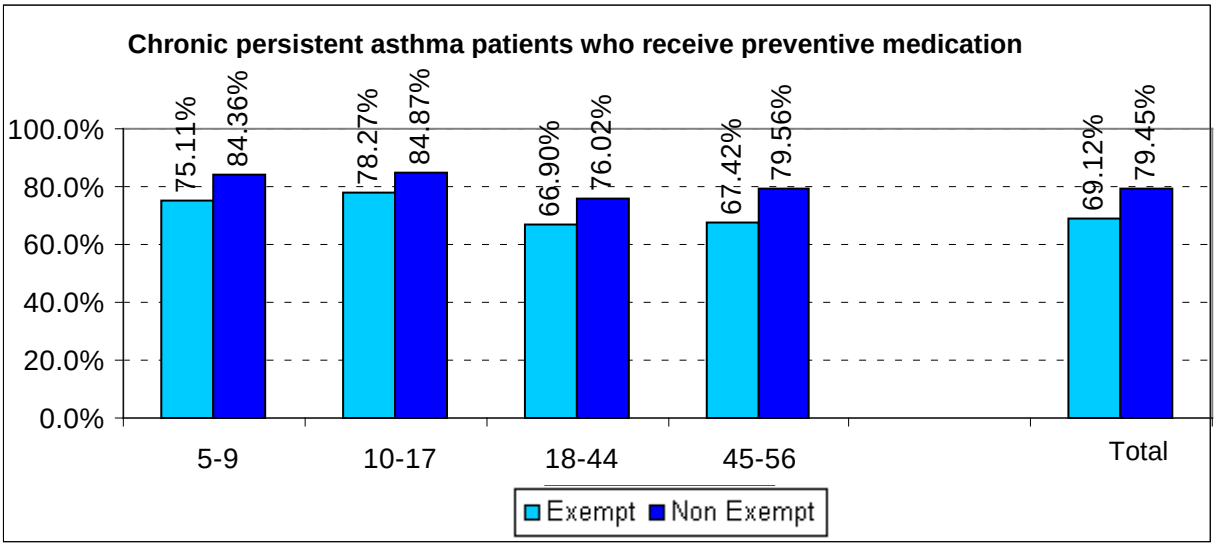



Figure 6: Rate of patients with chronic persistent asthma treated with preventive drugs in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 5-9 | 75.11% | 84.36% | 83.54% | 501 | 5,835 | 6,336 | 667 | 6,917 | 7,584 |
| 10-17 | 78.27% | 84.87% | 84.09% | 634 | 5,165 | 5,799 | 810 | 6,086 | 6,896 |
| 18-44 | 66.90% | 76.02% | 75.14% | 1,423 | 15,142 | 16,565 | 2,127 | 19,919 | 22,046 |
| 45-56 | 67.42% | 79.56% | 76.83% | 2,668 | 10,825 | 13,493 | 3,957 | 13,606 | 17,563 |
| **Total** | 69.12% | 79.45% | 78.01% | 5,226 | 36,967 | 42,193 | 7,561 | 46,528 | 54,089 |



## B. Flu vaccinations for asthmatics

Definition of the indicator:

The percentage of insured individuals with chronic persistent asthma who were vaccinated against the flu in the winter season (September of the measurement year – February of the following year). Asthmatics belong to a group of patients with increased risk for inflammatory respiratory diseases and hospitalization because of the severity of the disease. For this reason, it is recommended that asthma patients receive flu vaccinations, even if they do not belong to the older age group.

Main Findings:

- According to the HMO data, 28.5% of chronic persistent asthma patients were vaccinated against the flu in 2007. The rate in the 45-56 age group reached 36.6% compared to 22.9% among the younger patients. An 8.4% (absolute) increase over the previous year was recorded in the rate of flu vaccine recipients (Figure 7).
- No sex-related differences were found in the rate of flu vaccination (Figure 8).
- In 2007, patients exempt from NII payments were vaccinated against the flu at a rate significantly higher than who were not exempt, 42.1% compared to 26.3% (Figure 9). A similar difference in favor of those exempt from NII payments was also recorded in previous years.

Figure 7: Rate of flu vaccination among chronic persistent asthma patients by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 5-9 | 33.71% | 18.05% | 27.80% | 2,348 | 1,358 | 2,108 | 6,965 | 7,525 | 7,584 |
| 10-17 | 29.38% | 16.03% | 26.61% | 1,905 | 1,103 | 1,835 | 6,484 | 6,881 | 6,896 |
| 18-44 | 24.68% | 15.53% | 22.93% | 5,138 | 3,361 | 5,055 | 20,822 | 21,644 | 22,046 |
| 45-56 | 38.67% | 28.67% | 36.66% | 6,337 | 4,849 | 6,439 | 16,386 | 16,911 | 17,563 |
| **Total** | 31.05% | 20.15% | 28.54% | 15,728 | 10,671 | 15,437 | 50,657 | 52,961 | 54,089 |

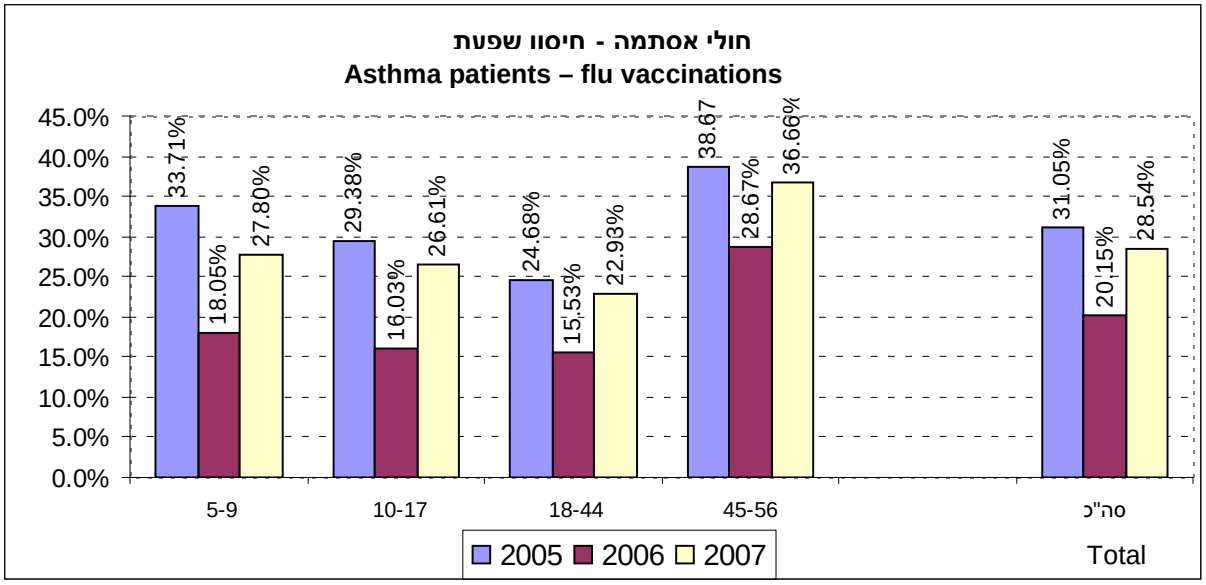



Figure 8: Rate of flu vaccination among chronic persistent asthma patients by age and sex.

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 5-9 | 27.91 % | 27.60 % | 27.80 % | 1,364 | 744 | 2,108 | 4,888 | 2,696 | 7,584 |
| 10-17 | 26.48 % | 26.83 % | 26.61 % | 1,144 | 691 | 1,835 | 4,321 | 2,575 | 6,896 |
| 18-44 | 22.75 % | 23.10 % | 22.93 % | 2,445 | 2,610 | 5,055 | 10,747 | 11,299 | 22,046 |
| 45-56 | 37.29 % | 36.17 % | 36.66 % | 2,893 | 3,546 | 6,439 | 7,759 | 9,804 | 17,563 |
| **Total** | **28.31 %** | **28.78 %** | **28.54 %** | **7,846** | **7,591** | **15,437** | **27,715** | **26,374** | **54,089** |

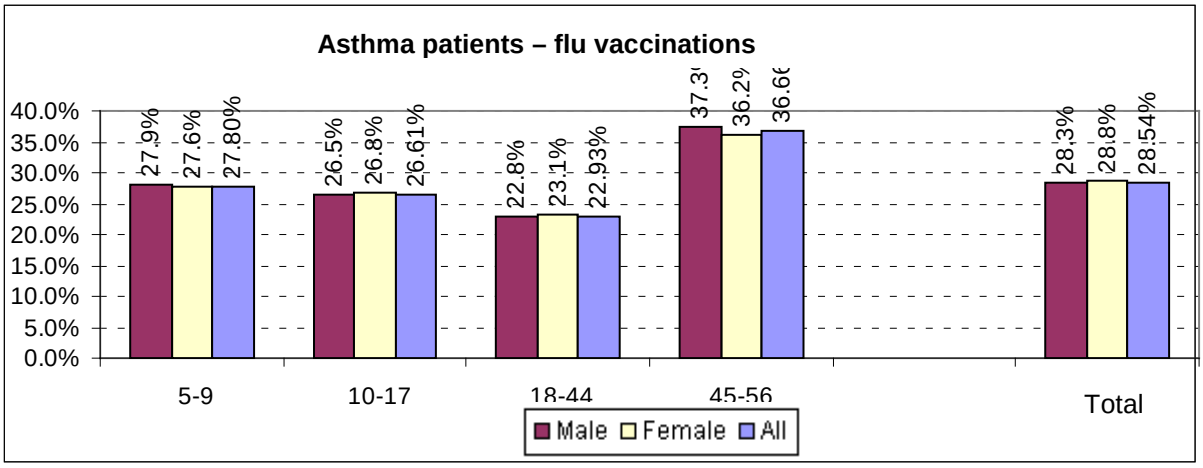
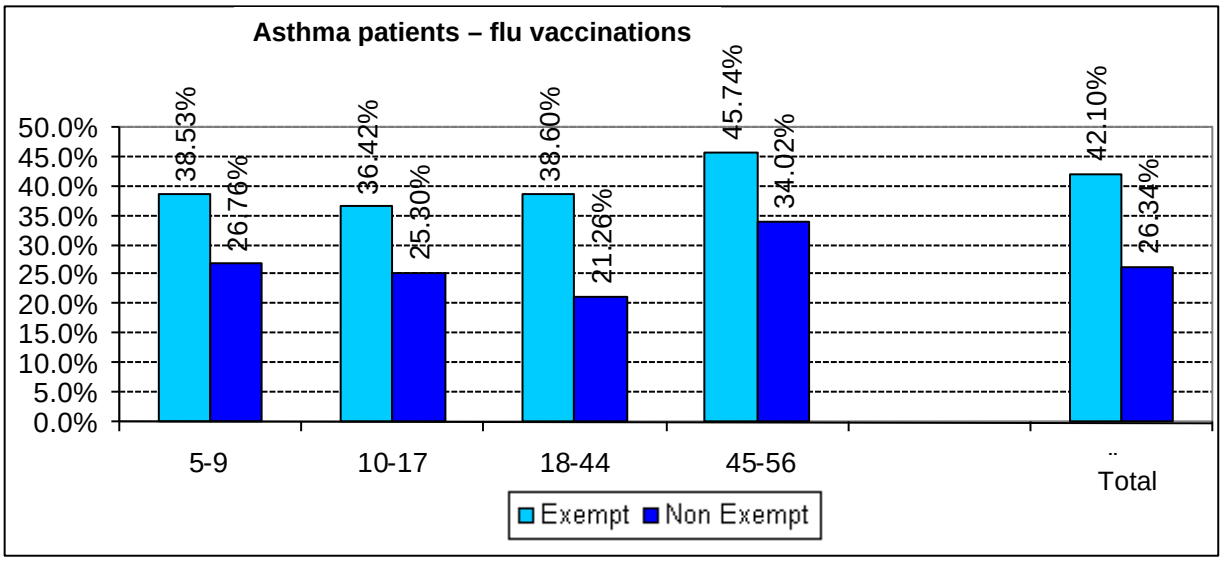


Figure 9: Rate of patients with chronic persistent asthma who received flu vaccinations in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 5-9 | 38.53 % | 26.76 % | 27.80 % | 257 | 1,851 | 2,108 | 667 | 6,917 | 7,584 |
| 10-17 | 36.42 % | 25.30 % | 26.61 % | 295 | 1,540 | 1,835 | 810 | 6,086 | 6,896 |
| 18-44 | 38.60 % | 21.26 % | 22.93 % | 821 | 4,234 | 5,055 | 2,127 | 19,919 | 22,046 |
| 45-56 | 45.74 % | 34.02 % | 36.66 % | 1,810 | 4,629 | 6,439 | 3,957 | 13,606 | 17,563 |
| **Total** | **42.10 %** | **26.34 %** | **28.54 %** | **3,183** | **12,254** | **15,437** | **7,561** | **46,528** | **54,089** |



# Screening for cancer

## Mammography for detection of breast cancer

### Background

Breast cancer is the most common malignant disease among women in Israel: one of every 9-10 women will develop breast cancer during her lifetime. The morbidity rate is approximately 30% of the total cancer morbidity rate among women and close to 18% of all cancer cases diagnosed each year in Israel.

The incidence of breast cancer in Israel is among the highest in the world – each year approximately 4,000 new cases are detected, and about 900 women die of the disease [24]. The following are the known causes of the disease: 1) hereditary factors; 2) individual factors, such as age, (early) onset of menstruation, (early) age of menopause, age at first delivery, number of children, non-nursing, benign breast diseases; 3) environmental factors such as obesity and lack of physical activity.

Shlomit Cohen, 53, from Haifa, relates: "In the summer of 2000, I was on vacation in Eilat with my husband. The routine mammogram scheduled in advance was when we would be away, so I had planned to skip it… During that period, I ignored matters related to my health and took my health for granted. However, due to my husband's urgent work issues, we were forced to come home early, so I went for the exam anyway… I fought the disease for close to two years and beat it in the end. The doctors told me that early detection of the disease saved my life."

Since the beginning of the 90s, a trend has been recognized toward an increase in the rate of new breast cancer cases detected in Israel each year. At the same time, the relative rates of survival for women stricken by the disease have improved in recent years. Research attributes the improvement to early detection of the disease. Early detection and treatment can significantly reduce mortality rates from the disease and improve the chances of recovery.

Mammography is the most effective method for the detection of breast cancer. It is an x-ray image of the breast that can reveal small masses that cannot be palpated manually and show changes in the breast that may be signs of cancer. While mammography cannot guarantee the detection of every existing mass, medical experience shows that it is likely to decrease the mortality rate from breast cancer by 17% among women in the 40-49 age group who

have been examined and by 30% in the 50-75 age group [4]. This is one of the preventive activities for which the Ministry of Health has published guidelines for several years. Mammography is recommended once every two years for, among others, all women over the age of 50. Additionally, mammographic screening is recommended for other age groups in the population with a higher risk of breast cancer, for example those with a family history of the disease. Mammographic screening is also performed on women who have not been diagnosed with breast cancer, with the objective of early detection of new cases of the disease.

The following findings are based on data of the HMOs and are presented for the entire population of insured individuals by age group (52-60, 61-68, 69-74) and socioeconomic status (exempt/not exempt from NII payments):

Definition of the indicator:

The percentage of insured women aged 52-74 who have had at least one mammographic screening in the course of the past two years. In other words, women who have not been diagnosed with breast cancer who underwent screening to detect the disease.

Main Findings:

- According to the HMO data, mammographic screening was performed for 60.58% of the target population in 2007: A total of approximately 401,037 women were examined (Figure 10). According to the 2007 NCQA report, the screening rate ranges from 49.1% to 68.9%, depending on the type of insurance [1].
- An increase (absolute) of approximately 5% in performance of the exam was found in 2005-2007 (Figure 10) in all age groups.
- The rate of women examined decreases somewhat with age, above 69. The trend is seen in each of the three years examined (Figure 10).
- A marked difference was found between patients exempt from NII payments and the rest of the insured women: In 2007, only 56.62% of insured women exempt from NII payments underwent mammographic screening compared to 62.08% of the remaining insured women (Figure 11).

Figure 10: Compliance rate of women with the indicator, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 51-60 | 57.08 % | 60.20 % | 61.25 % | 193,991 | 213,401 | 224,233 | 339,855 | 354,516 | 366,118 |
| 61-68 | 57.12 % | 60.66 % | 62.43 % | 99,246 | 105,713 | 110,565 | 173,751 | 174,280 | 177,097 |
| 69-74 | 50.46 % | 53.96 % | 55.79 % | 56,558 | 61,714 | 66,239 | 112,080 | 114,375 | 118,737 |
| **Total** | **55.91 %** | **59.21 %** | **60.58 %** | **349,795** | **380,828** | **401,037** | **625,686** | **643,171** | **661,952** |

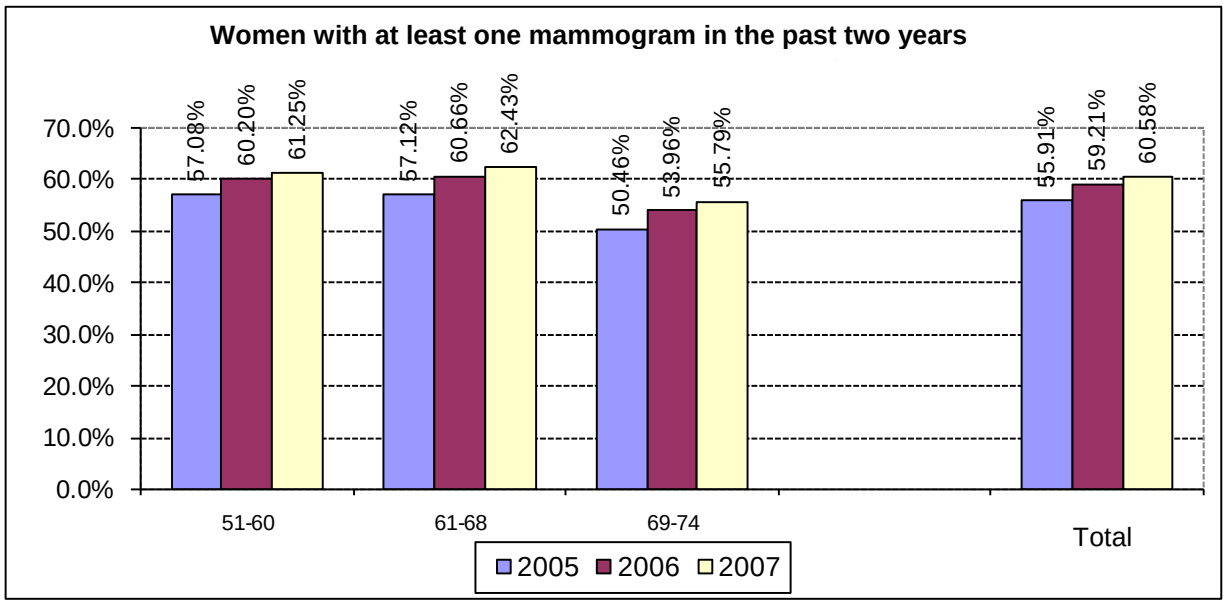
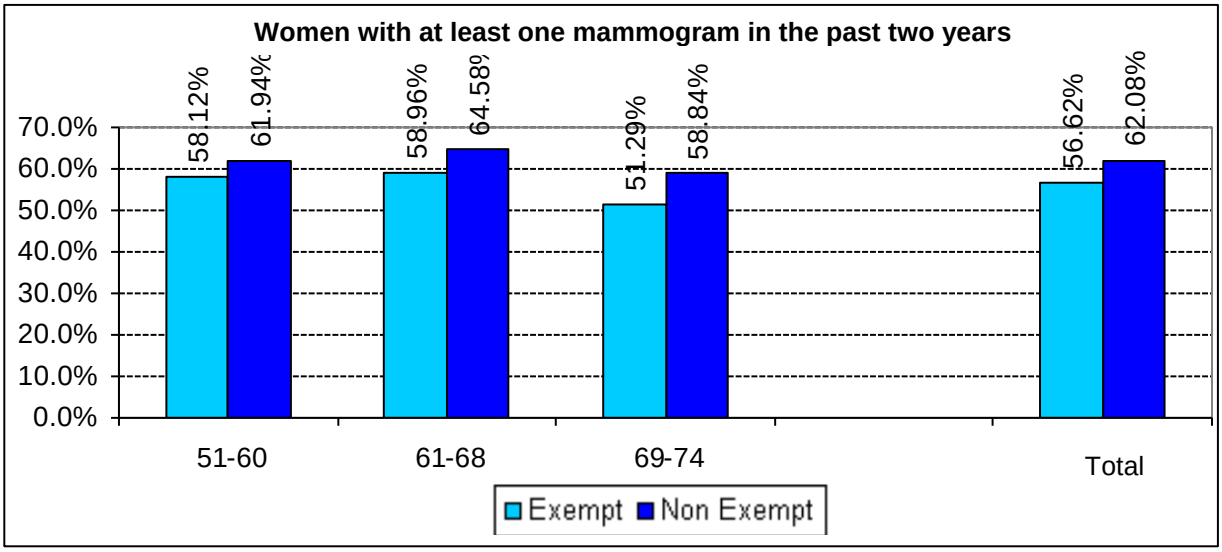



Figure 11: Compliance rate of women with the indicator in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 51-60 | 58.12 % | 61.94 % | 61.25 % | 38,411 | 185,822 | 224,233 | 66,091 | 300,027 | 366,118 |
| 61-68 | 58.96 % | 64.58 % | 62.43 % | 39,847 | 70,718 | 110,565 | 67,588 | 109,509 | 177,097 |
| 69-74 | 51.29 % | 58.84 % | 55.79 % | 24,656 | 41,583 | 66,239 | 48,069 | 70,668 | 118,737 |
| **Total** | **56.62 %** | **62.08 %** | **60.58 %** | **102,914** | **298,123** | **401,037** | **181,748** | **480,204** | **661,952** |


Women with at least one mammogram in the past two years
58.12%
61.94%
58.96%
64.58%
51.29%
58.84%
56.62%
62.08%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
51-60
61-68
69-74
Total
Exempt
Non Exempt

# Exams for the detection of colorectal cancer

## Background

Approximately 5% of the population may develop colorectal cancer, one of the most prevalent forms of cancer. 90% of all cases are detected after the age of 50. This form of cancer is responsible for one tenth of the deaths from malignant diseases [5].

Mortality from this type of cancer can be reduced by early detection through various forms of screening of the population. Annual fecal occult blood testing and periodic colonoscopy are the recommended methods for screening normal-risk populations, in individuals who do not suffer from any digestive track problems [6].

The Israeli Ministry of Health has recommended annual fecal occult blood tests for normal-risk individuals over the age of 50. When the test is abnormal, an optical exam of the full length of large intestine (colonoscopy) is recommended. Colonoscopy is also recommended for individuals at high risk due to family history of malignancies, complaints regarding the digestive track or diseases of the digestive track, or previous findings of problems in the intestine. The recommendations are the same as those issued in May by the Association of Israeli Public Health Physicians and the Israeli Association of Family Practice.

Most countries where publicly funded mass preventive screening is performed, including Finland, Great Britain, France and Australia, perform fecal occult blood testing.

The European Union is currently discussing the issue and plans to issue revised recommendations in 2009.

Health systems are attempting to handle the problem of low-level response to call for tests. In the US, it is estimated that 53% of the population over the age of 50 underwent fecal occult blood testing during the measurement year or underwent a colonoscopy in the ten years prior [24].

Avi Cohen, 54, from Petach Tikva, said: I wonder about whether I should have a fecal occult blood test every year or have a colonoscopy once every few years.

Preparing for the colonoscopy and the exam itself are not too pleasant, but if they see something, they'll take care of it immediately. On the other hand, fecal occult blood is such a simple test, and if I do it every year, they will send me a reminder each year to have the test. It's probably a good idea to consult the family physician…

One thing's for sure, it's not worth risking anything that has to do with cancer. What I've seen on TV is enough for me…

The following findings are based on data of the HMOs and are presented for the entire population of insured individuals by age group (50-59, 60-69, 70-74) and socioeconomic status (exempt/not exempt from NII payments).

Definition of the indicator:

The proportion of insured individuals between the ages of 50-74, who have undergone at least one fecal occult blood test in the past year. Individuals who have undergone screening or diagnostic colonoscopy in the past five years were not included in the population studied.

Main Findings:

- The target population for annual fecal occult blood testing in 2007 was 1,079,822 individuals between the ages of 50-74.
- Approximately 22.0% of the target population underwent fecal occult blood testing in 2007. The rate of performance varies between 18.4% among individuals between the ages of 50-59 and 27.0% between the ages of 70-74 (Figure 12).
- The performance rate is low, though an impressive annual improvement in performance of the tests during the reporting period is evident, perhaps because it was a new reportable measure.
- The rate of performance of fecal occult blood testing is higher for women than for men – 23.4% compared to 20.5%, respectively (Figure 13).
- Furthermore, approximately 16.2% of the target population between the ages of 50-74 has undergone a screening or diagnostic colonoscopy in the past five years, and were not included in the fecal occult blood testing indicator (Figure 15).
- Individuals exempt from NII payments underwent somewhat fewer annual fecal occult blood tests (both methods) than the remaining population, particularly above the age of 60 (Figure 14, Figure 17).

Figure 12: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 50-59 | 7.63 % | 13.05 % | 18.44 % | 45,195 | 78,500 | 110,105 | 592,327 | 601,584 | 597,243 |
| 60-69 | 11.60 % | 19.18 % | 26.41 % | 38,989 | 65,058 | 92,439 | 336,147 | 339,155 | 350,016 |
| 70-74 | 11.97 % | 18.95 % | 27.05 % | 15,981 | 25,091 | 35,859 | 133,469 | 132,394 | 132,563 |
| **Total** | **9.43 %** | **15.72 %** | **22.08 %** | **100,165** | **168,649** | **238,403** | **1,061,943** | **1,073,133** | **1,079,822** |

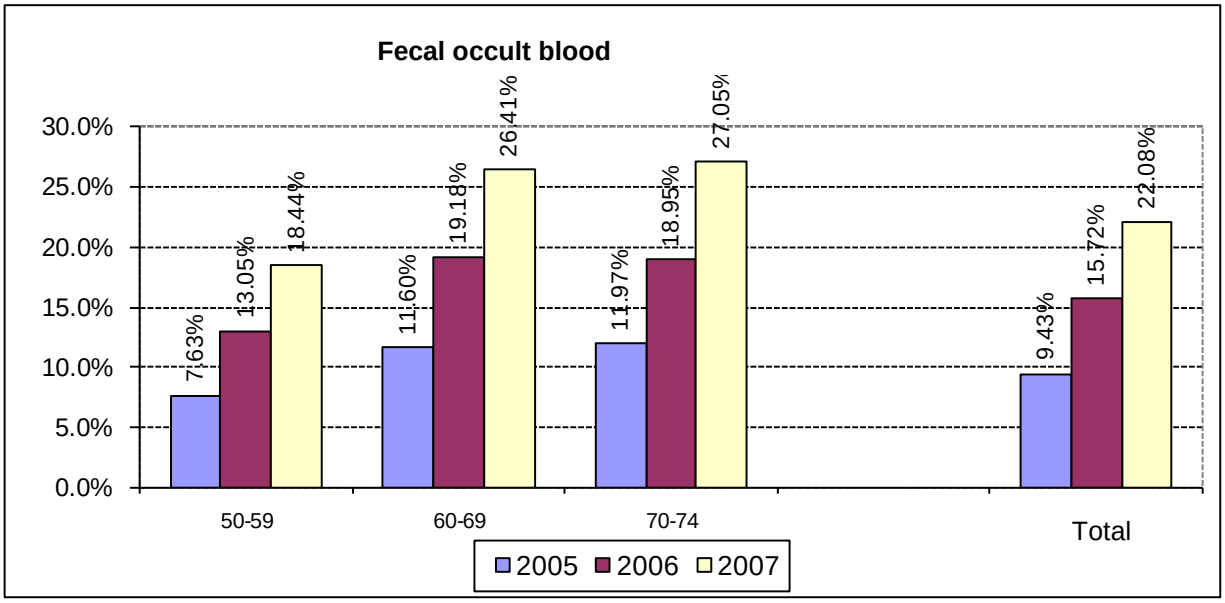



Figure 13: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 50-59 | 16.87 % | 19.88 % | 18.44 % | 48,329 | 61,776 | 110,105 | 286,557 | 310,686 | 597,243 |
| 60-69 | 24.65 % | 27.95 % | 26.41 % | 40,307 | 52,132 | 92,439 | 163,502 | 186,514 | 350,016 |
| 70-74 | 27.27 % | 26.88 % | 27.05 % | 15,751 | 20,108 | 35,859 | 57,767 | 74,796 | 132,563 |
| **Total** | **20.56 %** | **23.43 %** | **22.08 %** | **104,387** | **134,016** | **238,403** | **507,826** | **571,996** | **1,079,822** |

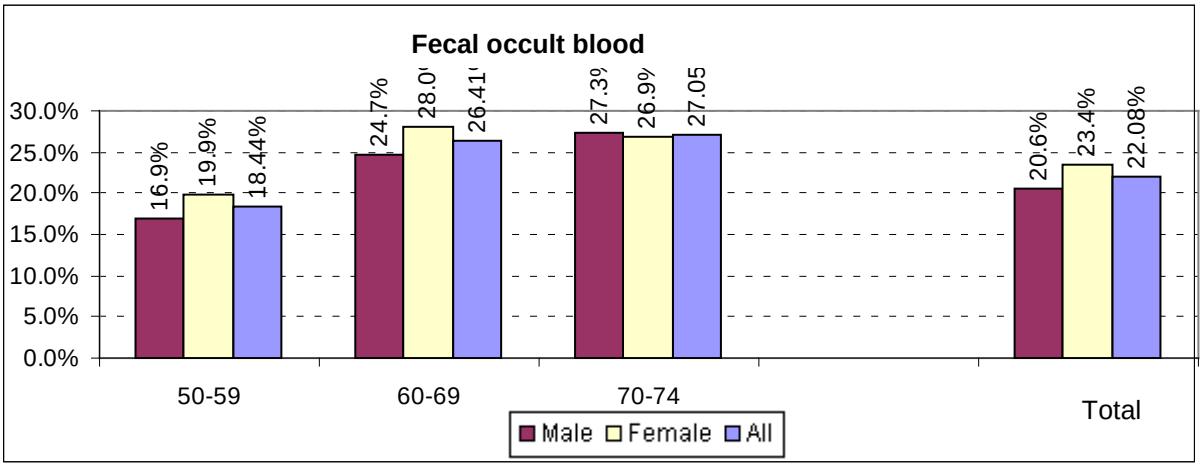



Figure 14: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 50-59 | 19.87 % | 18.19 % | 18.44 % | 17,105 | 93,000 | 110,105 | 86,074 | 511,169 | 597,243 |
| 60-69 | 25.34 % | 26.97 % | 26.41 % | 30,397 | 62,042 | 92,439 | 119,943 | 230,073 | 350,016 |
| 70-74 | 22.96 % | 29.73 % | 27.05 % | 12,036 | 23,823 | 35,859 | 52,426 | 80,137 | 132,563 |
| **Total** | **23.04 %** | **21.78 %** | **22.08 %** | **59,538** | **178,865** | **238,403** | **258,443** | **821,379** | **1,079,822** |

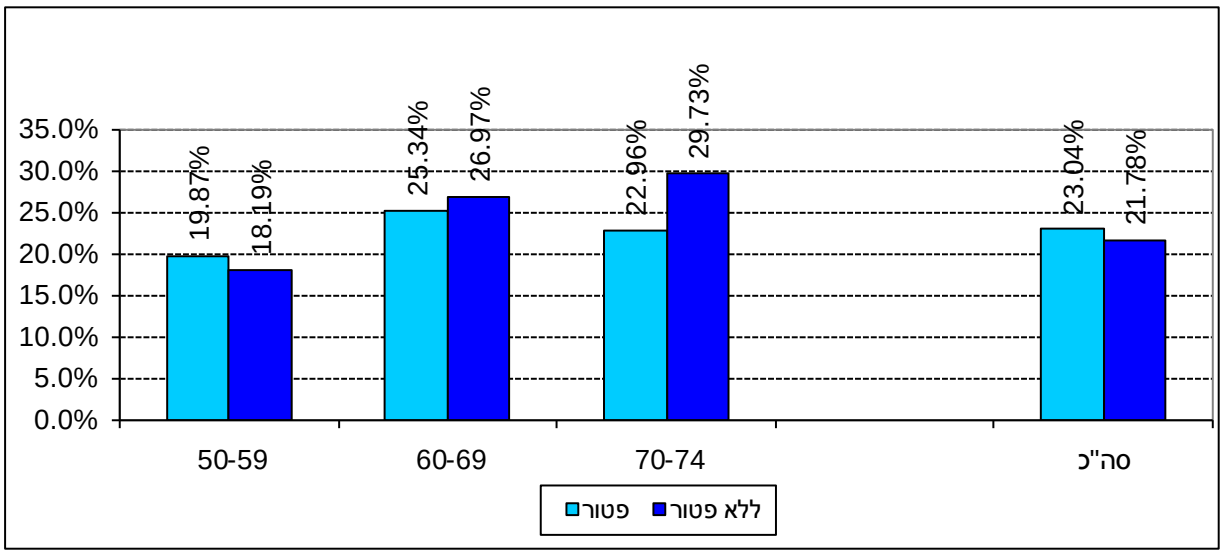


Figure 15: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 50-59 | 10.24 % | 12.03 % | 13.62 % | 67,601 | 82,235 | 94,156 | 659,928 | 683,819 | 691,399 |
| 60-69 | 13.98 % | 16.31 % | 18.44 % | 54,640 | 66,085 | 79,134 | 390,787 | 405,240 | 429,150 |
| 70-74 | 16.14 % | 18.56 % | 20.71 % | 25,690 | 30,173 | 34,618 | 159,159 | 162,567 | 167,181 |
| **Total** | **12.23 %** | **14.26 %** | **16.15 %** | **147,931** | **178,493** | **207,908** | **1,209,874** | **1,251,626** | **1,287,730** |

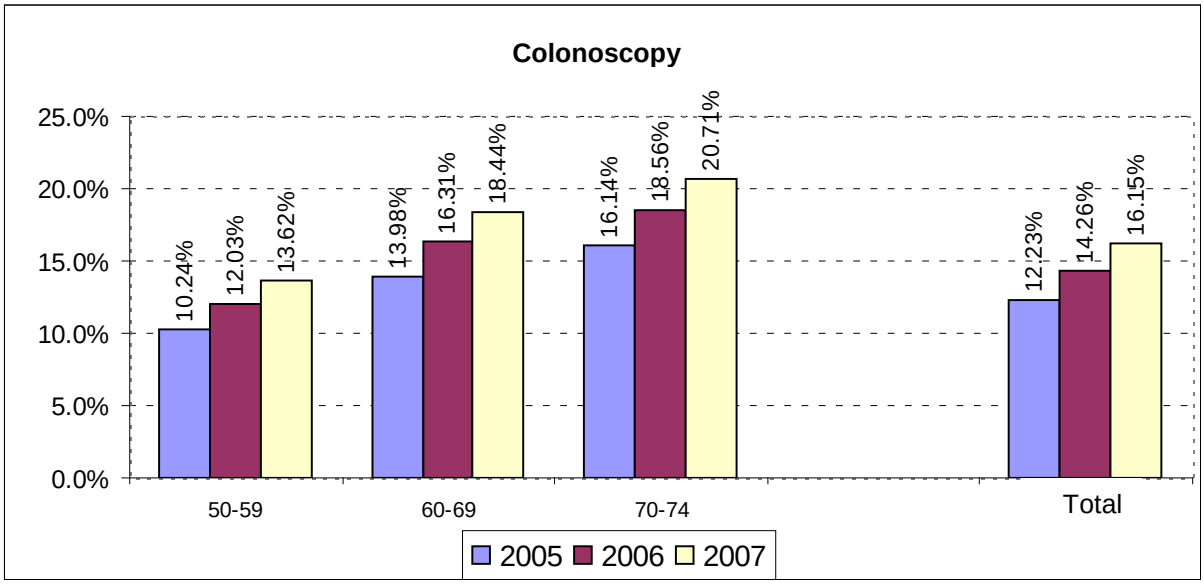



Figure 16: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 50-59 | 13.59 % | 13.64 % | 13.62 % | 45,070 | 49,086 | 94,156 | 331,627 | 359,772 | 691,399 |
| 60-69 | 18.46 % | 18.42 % | 18.44 % | 37,020 | 42,114 | 79,134 | 200,522 | 228,628 | 429,150 |
| 70-74 | 21.84 % | 19.81 % | 20.71 % | 16,138 | 18,480 | 34,618 | 73,905 | 93,276 | 167,181 |
| **Total** | **16.21 %** | **16.09 %** | **16.15 %** | **98,228** | **109,680** | **207,908** | **606,054** | **681,676** | **1,287,730** |

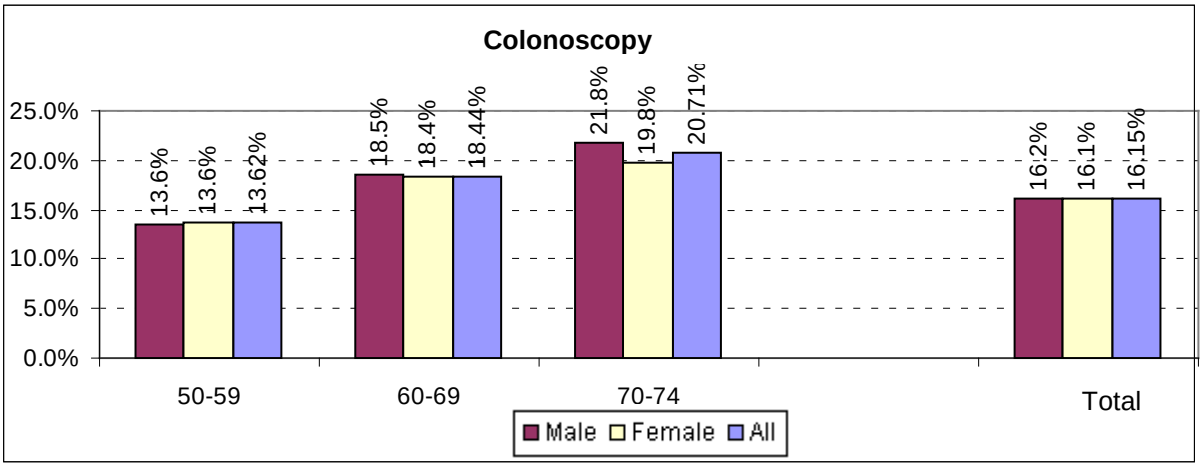
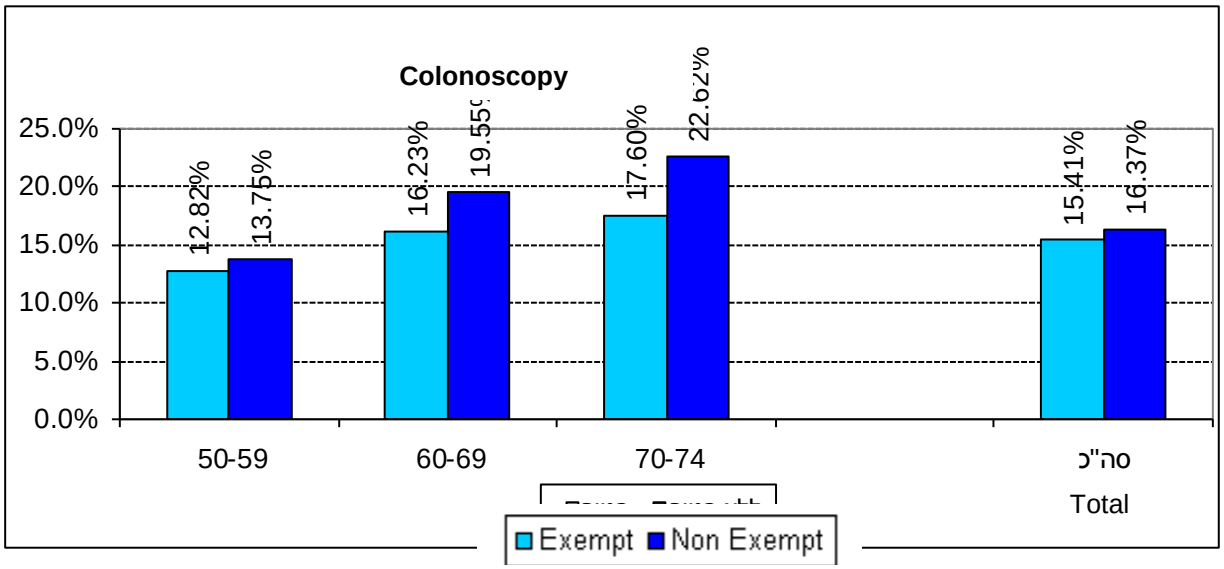



Figure 17: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 50-59 | 12.82 % | 13.75 % | 13.62 % | 12,652 | 81,504 | 94,156 | 98,726 | 592,673 | 691,399 |
| 60-69 | 16.23 % | 19.55 % | 18.44 % | 23,238 | 55,896 | 79,134 | 143,181 | 285,969 | 429,150 |
| 70-74 | 17.60 % | 22.62 % | 20.71 % | 11,196 | 23,422 | 34,618 | 63,622 | 103,559 | 167,181 |
| **Total** | **15.41 %** | **16.37 %** | **16.15 %** | **47,086** | **160,822** | **207,908** | **305,529** | **982,201** | **1,287,730** |



# Flu vaccination for adults

## Background

Influenza is a common illness that appears primarily during the winter months and can potentially develop into a worldwide epidemic every few years. The main symptoms of influenza are high fever, headaches, weakness, fatigue, muscle aches and infections of the airways manifested through runny nose, cough and sore throat. Sometimes complications such as pneumonia, sinusitis, severe ear infection or exacerbation of cardiopulmonary diseases may occur.

Marina retired a year ago. She also received a flu vaccination a year ago. OK, everybody wanted a flu shot last year. This year she's not sure. The vaccination is still an injection, does not always help, and a friend told her she got sick despite the vaccine…

Dan, her husband, was one of the first to get vaccinated. He won't forget the flu two years ago. In bed for a week with fever, felt terrible, was almost hospitalized.

Dan says, "If it doesn't completely prevent the flu, it will at least tone it down a bit."

The most important means of preventing influenza (flu) is to immunize the population, and especially the high risk groups, before the start of the flu season. This is one of the vaccinations for which the Ministry of Health has published guidelines for several years. Annual vaccination is especially recommended for all residents over the age of 65, before the start of the winter season. Outbreaks of the flu are accompanied by a rise in the rate of mortality for this age group. The effectiveness of the vaccine in this risk group is shown by the prevention of 50%-65% of hospitalizations due to pneumonia and influenza, and prevention of 80% of incidents of death [25]. Additionally, the vaccination is recommended for other high-risk groups in the population, such as patients with certain chronic diseases, employees of the health system and public institutions.

It is important to be vaccinated every year, because the flu virus changes from year to year.

Definition of the indicator:

The percentage of insured individuals who turned 65 by January 1 of the measurement year, and who received flu vaccinations in the winter season (September-February of the measurement year).

Main Findings:

- According to the data provided by the HMOs, in 2007, 51.3% of the insured individuals above the age of 65 were vaccinated, totaling 386,907 insured individuals. This rate rose at a rate of approximately 6% annually through 2005. In 2006, this rate declined by approximately 5.5% (Figure 18). The decline in the vaccination rate in 2006 was due to public concern regarding the safety of the vaccine. In 2007, the rate of the indicator rose to approximately 11%, thus correcting the trend.
- The rate of vaccination is higher for the elderly over the age of 74. In 2007, the percentage of vaccinations in this group reached 60.4%, compared to 51.4% in the 65-73 age group (Figure 18). According to the 2007 NCQA report, the rate of compliance with the indicator was 70.3% among those aged 65 and older, and 36.3% among 50-64 year olds [1].
- Among the 65-73 age group, the rate of vaccination was 52% for men and 50% for women; among those 74 and older, the rate of vaccination was 64.7% for men and 57.6% for women (Figure 19).
- Insured individuals exempt from NII payments were vaccinated less than the other insured individuals – in 2007, the rate of vaccination in this group was 49.4% compared to 59.9% among individuals not exempt from NII payments (Figure 20).

Figure 18: Rate of individuals aged 65 and above who received flu vaccinations, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 65-73 | 47.67 % | 40.62 % | 51.41 % | 162,092 | 139,416 | 177,901 | 340,040 | 343,190 | 346,060 |
| 74 and older | 53.82 % | 48.23 % | 60.44 % | 178,874 | 163,214 | 209,006 | 332,377 | 338,440 | 345,808 |
| **Total** | **50.71 %** | **44.40 %** | **55.92 %** | **340,966** | **302,630** | **386,907** | **672,417** | **681,630** | **691,868** |

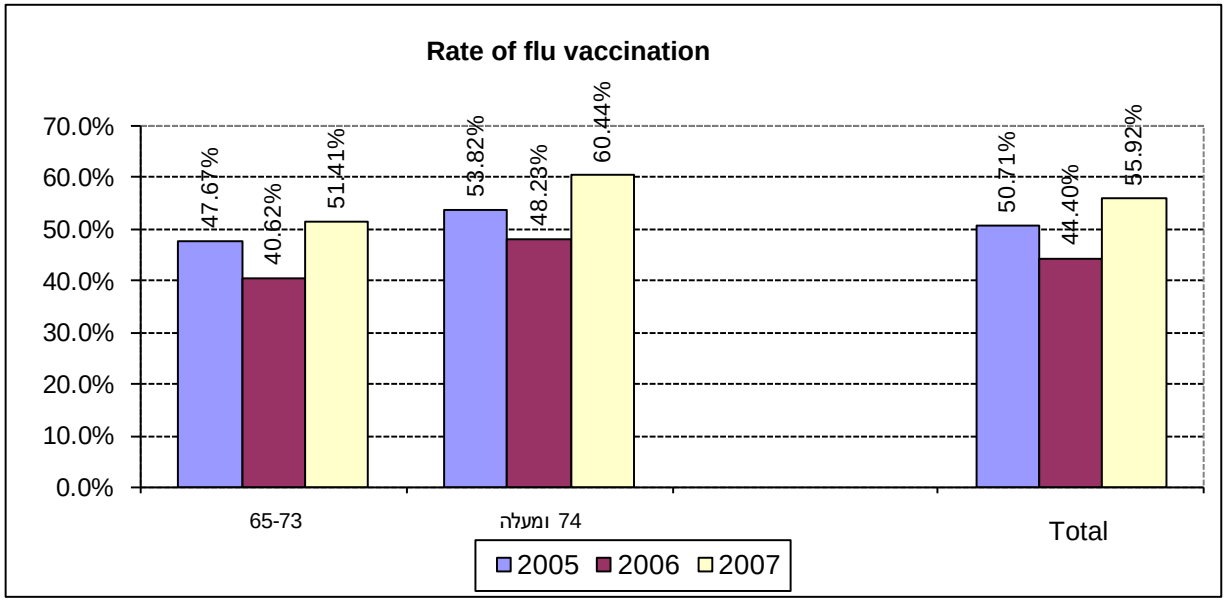



Figure 19: Rate of individuals aged 65 and above who received flu vaccinations in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 65-73 | 52.53 % | 50.48 % | 51.41 % | 82,226 | 95,675 | 177,901 | 156,534 | 189,526 | 346,060 |
| 74 and older | 64.71 % | 57.60 % | 60.44 % | 89,307 | 119,699 | 209,006 | 138,003 | 207,805 | 345,808 |
| **Total** | **58.24 %** | **54.21 %** | **55.92 %** | **171,533** | **215,374** | **386,907** | **294,537** | **397,331** | **691,868** |

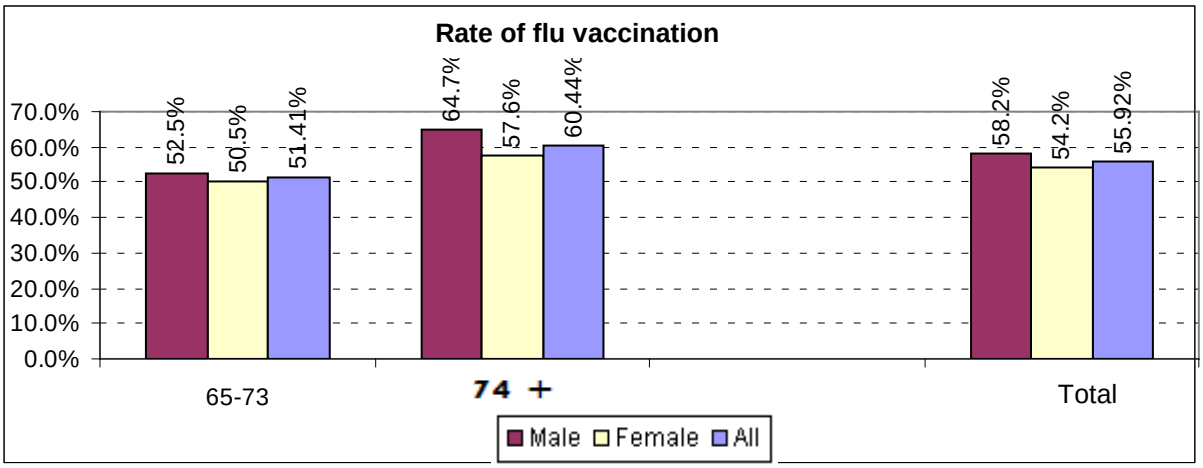
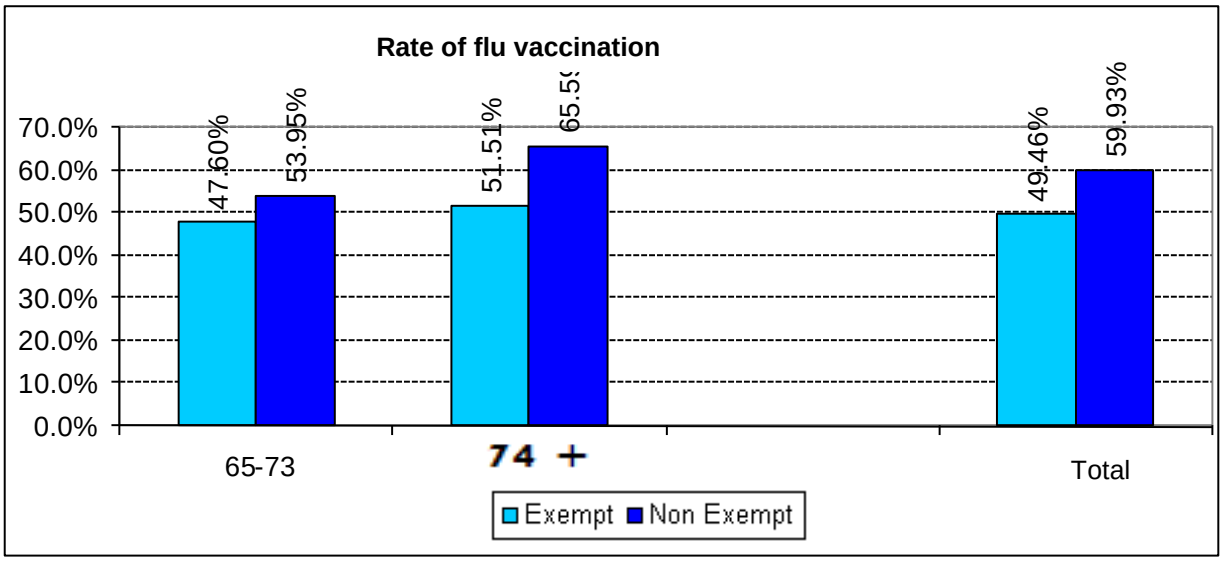

Rate of flu vaccination
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
52.5%
50.5%
51.41%
64.7%
57.6%
60.44%
58.2%
54.2%
55.92%
65-73
74 +
Total
Male
Female
All

Figure 20: Rate of individuals aged 65 and above who received flu vaccinations in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 65-73 | 47.60 % | 53.95 % | 51.41 % | 65,930 | 111,971 | 177,901 | 138,510 | 207,550 | 346,060 |
| 74 and older | 51.51 % | 65.59 % | 60.44 % | 65,156 | 143,850 | 209,006 | 126,503 | 219,305 | 345,808 |
| **Total** | **49.46 %** | **59.93 %** | **55.92 %** | **131,086** | **255,821** | **386,907** | **265,013** | **426,855** | **691,868** |



# Pneumococcal vaccination for adults

## Background

Pneumonia is a serious disease that may strike at any age, with most cases in the winter. Each year, there are between 9 to 18 instances of the disease per 100,000 adults. Pneumonia can be caused by bacterial or viral infection, and the most common cause is the pneumococcus bacteria. The main symptoms of the disease are high fever, chills, persistent cough, chest pains, and shortness of breath. Sometimes these symptoms are serious enough to warrant hospitalization. The elderly, people suffering from chronic diseases, particularly those with a compromised autoimmune system, smokers, alcoholics and residents of old age homes are at high risk of catching this disease.

Gabi retired a year ago. He gets a flu shot every year. This year his family doctor suggested that he get vaccinated against pneumonia. Gabi didn't understand why he needed to have two vaccinations. The doctor explained that while the flu vaccine is for a viral disease, the pneumococcal vaccine is for a bacterial disease. The doctor said that the pneumococcal vaccine protects him for at least five years. Gabi decided to get the vaccine and to the most he could to protect himself.

The vaccination against common and violent strains of pneumococcus is one of the most important means of prevention. This is one of the vaccinations for which the Ministry of Health has published guidelines for several years now. The vaccine is recommended for all residents over the age of 65 at least once if five years since the last vaccination has passed. In most cases, the vaccine provide protection for up to 10 years. The effectiveness in the older age group is reflected in prevention of 50%-60% of morbidity and approximately 40% mortality among hospitalized patients [9,10]. The vaccine is recommended for addition segments of the population at high risk, including diabetes patients and patients with other chronic diseases.

Definition of the indicator:

Insured individuals who have been vaccinated against pneumococcal pneumonia in the past six years in the 65+ age group in the measurement year.

Main Findings:

- According to HMO data, in 2007, the vaccine was given to 36.5% of insured individuals over the age of 65, for a total of 244,157 people. In 2007, the rate of the indicator increased by approximately 11% over the previous year (Figure 21). For the sake of comparison, the rate of compliance with this indicator in the United States in 2006 was 66% of those aged 65 or older.
- The vaccination rate was higher among the 65-73 age group (37.65%) than among the 74 and older group (35.4%) (Figure 21). Among the 65-73 age group, the rate of vaccination was 38.1% for men and 37.2% for women; among those 74 and older, the rate of vaccination was 38.3% for men and 33.4% for women (Figure 22).
- Insured individuals exempt from NII payments were vaccinated less than the other insured individuals – in 2007, the rate of vaccination in this group was 33.9% compared to 38.0% among individuals not exempt from NII payments (Figure 23).

Figure 21: Rate of individuals aged 65 and above who received pneumococcal vaccinations in the past six years, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 65-73 | 24.66 % | 25.39 % | 37.65 % | 78,632 | 82,668 | 124,303 | 318,926 | 325,560 | 330,192 |
| 74 and older | 27.03 % | 24.88 % | 35.40 % | 86,848 | 82,489 | 119,854 | 321,316 | 331,584 | 338,588 |
| **Total** | **25.85 %** | **25.13 %** | **36.51 %** | **165,480** | **165,157** | **244,157** | **640,242** | **657,144** | **668,780** |

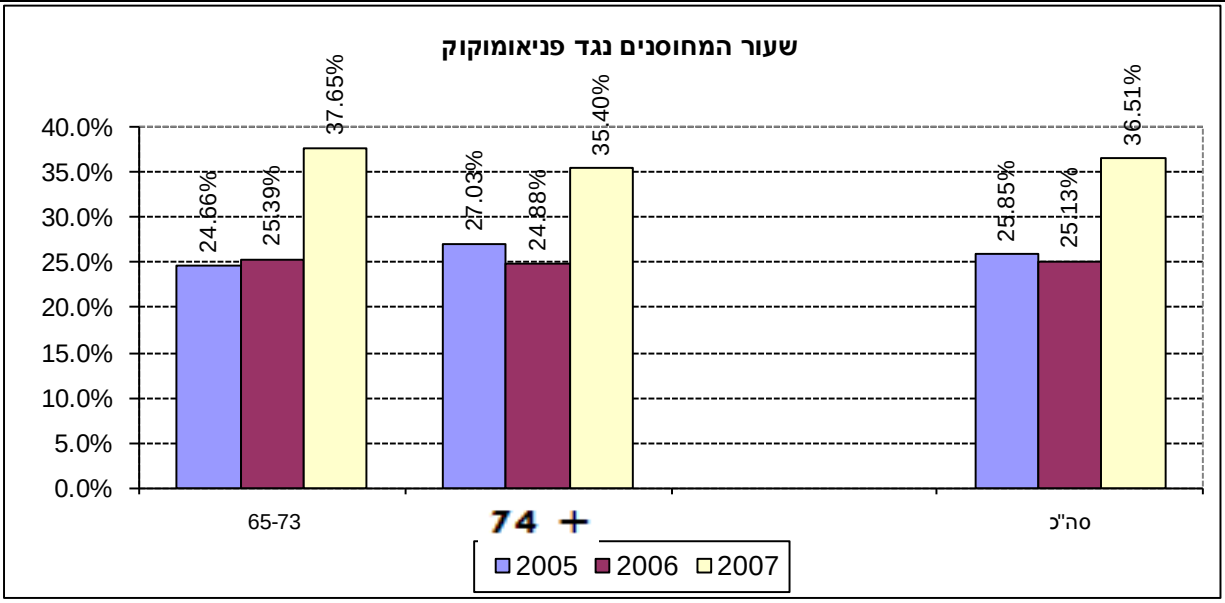


Figure 22: Rate of individuals aged 65 and above who received pneumococcal vaccinations in the past six years, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 65-73 | 38.17 % | 37.21 % | 37.65 % | 57,022 | 67,281 | 124,303 | 149,393 | 180,799 | 330,192 |
| 74 and older | 38.37 % | 33.42 % | 35.40 % | 51,883 | 67,971 | 119,854 | 135,206 | 203,382 | 338,588 |
| **Total** | **38.27 %** | **35.21 %** | **36.51 %** | **108,905** | **135,252** | **244,157** | **284,599** | **384,181** | **668,780** |

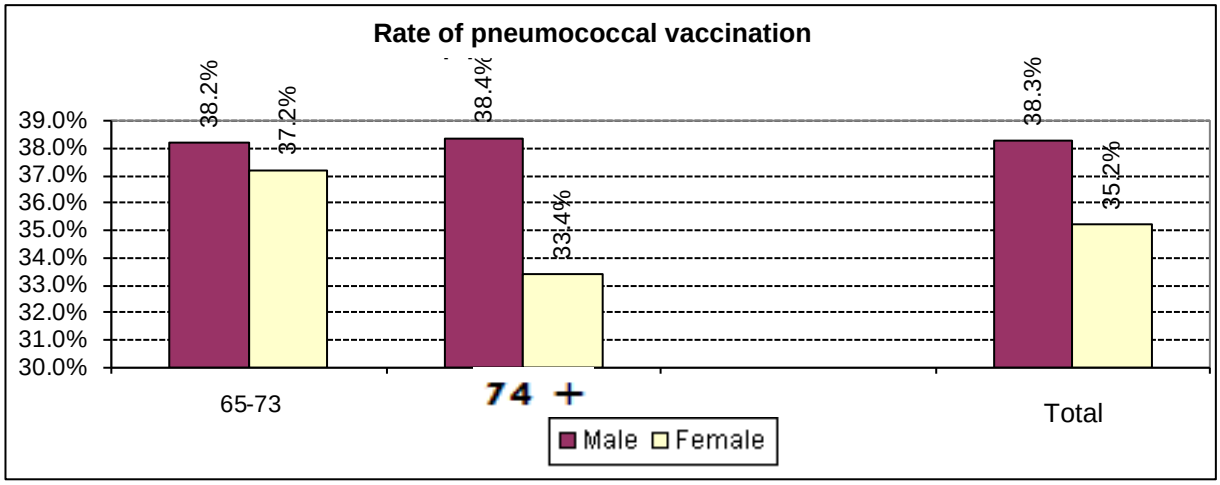
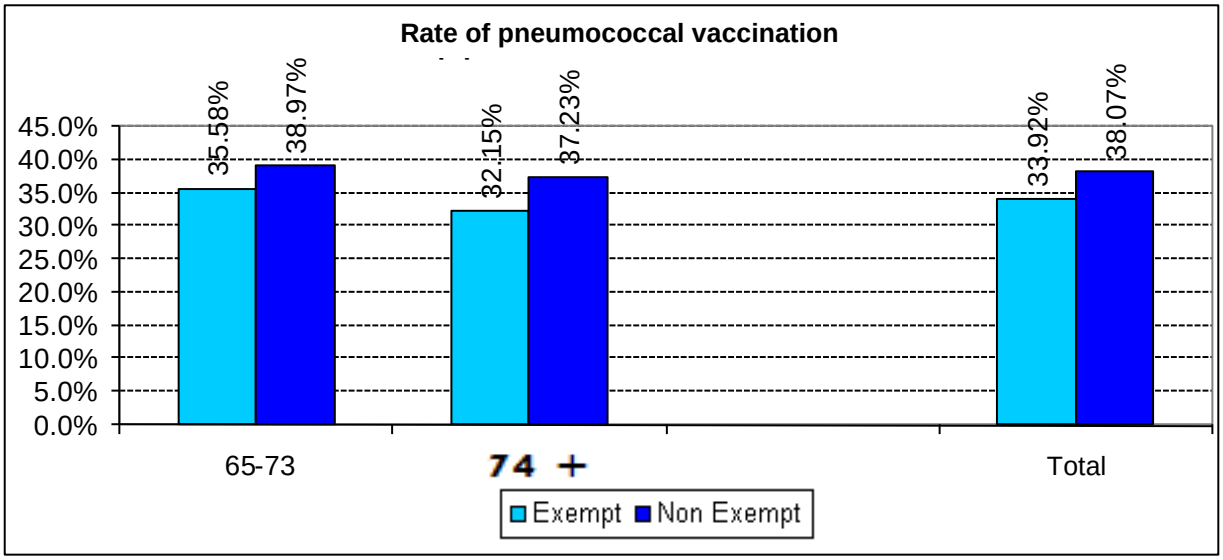


Figure 23: Rate of individuals aged 65 and above who received pneumococcal vaccinations in the past six years, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 65-73 | 35.58 % | 38.97 % | 37.65 % | 45,976 | 78,327 | 124,303 | 129,203 | 200,989 | 330,192 |
| 74 and older | 32.15 % | 37.23 % | 35.40 % | 39,250 | 80,604 | 119,854 | 122,086 | 216,502 | 338,588 |
| **Total** | **33.92 %** | **38.07 %** | **36.51 %** | **85,226** | **158,931** | **244,157** | **251,289** | **417,491** | **668,780** |



# Treatment of diabetes

## Background

Diabetes is one of the most common and severe chronic disease found among middle-aged and elderly patients alike, and it can damage many body systems, including cardiovascular damage, and can lead to blindness and kidney failure. This disease is responsible for many cases of hospitalization, and impairs quality of life and function of the patients. It is a chronic metabolic disorder, characterized by a high level of blood sugar caused by various processes that lead to insulin deficiency or dysfunction.

Type 1 diabetes (juvenile diabetes), begins most commonly in childhood or adolescence, is caused by an autoimmune destruction of pancreatic beta cells leading to a lack of insulin. Patients suffering from the disease require insulin therapy.

Even though diabetes poses a substantial risk, this risk can be reduced significantly by adhering strictly to the customized treatment program, maintaining a proper diet, exercising regularly, self-testing of blood glucose (sugar) levels, and taking the right medication according to doctors' recommendations. Many diabetics state that “diabetes is party of my routine” and that “diabetes is not an obstacle, to the contrary, it makes you stronger, more mature and teaches you responsibility and self-awareness.”

Type 2 diabetes (adult diabetes) generally occurs at a more advanced age and is caused by the development of resistance to insulin. The majority of patients with this disease can be treated satisfactorily with medications and an appropriate diet. It can be assumed that most diabetes patients over the age of 35 have Type 2, while among young adults Type 1 diabetes is more prevalent. The indicators do not distinguish between Type 1 and Type 2 diabetes, as the data provided by the HMOs does not enable a distinction between types of patients. Therefore, with respect to the indicators reported, the medical guidelines are similar for both types of diabetes.

Different European countries have reported that 15% of all diabetes patients rely solely on diet to control the disease, and the rest receive drug therapy. The current report refers only to diabetes patients receiving drug therapy, as based on the data from the HMOs. The definition does not include patients diagnosed by their doctor or hospital diagnoses due to the lack of uniformity in the quality of these records at the HMOs. Furthermore, the definition does not include insured

individuals with high blood sugar levels or with high hemoglobin A1c (HbA1c) even if they do not receive drug therapy due to the fear of false positive or false negative diagnosis. In the future, these alternatives will also be examined.

Throughout the world, and particularly in Israel, there is a gradual but continuous rise in the prevalence of this disease. The health survey conducted by the Central Bureau of Statistics and the Ministry of Health [25] in 2003-2004 found that 8.1% of adults of both sexes reported that the doctor had diagnosed them with diabetes or found they had a high blood sugar level, while among those aged 65-74 the rate reaches 21.6%. This means that the prevalence of diabetes increases with age.

# Prevalence of diabetes

## Background

The prevalence of diabetes in the general population has been on the rise in recent years, at a similar rate for men and women. The prevalence worldwide in 2000 was estimated at 0.19% below the age of 20 and 8.6% above 20. The prevalence among adults over 65 is 20.1% [1]. According to the findings of the current program, the morbidity rate in Israel is similar to that worldwide.

The following findings are based on data provided by the HMOs and are presented for the entire population of insured individuals by age group (0-4, 5-17, 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85 and over), with the exception of weight documentation, blood pressure documentation and documentation of flu vaccination (18-85 and over, divided in the same way) and socioeconomic status (exempt/not exempt from NII payments).

Definition of the indicator:

The program defined diabetes patients as insured individuals who purchased diabetes medication at least three times a year. This operational definition is more restrictive than that of the 2004 report, in which diabetes patients were defined by at least one prescription for diabetes medication a year. Despite this more restrictive definition, the number of diabetes patients documented by the HMOs was almost unaffected and continues to rise each year.

Main Findings:

- In 2007 there were 291,839 diabetes patients on medication in Israel, constituting 4.2% of the total population or 6.4% of the population over 18. 142,771 of diabetes patients are male, in other words approximately 49%.

- The rate of diabetes patients increases with age, reaching close to 21.3% of the population aged 65-74 (Figure 24).
- The rate of diabetes patients continues to rise at a rate of 0.2% each year, perhaps as part of a worldwide epidemic, or alternatively, because of improved diagnosis and documentation by the HMOs in the measurement years (Figure 24).
- No marked difference was found in the prevalence of diabetes between women and men in any age group (Figure 25)..
- In 2007, the rate of diabetes patients among insured individuals exempt from NII payments was 5 times higher than among the rest of the insured individuals (Figure 26). Similar differences were found in 2006 and 2005 as well.
- Most of the differences in prevalence of diabetes based on exemption from NII payments was recorded among young adults and adults under the age of 65 (Figure 26).

Figure 24: Prevalence of diabetes by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 0.02 % | 0.02 % | 0.02 % | 110 | 132 | 143 | 683,381 | 692,420 | 705,082 |
| 5-17 | 0.11 % | 0.12 % | 0.12 % | 1,771 | 1,911 | 1,954 | 1,543,335 | 1,567,174 | 1,589,619 |
| 18-24 | 0.29 % | 0.30 % | 0.30 % | 1,700 | 1,802 | 1,793 | 580,364 | 591,769 | 601,100 |
| 25-34 | 0.44 % | 0.46 % | 0.46 % | 4,416 | 4,721 | 4,746 | 1,011,972 | 1,028,522 | 1,035,714 |
| 35-44 | 1.63 % | 1.71 % | 1.76 % | 13,021 | 13,996 | 14,724 | 800,625 | 816,655 | 838,133 |
| 45-54 | 5.69 % | 5.99 % | 6.20 % | 42,573 | 45,350 | 47,122 | 748,680 | 757,574 | 759,765 |
| 55-64 | 12.48 % | 13.13 % | 13.61 % | 65,270 | 72,600 | 79,462 | 522,930 | 552,734 | 583,714 |
| 65-74 | 19.51 % | 20.43 % | 21.30 % | 72,325 | 76,464 | 80,455 | 370,780 | 374,363 | 377,667 |
| 75-84 | 18.53 % | 19.75 % | 20.96 % | 44,191 | 48,097 | 51,526 | 238,490 | 243,549 | 245,883 |
| 85+ | 11.81 % | 12.89 % | 13.90 % | 7,665 | 8,824 | 9,914 | 64,899 | 68,478 | 71,305 |
| **Total** | **3.85 %** | **4.09 %** | **4.29 %** | **253,042** | **273,897** | **291,839** | **6,565,456** | **6,693,238** | **6,807,982** |

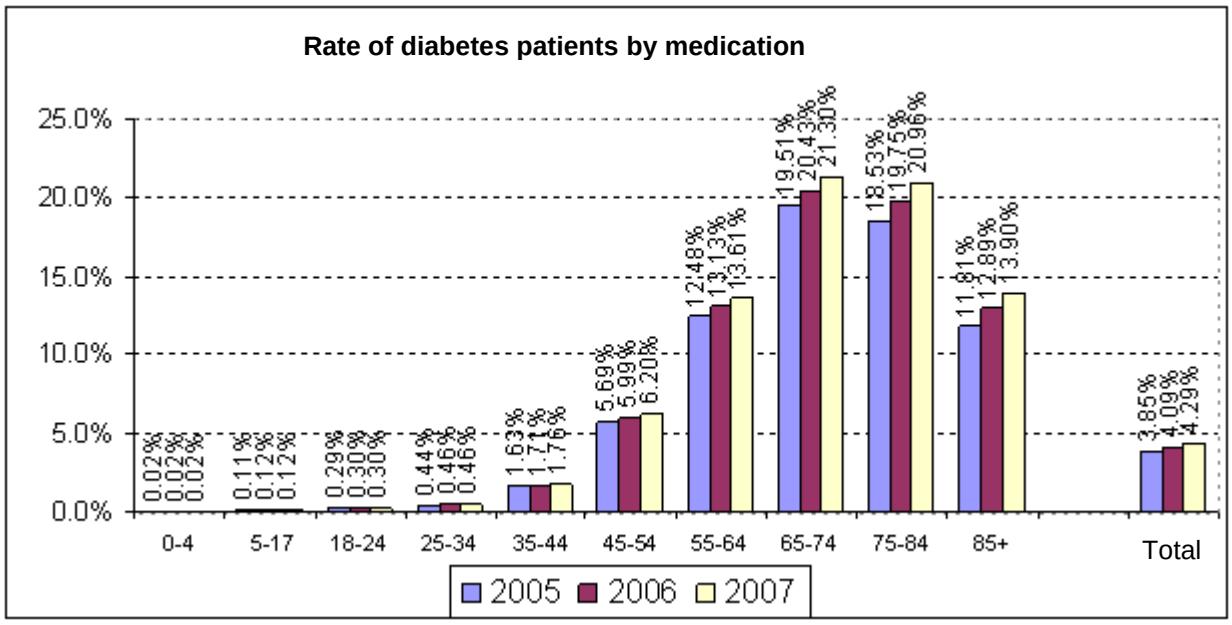



Figure 25: Prevalence of diabetes patients among all insured individuals, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 0-4 | 0.02 % | 0.02 % | 0.02 % | 72 | 71 | 143 | 362,643 | 342,439 | 705,082 |
| 5-17 | 0.12 % | 0.13 % | 0.12 % | 975 | 979 | 1,954 | 815,201 | 774,418 | 1,589,619 |
| 18-24 | 0.31 % | 0.29 % | 0.30 % | 860 | 933 | 1,793 | 277,362 | 323,738 | 601,100 |
| 25-34 | 0.48 % | 0.44 % | 0.46 % | 2,427 | 2,319 | 4,746 | 510,650 | 525,064 | 1,035,714 |
| 35-44 | 2.06 % | 1.47 % | 1.76 % | 8,437 | 6,287 | 14,724 | 409,461 | 428,672 | 838,133 |
| 45-54 | 7.06 % | 5.40 % | 6.20 % | 25,917 | 21,205 | 47,122 | 366,899 | 392,866 | 759,765 |
| 55-64 | 14.90 % | 12.44 % | 13.61 % | 41,490 | 37,972 | 79,462 | 278,480 | 305,234 | 583,714 |
| 65-74 | 21.93 % | 20.79 % | 21.30 % | 37,291 | 43,164 | 80,455 | 170,059 | 207,608 | 377,667 |
| 75-84 | 21.53 % | 20.57 % | 20.96 % | 21,222 | 30,304 | 51,526 | 98,558 | 147,325 | 245,883 |
| 85+ | 14.97 % | 13.25 % | 13.90 % | 4,080 | 5,834 | 9,914 | 27,259 | 44,046 | 71,305 |
| **Total** | **4.30 %** | **4.27 %** | **4.29 %** | **142,771** | **149,068** | **291,839** | **3,316,572** | **3,491,410** | **6,807,982** |

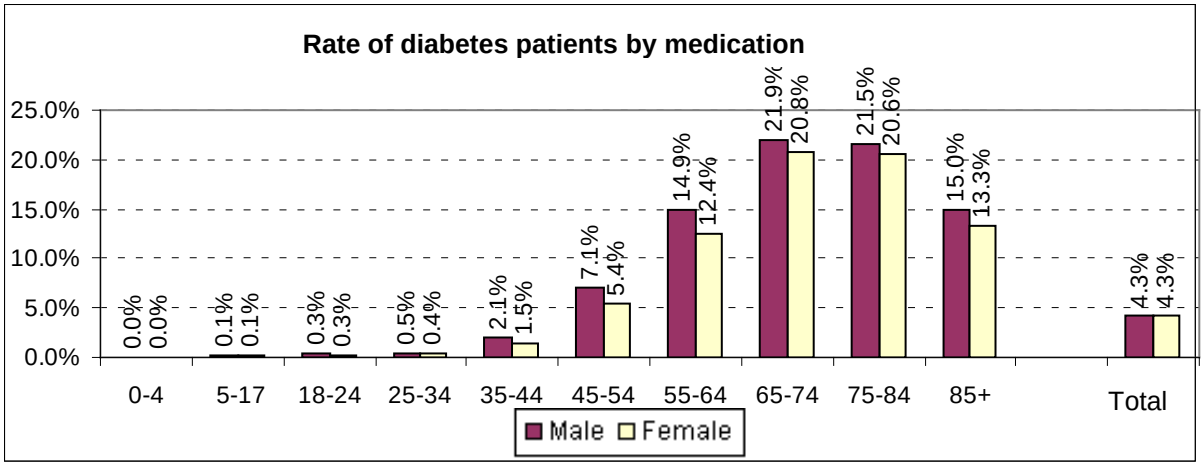
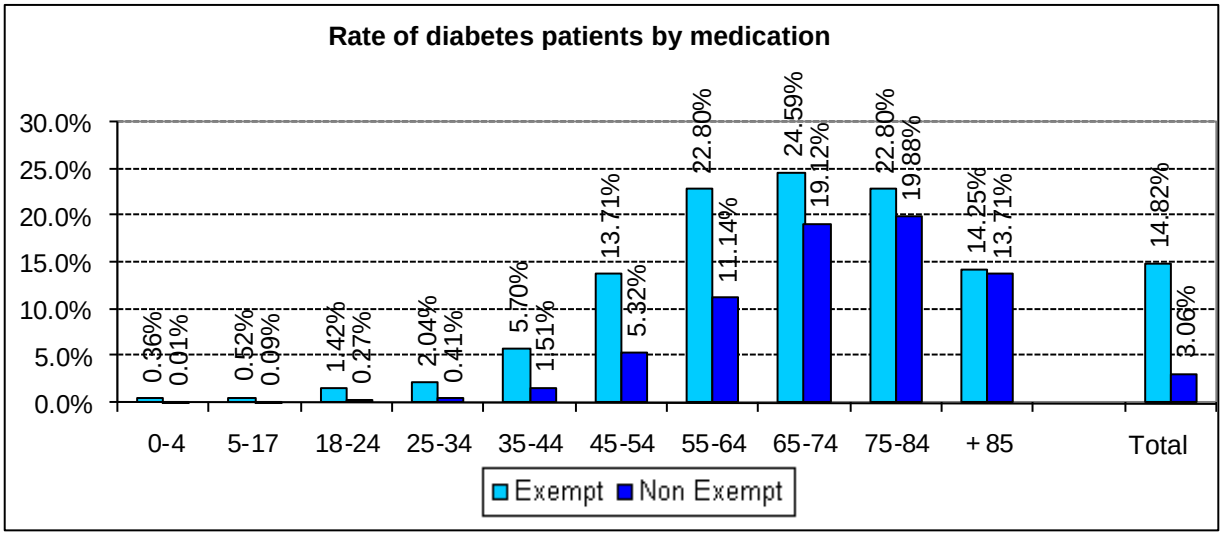


Figure 26: Prevalence of diabetes among all insured individuals, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 0-4 | 0.36 % | 0.01 % | 0.02 % | 80 | 63 | 143 | 22,108 | 682,974 | 705,082 |
| 5-17 | 0.52 % | 0.09 % | 0.12 % | 606 | 1,348 | 1,954 | 115,447 | 1,474,172 | 1,589,619 |
| 18-24 | 1.42 % | 0.27 % | 0.30 % | 238 | 1,555 | 1,793 | 16,746 | 584,354 | 601,100 |
| 25-34 | 2.04 % | 0.41 % | 0.46 % | 688 | 4,058 | 4,746 | 33,798 | 1,001,916 | 1,035,714 |
| 35-44 | 5.70 % | 1.51 % | 1.76 % | 2,827 | 11,897 | 14,724 | 49,579 | 788,554 | 838,133 |
| 45-54 | 13.71 % | 5.32 % | 6.20 % | 10,946 | 36,176 | 47,122 | 79,813 | 679,952 | 759,765 |
| 55-64 | 22.80 % | 11.14 % | 13.61 % | 28,182 | 51,280 | 79,462 | 123,589 | 460,125 | 583,714 |
| 65-74 | 24.59 % | 19.12 % | 21.30 % | 37,107 | 43,348 | 80,455 | 150,905 | 226,762 | 377,667 |
| 75-84 | 22.80 % | 19.88 % | 20.96 % | 20,605 | 30,921 | 51,526 | 90,363 | 155,520 | 245,883 |
| 85+ | 14.25 % | 13.71 % | 13.90 % | 3,602 | 6,312 | 9,914 | 25,282 | 46,023 | 71,305 |
| **Total** | **14.82 %** | **3.06 %** | **4.29 %** | **104,881** | **186,958** | **291,839** | **707,630** | **6,100,352** | **6,807,982** |



## Quality of diabetes treatment

When dealing with diabetes, quality of treatment is a multifaceted concept, comprising aspects such as educating patients to accept personal responsibility and independence in treatment, complying with a customized treatment plan, maintaining a strict diet, adopting a healthy life style, checking blood glucose levels independently and taking the customized course of drugs as instructed by the physician. The health care system is examining both the organizational aspects in the treatment of the disease at the community and specialist clinic level as well as attainment of the targets for control of the disease and prevention of complications and hospitalization. The set of indicators described below relates both to performance of recommended periodic tests and attainment of the targets for control of the disease, which are the interim results. A separate report will cover monitoring of incidences of diabetes complications according to data from Ministry of Health that is collected from admission reports in hospitals and from the Central Bureau of Statistics.

Control of diabetes at the national level is a challenge to the entire health system. While over a decade has passed since publication of the Diabetes Control and Complication Trial, which pointed to the importance of controlling diabetes, most of the diabetes patients in the West are still not properly controlled. Diabetes is the seventh most common cause of death in the West [11] and the fourth most common in Israel [25]. Furthermore, it is the number one cause of blindness in people aged 20-74, the main reason for kidney failure and amputation of limbs not resulting from accidents, as well as one of the main reasons for heart attacks and strokes.

Controlling diabetes could possibly reduce these risks and microvascular complications in Type 2 diabetes [12]. Today, the accepted criterion for good control is an HbA1C level that does not exceed 7%. Research shows difficulties in reducing cardiovascular risk factors in most diabetes patients [13]. However, programs for improving quality at the organizational level have reported successes such as improving the performance rate of tests for HbA1c and lipidograms up to 80% of diabetes patients [14]. In 2002, approximately 8.3% of the individuals insured by KPNW, an HMO that insures close to 450,000 people in the southwestern US, were diagnosed with diabetes, and the HbA1c average in adult patients was 7.6%.

# A. Control of blood glucose level

## Background

One of the accepted methods for determining if the diabetes patient is properly controlled is to measure the HbA1C level, which provides a direct indication of glucose bound to blood cells (Indicator 1.a). Today, the accepted criterion for good control is an HbA1c level that does not exceed 7% (Indicator 2.a), and for an unsatisfactory control, an HbA1c level above 9% (Indicator 3.a). Despite the absence of unequivocal guidelines for a control level requiring insulin treatment, experts agree that many patients with unsatisfactory control should also be treated with insulin (Indicator 4.a).

## A.1 Hemoglobin A1c test

Definition of the indicator:

The percentage of diabetes patients who have had an HbA1c test at least once in the measurement year. This definition is based on the minimum frequency required for testing.

Main Findings:

- According to HMO data, 91.6% of the population was tested at least once in 2007. This rate reflects continued significant improvement of 1.5%-2% annually. The improvement applies to most of the age groups (Figure 27). Experts view this as a high and impressive rate. According to the 2006 NCQA report, there was a 76.2% - 88.9% performance rate for this indicator, depending on the type of insurance and age of the insured [1].
- The rate increases with age, from 70% in toddlers to over 90% in the 45-84 age group (Figure 27), and in both sexes, with no significant difference (Figure 28).
- In 2007, the rate of compliance with the indicator was over 91%, regardless of exemption or non-exemption from NII payments (Figure 29).

Figure 27: Performance rate of HbA1c test at least once a year, by age and year of reporting (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 65.45 % | 69.70 % | 69.23 % | 72 | 92 | 99 | 110 | 132 | 143 |
| 5-17 | 78.09 % | 81.84 % | 82.19 % | 1,383 | 1,564 | 1,606 | 1,771 | 1,911 | 1,954 |
| 18-24 | 77.00 % | 78.47 % | 81.87 % | 1,309 | 1,414 | 1,468 | 1,700 | 1,802 | 1,793 |
| 25-34 | 79.60 % | 81.40 % | 83.84 % | 3,515 | 3,843 | 3,979 | 4,416 | 4,721 | 4,746 |
| 35-44 | 85.24 % | 86.57 % | 88.54 % | 11,099 | 12,117 | 13,036 | 13,021 | 13,996 | 14,724 |
| 45-54 | 87.11 % | 89.19 % | 90.39 % | 37,084 | 40,449 | 42,594 | 42,573 | 45,350 | 47,122 |
| 55-64 | 89.60 % | 91.56 % | 92.42 % | 58,483 | 66,471 | 73,435 | 65,270 | 72,600 | 79,462 |
| 65-74 | 90.76 % | 92.88 % | 93.95 % | 65,642 | 71,020 | 75,587 | 72,325 | 76,464 | 80,455 |
| 75-84 | 87.51 % | 90.16 % | 91.61 % | 38,673 | 43,365 | 47,203 | 44,191 | 48,097 | 51,526 |
| 85+ | 78.83 % | 82.99 % | 85.87 % | 6,042 | 7,323 | 8,513 | 7,665 | 8,824 | 9,914 |
| **Total** | **88.25 %** | **90.42 %** | **91.67 %** | **223,302** | **247,658** | **267,520** | **253,042** | **273,897** | **291,839** |

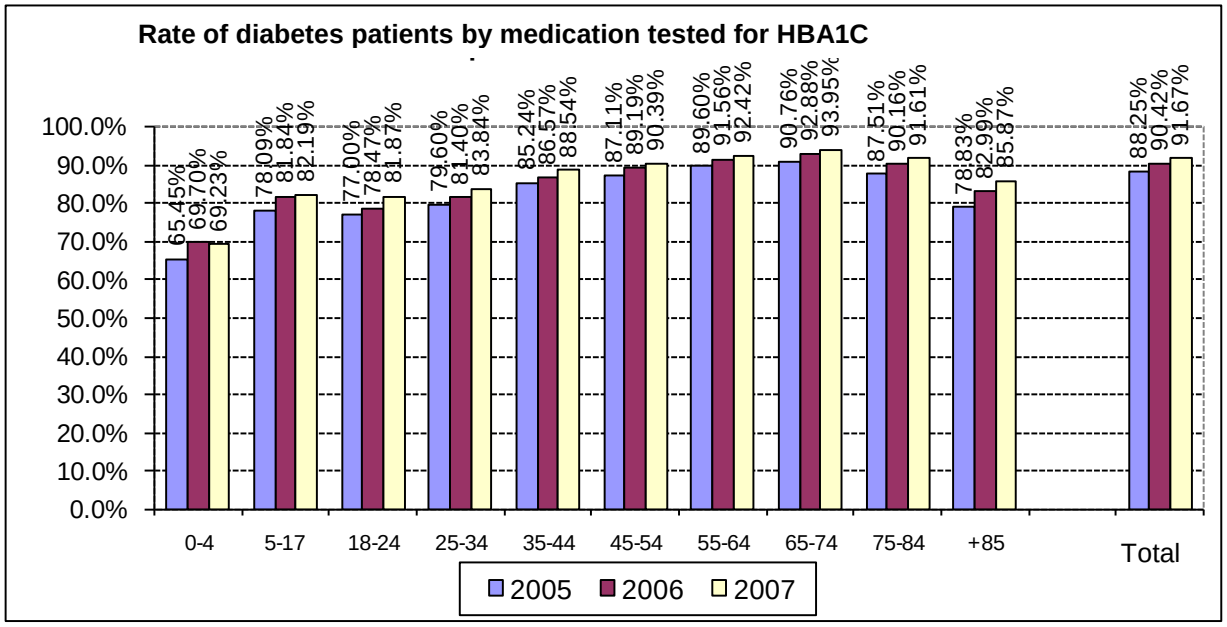


Figure 28: Performance rate of HbA1c test at least once a year, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 0-4 | 68.06 % | 70.42 % | 69.23 % | 49 | 50 | 99 | 72 | 71 | 143 |
| 5-17 | 82.56 % | 81.82 % | 82.19 % | 805 | 801 | 1,606 | 975 | 979 | 1,954 |
| 18-24 | 85.23 % | 78.78 % | 81.87 % | 733 | 735 | 1,468 | 860 | 933 | 1,793 |
| 25-34 | 85.29 % | 82.32 % | 83.84 % | 2,070 | 1,909 | 3,979 | 2,427 | 2,319 | 4,746 |
| 35-44 | 86.90 % | 90.73 % | 88.54 % | 7,332 | 5,704 | 13,036 | 8,437 | 6,287 | 14,724 |
| 45-54 | 88.67 % | 92.50 % | 90.39 % | 22,980 | 19,614 | 42,594 | 25,917 | 21,205 | 47,122 |
| 55-64 | 91.35 % | 93.58 % | 92.42 % | 37,901 | 35,534 | 73,435 | 41,490 | 37,972 | 79,462 |
| 65-74 | 93.35 % | 94.47 % | 93.95 % | 34,810 | 40,777 | 75,587 | 37,291 | 43,164 | 80,455 |
| 75-84 | 92.09 % | 91.27 % | 91.61 % | 19,544 | 27,659 | 47,203 | 21,222 | 30,304 | 51,526 |
| 85+ | 87.97 % | 84.40 % | 85.87 % | 3,589 | 4,924 | 8,513 | 4,080 | 5,834 | 9,914 |
| **Total** | **90.92 %** | **92.38 %** | **91.67 %** | **129,813** | **137,707** | **267,520** | **142,771** | **149,068** | **291,839** |

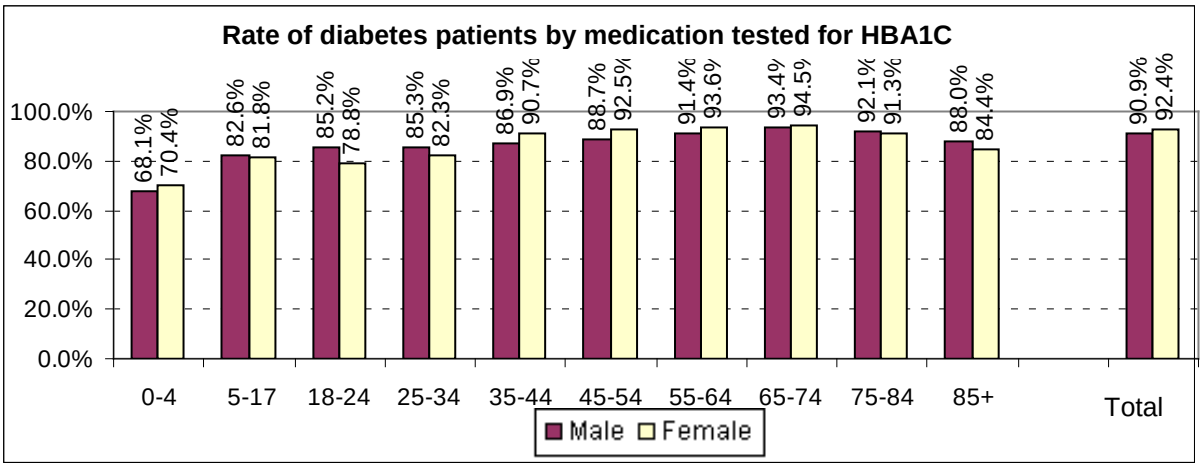
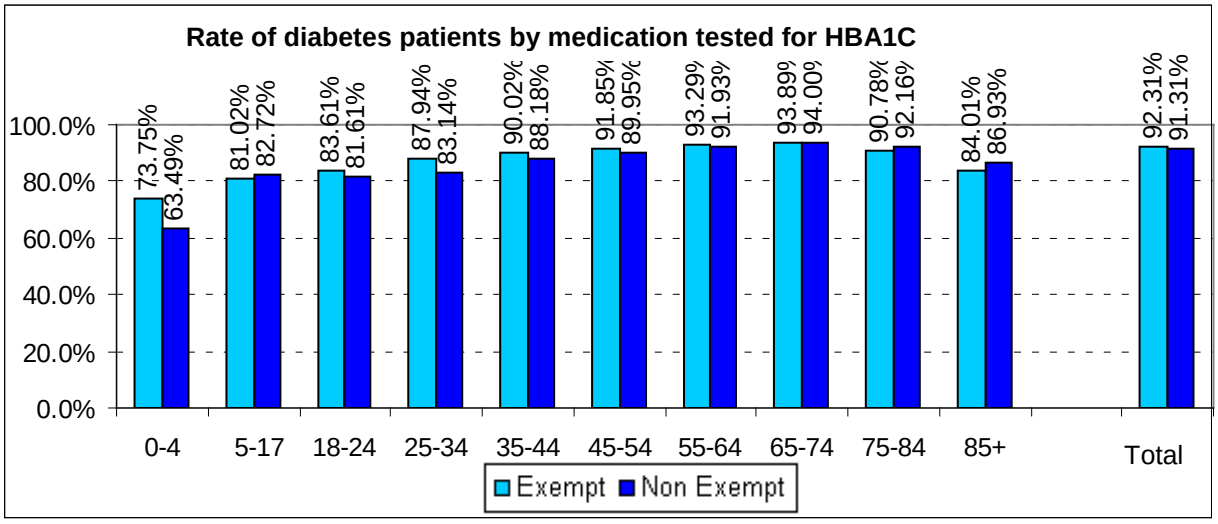


Figure 29: Performance rate of HbA1c test at least once a year, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 73.75 % | 63.49 % | 69.23 % | 59 | 40 | 99 | 80 | 63 | 143 |
| 5-17 | 81.02 % | 82.72 % | 82.19 % | 491 | 1,115 | 1,606 | 606 | 1,348 | 1,954 |
| 18-24 | 83.61 % | 81.61 % | 81.87 % | 199 | 1,269 | 1,468 | 238 | 1,555 | 1,793 |
| 25-34 | 87.94 % | 83.14 % | 83.84 % | 605 | 3,374 | 3,979 | 688 | 4,058 | 4,746 |
| 35-44 | 90.02 % | 88.18 % | 88.54 % | 2,545 | 10,491 | 13,036 | 2,827 | 11,897 | 14,724 |
| 45-54 | 91.85 % | 89.95 % | 90.39 % | 10,054 | 32,540 | 42,594 | 10,946 | 36,176 | 47,122 |
| 55-64 | 93.29 % | 91.93 % | 92.42 % | 26,292 | 47,143 | 73,435 | 28,182 | 51,280 | 79,462 |
| 65-74 | 93.89 % | 94.00 % | 93.95 % | 34,839 | 40,748 | 75,587 | 37,107 | 43,348 | 80,455 |
| 75-84 | 90.78 % | 92.16 % | 91.61 % | 18,705 | 28,498 | 47,203 | 20,605 | 30,921 | 51,526 |
| 85+ | 84.01 % | 86.93 % | 85.87 % | 3,026 | 5,487 | 8,513 | 3,602 | 6,312 | 9,914 |
| **Total** | **92.31 %** | **91.31 %** | **91.67 %** | **96,815** | **170,705** | **267,520** | **104,881** | **186,958** | **291,839** |



### A.2 Hemoglobin A1c level below 7%

Definition of the indicator:

The percentage of diabetes patients who are properly controlled, meaning their A1c level is lower than 7% according to the most recent test in the measurement year.

Main Findings:

- According to HMO data in 2007, the percentage of diabetes patients with hemoglobin A1c levels below 7% was 49.4%, constituting a significant improvement of 1.25% [absolute] over the previous year (Figure 30) and a continuation of the long-term improvement trend. The improvement was found in all groups, with the exception of the 18-24 age group. According to experts, this is a high rate of control. According to the 2007 NCQA report from the United States, the performance rate of the indicator ranges from 30.2%-48.7%, depending on the type of insurance and age of the insured individual [1], meaning that there is a lower rate of well controlled patients in the US.
- The rate of well-controlled patients increases with age (Figure 30).
- No sex-related difference was found in the rate of well-controlled patients (Figure 31).
- In 2007, the rate of well-controlled patients among insured individuals exempt from NII payments was 47.9% compared to 50.2% among the rest of insured individuals (Figure 32).

Figure 30: Percentage of patients with HbA1c level below 7%, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 20.83 % | 20.65 % | 25.25 % | 15 | 19 | 25 | 72 | 92 | 99 |
| 5-17 | 15.84 % | 17.33 % | 20.67 % | 219 | 271 | 332 | 1,383 | 1,564 | 1,606 |
| 18-24 | 30.25 % | 35.79 % | 33.17 % | 396 | 506 | 487 | 1,309 | 1,414 | 1,468 |
| 25-34 | 38.86 % | 43.17 % | 44.33 % | 1,366 | 1,659 | 1,764 | 3,515 | 3,843 | 3,979 |
| 35-44 | 34.41 % | 37.77 % | 40.27 % | 3,819 | 4,577 | 5,250 | 11,099 | 12,117 | 13,036 |
| 45-54 | 34.54 % | 38.73 % | 40.37 % | 12,807 | 15,667 | 17,197 | 37,084 | 40,449 | 42,594 |
| 55-64 | 39.81 % | 44.98 % | 46.26 % | 23,280 | 29,898 | 33,973 | 58,483 | 66,471 | 73,435 |
| 65-74 | 46.02 % | 51.92 % | 53.11 % | 30,209 | 36,874 | 40,145 | 65,642 | 71,020 | 75,587 |
| 75-84 | 52.09 % | 58.55 % | 58.98 % | 20,145 | 25,391 | 27,841 | 38,673 | 43,365 | 47,203 |
| 85+ | 53.91 % | 59.85 % | 61.11 % | 3,257 | 4,383 | 5,202 | 6,042 | 7,323 | 8,513 |
| **Total** | **42.77 %** | **48.15 %** | **49.42 %** | **95,513** | **119,245** | **132,216** | **223,302** | **247,658** | **267,520** |

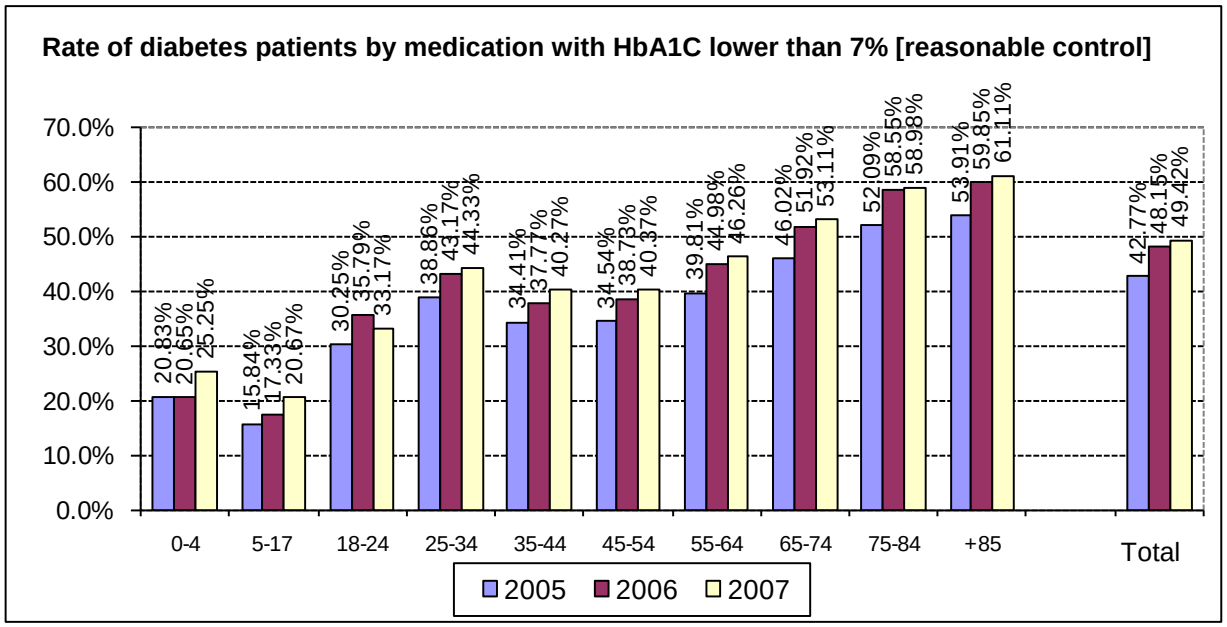


Figure 31: Percentage of patients with HbA1c level below 7%, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 0-4 | 26.53 % | 24.00 % | 25.25 % | 13 | 12 | 25 | 49 | 50 | 99 |
| 5-17 | 22.24 % | 19.10 % | 20.67 % | 179 | 153 | 332 | 805 | 801 | 1,606 |
| 18-24 | 31.11 % | 35.24 % | 33.17 % | 228 | 259 | 487 | 733 | 735 | 1,468 |
| 25-34 | 39.08 % | 50.03 % | 44.33 % | 809 | 955 | 1,764 | 2,070 | 1,909 | 3,979 |
| 35-44 | 39.14 % | 41.73 % | 40.27 % | 2,870 | 2,380 | 5,250 | 7,332 | 5,704 | 13,036 |
| 45-54 | 40.91 % | 39.75 % | 40.37 % | 9,400 | 7,797 | 17,197 | 22,980 | 19,614 | 42,594 |
| 55-64 | 46.89 % | 45.60 % | 46.26 % | 17,770 | 16,203 | 33,973 | 37,901 | 35,534 | 73,435 |
| 65-74 | 53.87 % | 52.47 % | 53.11 % | 18,751 | 21,394 | 40,145 | 34,810 | 40,777 | 75,587 |
| 75-84 | 59.26 % | 58.79 % | 58.98 % | 11,581 | 16,260 | 27,841 | 19,544 | 27,659 | 47,203 |
| 85+ | 60.35 % | 61.66 % | 61.11 % | 2,166 | 3,036 | 5,202 | 3,589 | 4,924 | 8,513 |
| **Total** | **49.12 %** | **49.71 %** | **49.42 %** | **63,767** | **68,449** | **132,216** | **129,813** | **137,707** | **267,520** |

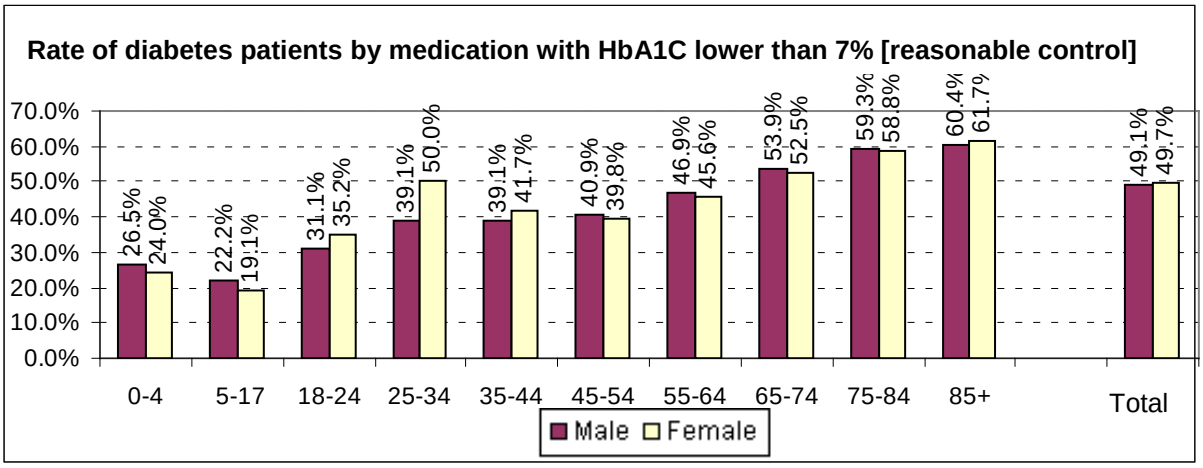
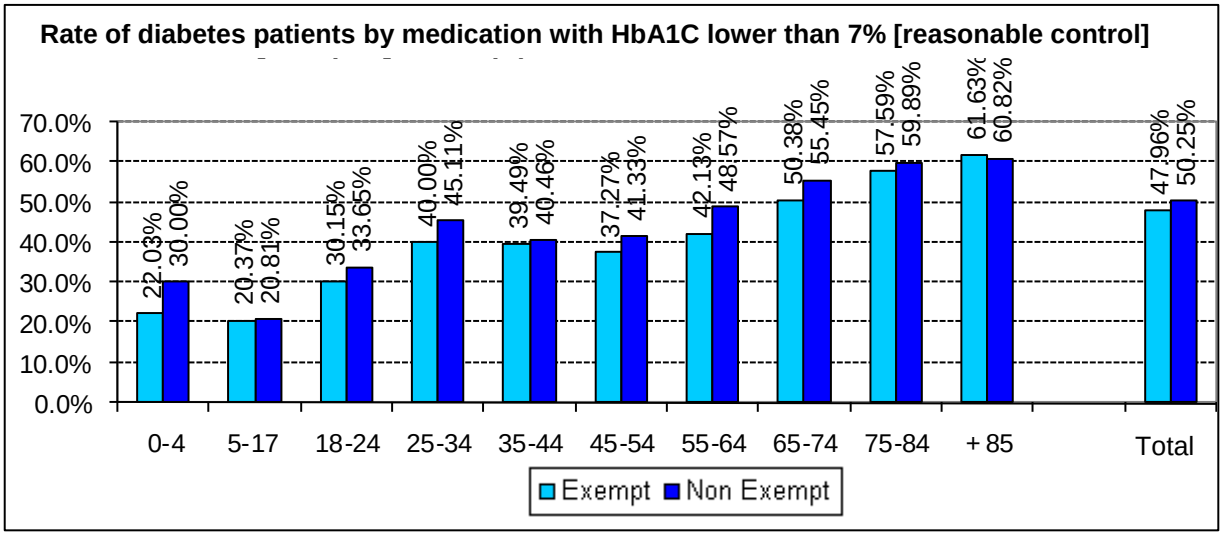


Figure 32: Percentage of patients with HbA1c level below 7%, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 22.03 % | 30.00 % | 25.25 % | 13 | 12 | 25 | 59 | 40 | 99 |
| 5-17 | 20.37 % | 20.81 % | 20.67 % | 100 | 232 | 332 | 491 | 1,115 | 1,606 |
| 18-24 | 30.15 % | 33.65 % | 33.17 % | 60 | 427 | 487 | 199 | 1,269 | 1,468 |
| 25-34 | 40.00 % | 45.11 % | 44.33 % | 242 | 1,522 | 1,764 | 605 | 3,374 | 3,979 |
| 35-44 | 39.49 % | 40.46 % | 40.27 % | 1,005 | 4,245 | 5,250 | 2,545 | 10,491 | 13,036 |
| 45-54 | 37.27 % | 41.33 % | 40.37 % | 3,747 | 13,450 | 17,197 | 10,054 | 32,540 | 42,594 |
| 55-64 | 42.13 % | 48.57 % | 46.26 % | 11,077 | 22,896 | 33,973 | 26,292 | 47,143 | 73,435 |
| 65-74 | 50.38 % | 55.45 % | 53.11 % | 17,551 | 22,594 | 40,145 | 34,839 | 40,748 | 75,587 |
| 75-84 | 57.59 % | 59.89 % | 58.98 % | 10,773 | 17,068 | 27,841 | 18,705 | 28,498 | 47,203 |
| 85+ | 61.63 % | 60.82 % | 61.11 % | 1,865 | 3,337 | 5,202 | 3,026 | 5,487 | 8,513 |
| **Total** | **47.96 %** | **50.25 %** | **49.42 %** | **46,433** | **85,783** | **132,216** | **96,815** | **170,705** | **267,520** |




## A.3 Hemoglobin A1c level above 9%

Definition of the indicator:

The percentage of diabetes patients whose control level is unsatisfactory, meaning their A1c level is higher than 9% according to the most recent test in the measurement year.

Main Findings:

- According to the 2007 HMO data, the percentage of uncontrolled patients with HbA1c levels above 9% was 13.2%. This rate is lower than in previous years. The decrease in the percentage of uncontrolled patients covered most age groups (Figure 33). According to the 2007 NCQA report from the United States, the performance rate of the indicator ranges from 27.3%-48.7%, depending on the type of insurance and age of the insured individual [1], meaning that there is a higher rate of uncontrolled patients in the US.
- No sex-related difference was found in the rate of uncontrolled patients (Figure 34).
- In 2007, the rate of uncontrolled patients among insured individuals exempt from NII payments was 14.2% compared to 12.6% among the rest of insured individuals (Figure 35).

Figure 33: Percentage of patients with HbA1c level above 9%, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 20.83 % | 22.83 % | 21.21 % | 15 | 21 | 21 | 72 | 92 | 99 |
| 5-17 | 37.24 % | 33.95 % | 34.50 % | 515 | 531 | 554 | 1,383 | 1,564 | 1,606 |
| 18-24 | 27.35 % | 25.18 % | 25.20 % | 358 | 356 | 370 | 1,309 | 1,414 | 1,468 |
| 25-34 | 24.10 % | 20.90 % | 21.46 % | 847 | 803 | 854 | 3,515 | 3,843 | 3,979 |
| 35-44 | 27.70 % | 25.17 % | 23.76 % | 3,074 | 3,050 | 3,098 | 11,099 | 12,117 | 13,036 |
| 45-54 | 24.64 % | 21.46 % | 21.00 % | 9,137 | 8,681 | 8,943 | 37,084 | 40,449 | 42,594 |
| 55-64 | 18.20 % | 15.45 % | 14.65 % | 10,642 | 10,267 | 10,759 | 58,483 | 66,471 | 73,435 |
| 65-74 | 12.03 % | 9.76 % | 9.35 % | 7,900 | 6,931 | 7,070 | 65,642 | 71,020 | 75,587 |
| 75-84 | 9.05 % | 7.12 % | 6.89 % | 3,499 | 3,087 | 3,250 | 38,673 | 43,365 | 47,203 |
| 85+ | 8.64 % | 6.75 % | 6.12 % | 522 | 494 | 521 | 6,042 | 7,323 | 8,513 |
| **Total** | **16.35 %** | **13.82 %** | **13.25 %** | **36,509** | **34,221** | **35,440** | **223,302** | **247,658** | **267,520** |

Total

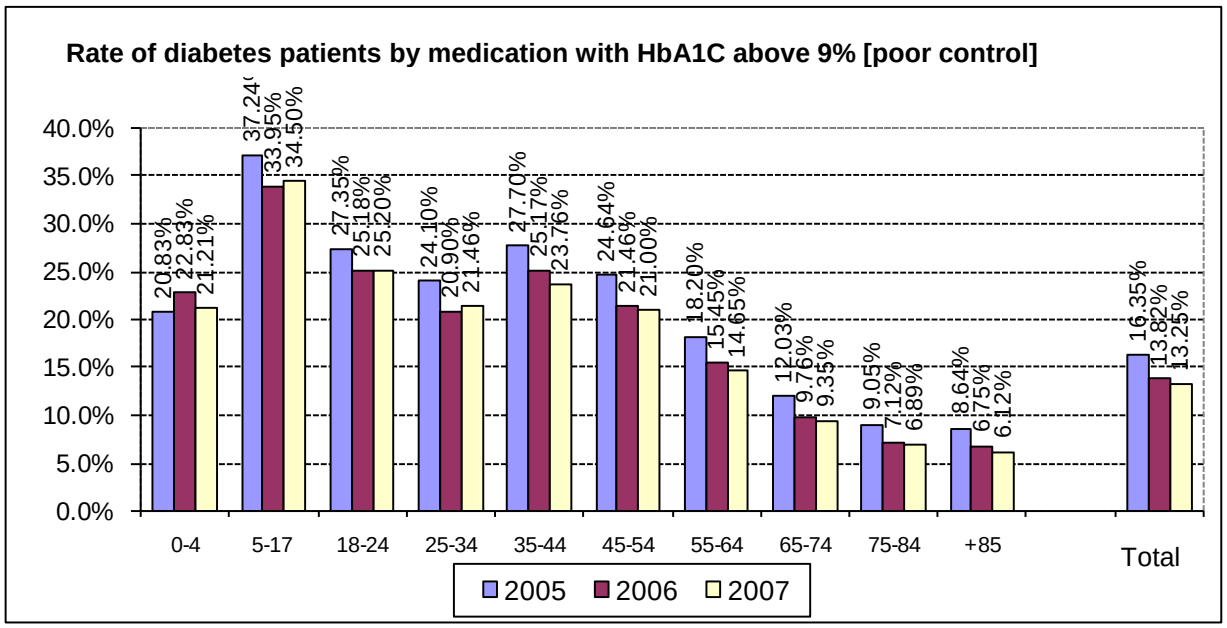



Figure 34: Percentage of patients with HbA1c level above 9%, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 0-4 | 22.45 % | 20.00 % | 21.21 % | 11 | 10 | 21 | 49 | 50 | 99 |
| 5-17 | 32.42 % | 36.58 % | 34.50 % | 261 | 293 | 554 | 805 | 801 | 1,606 |
| 18-24 | 25.24 % | 25.17 % | 25.20 % | 185 | 185 | 370 | 733 | 735 | 1,468 |
| 25-34 | 23.38 % | 19.38 % | 21.46 % | 484 | 370 | 854 | 2,070 | 1,909 | 3,979 |
| 35-44 | 24.82 % | 22.41 % | 23.76 % | 1,820 | 1,278 | 3,098 | 7,332 | 5,704 | 13,036 |
| 45-54 | 20.42 % | 21.67 % | 21.00 % | 4,692 | 4,251 | 8,943 | 22,980 | 19,614 | 42,594 |
| 55-64 | 14.24 % | 15.09 % | 14.65 % | 5,398 | 5,361 | 10,759 | 37,901 | 35,534 | 73,435 |
| 65-74 | 9.02 % | 9.64 % | 9.35 % | 3,141 | 3,929 | 7,070 | 34,810 | 40,777 | 75,587 |
| 75-84 | 6.84 % | 6.92 % | 6.89 % | 1,336 | 1,914 | 3,250 | 19,544 | 27,659 | 47,203 |
| 85+ | 6.24 % | 6.03 % | 6.12 % | 224 | 297 | 521 | 3,589 | 4,924 | 8,513 |
| **Total** | **13.52 %** | **12.99 %** | **13.25 %** | **17,552** | **17,888** | **35,440** | **129,813** | **137,707** | **267,520** |

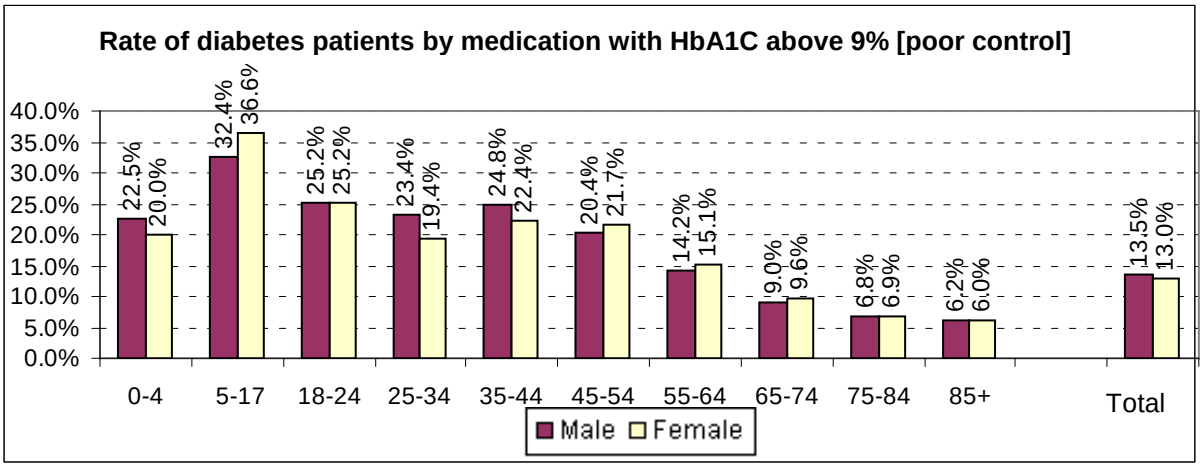
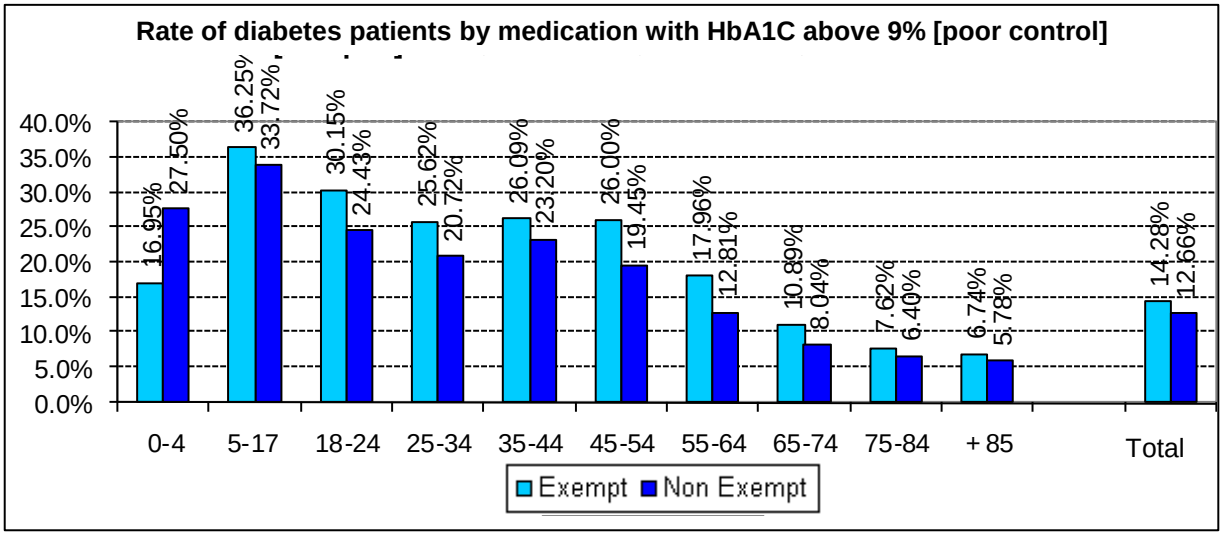


Figure 35: Percentage of patients with HbA1c level above 9%, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 16.95 % | 27.50 % | 21.21 % | 10 | 11 | 21 | 59 | 40 | 99 |
| 5-17 | 36.25 % | 33.72 % | 34.50 % | 178 | 376 | 554 | 491 | 1,115 | 1,606 |
| 18-24 | 30.15 % | 24.43 % | 25.20 % | 60 | 310 | 370 | 199 | 1,269 | 1,468 |
| 25-34 | 25.62 % | 20.72 % | 21.46 % | 155 | 699 | 854 | 605 | 3,374 | 3,979 |
| 35-44 | 26.09 % | 23.20 % | 23.76 % | 664 | 2,434 | 3,098 | 2,545 | 10,491 | 13,036 |
| 45-54 | 26.00 % | 19.45 % | 21.00 % | 2,614 | 6,329 | 8,943 | 10,054 | 32,540 | 42,594 |
| 55-64 | 17.96 % | 12.81 % | 14.65 % | 4,722 | 6,037 | 10,759 | 26,292 | 47,143 | 73,435 |
| 65-74 | 10.89 % | 8.04 % | 9.35 % | 3,793 | 3,277 | 7,070 | 34,839 | 40,748 | 75,587 |
| 75-84 | 7.62 % | 6.40 % | 6.89 % | 1,426 | 1,824 | 3,250 | 18,705 | 28,498 | 47,203 |
| 85+ | 6.74 % | 5.78 % | 6.12 % | 204 | 317 | 521 | 3,026 | 5,487 | 8,513 |
| **Total** | **14.28 %** | **12.66 %** | **13.25 %** | **13,826** | **21,614** | **35,440** | **96,815** | **170,705** | **267,520** |




## A.4 Insulin treatment among patients with HbA1c levels above 9%

Definition of the indicator:

The percentage of patients with uncontrolled diabetes (HbA1c level above 9%) who were treated with insulin in the past year. The indicator represents the intensity of drug therapy.

Main Findings:

- According to the HMO data, in 2007 approximately 57,428 diabetics were treated with insulin (19.6%) of the total number of diabetes patients. Among the patients whose HbA1c level was above 9.0, approximately 44.6% were treated with insulin (Figure 36). This rate increased during the years monitored, as a result of the slow increase in the rate of patients treated with insulin for Type 2 diabetes (all Type 1 diabetes patients must receive insulin on a regular basis).
- As stated above, the rate of uncontrolled patients treated with insulin deceases with age, from 100% in children to 32% in the elderly (Figure 36).
- The rate of patients treated with insulin in this controlled group was 41.8% for men and 47.6% for women (Figure 37).
- In 2007, the rate of uncontrolled patients treated with insulin among insured individuals exempt from NII payments was 52.4%, compared to 39.7% among the rest of the insured individuals (Figure 38).

Figure 36: Percentage of patients treated with insulin among diabetes patients with HbA1c level above 9.0%, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 100.00 % | 100.00 % | 100.00 % | 15 | 21 | 21 | 15 | 21 | 21 |
| 5-17 | 99.81 % | 99.25 % | 98.92 % | 514 | 527 | 548 | 515 | 531 | 554 |
| 18-24 | 94.69 % | 95.79 % | 93.51 % | 339 | 341 | 346 | 358 | 356 | 370 |
| 25-34 | 64.94 % | 69.24 % | 68.50 % | 550 | 556 | 585 | 847 | 803 | 854 |
| 35-44 | 41.70 % | 43.28 % | 44.90 % | 1,282 | 1,320 | 1,391 | 3,074 | 3,050 | 3,098 |
| 45-54 | 36.51 % | 38.59 % | 40.06 % | 3,336 | 3,350 | 3,583 | 9,137 | 8,681 | 8,943 |
| 55-64 | 37.15 % | 39.68 % | 42.88 % | 3,953 | 4,074 | 4,613 | 10,642 | 10,267 | 10,759 |
| 65-74 | 39.19 % | 41.97 % | 44.48 % | 3,096 | 2,909 | 3,145 | 7,900 | 6,931 | 7,070 |
| 75-84 | 36.35 % | 41.56 % | 42.86 % | 1,272 | 1,283 | 1,393 | 3,499 | 3,087 | 3,250 |
| 85+ | 31.61 % | 41.30 % | 39.73 % | 165 | 204 | 207 | 522 | 494 | 521 |
| **Total** | **39.78 %** | **42.62 %** | **44.67 %** | **14,522** | **14,585** | **15,832** | **36,509** | **34,221** | **35,440** |

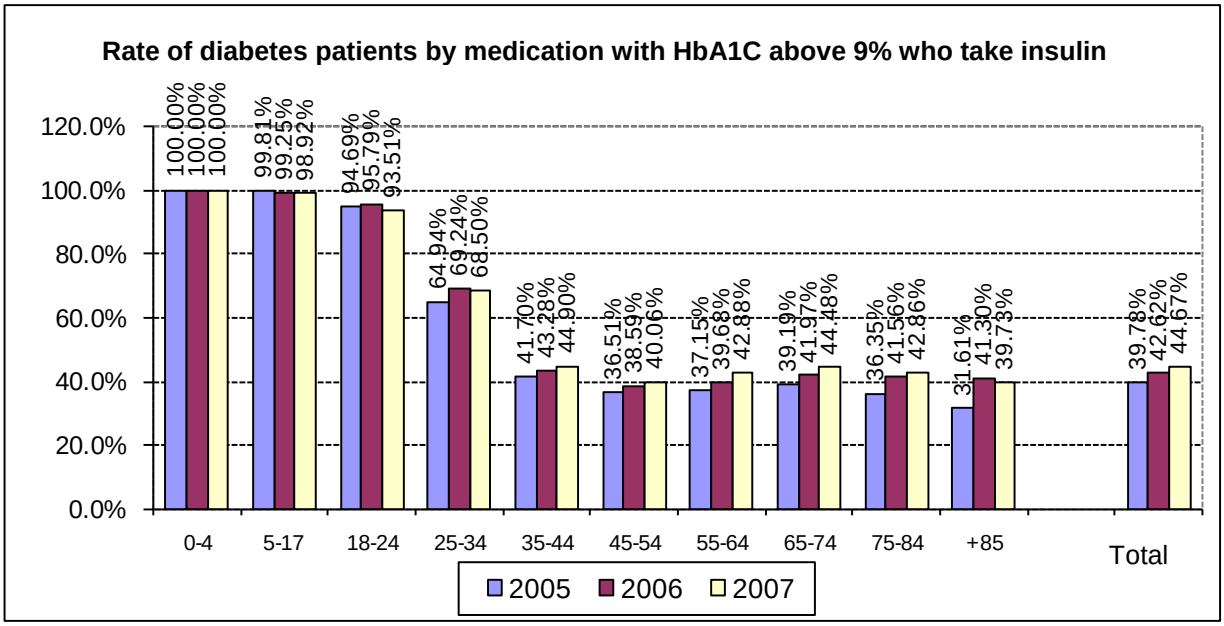



Figure 37: Percentage of patients treated with insulin among diabetics with HbA1c level above 9.0%, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 0-4 | 100.00 % | 100.00 % | 100.00 % | 11 | 10 | 21 | 11 | 10 | 21 |
| 5-17 | 99.23 % | 98.63 % | 98.92 % | 259 | 289 | 548 | 261 | 293 | 554 |
| 18-24 | 92.97 % | 94.05 % | 93.51 % | 172 | 174 | 346 | 185 | 185 | 370 |
| 25-34 | 61.36 % | 77.84 % | 68.50 % | 297 | 288 | 585 | 484 | 370 | 854 |
| 35-44 | 40.55 % | 51.10 % | 44.90 % | 738 | 653 | 1,391 | 1,820 | 1,278 | 3,098 |
| 45-54 | 37.53 % | 42.86 % | 40.06 % | 1,761 | 1,822 | 3,583 | 4,692 | 4,251 | 8,943 |
| 55-64 | 40.20 % | 45.57 % | 42.88 % | 2,170 | 2,443 | 4,613 | 5,398 | 5,361 | 10,759 |
| 65-74 | 42.15 % | 46.35 % | 44.48 % | 1,324 | 1,821 | 3,145 | 3,141 | 3,929 | 7,070 |
| 75-84 | 39.45 % | 45.25 % | 42.86 % | 527 | 866 | 1,393 | 1,336 | 1,914 | 3,250 |
| 85+ | 40.63 % | 39.06 % | 39.73 % | 91 | 116 | 207 | 224 | 297 | 521 |
| **Total** | **41.88 %** | **47.42 %** | **44.67 %** | **7,350** | **8,482** | **15,832** | **17,552** | **17,888** | **35,440** |

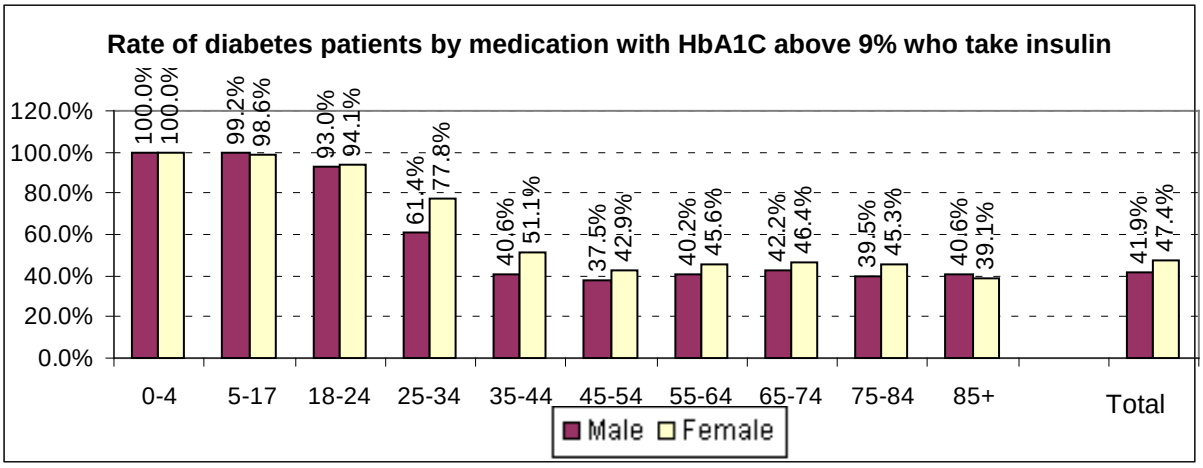
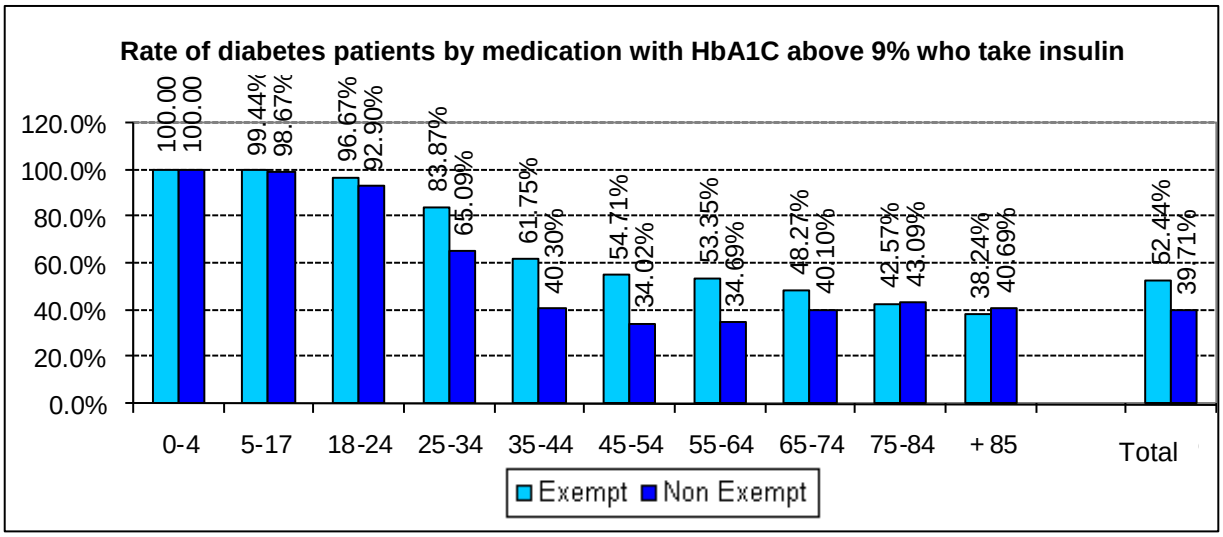



Figure 38: Percentage of patients treated with insulin among diabetes patients with HbA1c level above 9.0%, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 100.00 % | 100.00 % | 100.00 % | 10 | 11 | 21 | 10 | 11 | 21 |
| 5-17 | 99.44 % | 98.67 % | 98.92 % | 177 | 371 | 548 | 178 | 376 | 554 |
| 18-24 | 96.67 % | 92.90 % | 93.51 % | 58 | 288 | 346 | 60 | 310 | 370 |
| 25-34 | 83.87 % | 65.09 % | 68.50 % | 130 | 455 | 585 | 155 | 699 | 854 |
| 35-44 | 61.75 % | 40.30 % | 44.90 % | 410 | 981 | 1,391 | 664 | 2,434 | 3,098 |
| 45-54 | 54.71 % | 34.02 % | 40.06 % | 1,430 | 2,153 | 3,583 | 2,614 | 6,329 | 8,943 |
| 55-64 | 53.35 % | 34.69 % | 42.88 % | 2,519 | 2,094 | 4,613 | 4,722 | 6,037 | 10,759 |
| 65-74 | 48.27 % | 40.10 % | 44.48 % | 1,831 | 1,314 | 3,145 | 3,793 | 3,277 | 7,070 |
| 75-84 | 42.57 % | 43.09 % | 42.86 % | 607 | 786 | 1,393 | 1,426 | 1,824 | 3,250 |
| 85+ | 38.24 % | 40.69 % | 39.73 % | 78 | 129 | 207 | 204 | 317 | 521 |
| **Total** | **52.44 %** | **39.71 %** | **44.67 %** | **7,250** | **8,582** | **15,832** | **13,826** | **21,614** | **35,440** |



## B. Monitoring of LDL cholesterol levels

### Background

Cardiovascular diseases are the main cause of death among diabetes patients, since diabetes patients are at increased risk for cardiovascular complications. Intensive treatment to lower LDL cholesterol levels ("bad cholesterol") is likely to benefit patients within two years by reducing the risk of heart attack or stroke [15].

An inherent part of the treatment is periodic monitoring of the cholesterol level through measurement of the composition of fats in the blood (lipidogram). This measurement should be taken at least once a year (indicator B.1). Good control of cholesterol levels in diabetes patients is achieved when their LDL cholesterol level is lower than 100 mg/dl. The control target for patients with high risk of developing cardiovascular disease was set by American NCEP III guidelines [16]. In this guideline, the target for people with medium-high risk is set as LDL cholesterol below 130 mg/dl. The American Heart Association 2006 guidelines recommend considering lowering LDL cholesterol values to 70 mg/dl in diabetes patients who also suffer from atherosclerosis, although the initial target remains below 100 mg/dl [17].

### B.1 Lipidogram test (profile of blood fats)

Definition of the indicator:

The percentage of diabetes patients who have had a lipidogram at least once in the measurement year.

Main Findings:

- In 2007, lipidograms were performed on 90.9% of the patients, reflecting the continued improvement seen in previous years in all age groups (Figure 39). According to experts, this rate of performance is high. The 2007 NCQA report found that the performance rate for this indicator ranged from 71.1% - 84.8%, depending on the type of insurance and age of the insured [1].
- The rate of subjects increases with age (Figure 39). and there is no difference by NII exemption status (Figure 41).
- In 2007, the number of male subjects was 89.8% compared to 92.0% among women (Figure 40).

Figure 39: Rate of lipidograms performed at least once a year, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 27.27 % | 36.36 % | 41.96 % | 30 | 48 | 60 | 110 | 132 | 143 |
| 5-17 | 60.93 % | 65.04 % | 69.75 % | 1,079 | 1,243 | 1,363 | 1,771 | 1,911 | 1,954 |
| 18-24 | 68.06 % | 73.20 % | 77.58 % | 1,157 | 1,319 | 1,391 | 1,700 | 1,802 | 1,793 |
| 25-34 | 74.12 % | 77.55 % | 79.71 % | 3,273 | 3,661 | 3,783 | 4,416 | 4,721 | 4,746 |
| 35-44 | 79.66 % | 82.42 % | 84.48 % | 10,373 | 11,536 | 12,439 | 13,021 | 13,996 | 14,724 |
| 45-54 | 83.82 % | 86.56 % | 88.00 % | 35,683 | 39,255 | 41,468 | 42,573 | 45,350 | 47,122 |
| 55-64 | 87.97 % | 90.25 % | 91.38 % | 57,419 | 65,523 | 72,616 | 65,270 | 72,600 | 79,462 |
| 65-74 | 90.12 % | 92.55 % | 94.00 % | 65,181 | 70,771 | 75,624 | 72,325 | 76,464 | 80,455 |
| 75-84 | 88.00 % | 91.05 % | 93.08 % | 38,886 | 43,791 | 47,959 | 44,191 | 48,097 | 51,526 |
| 85+ | 79.82 % | 84.05 % | 88.17 % | 6,118 | 7,417 | 8,741 | 7,665 | 8,824 | 9,914 |
| **Total** | **86.63 %** | **89.29 %** | **90.96 %** | **219,199** | **244,564** | **265,444** | **253,042** | **273,897** | **291,839** |

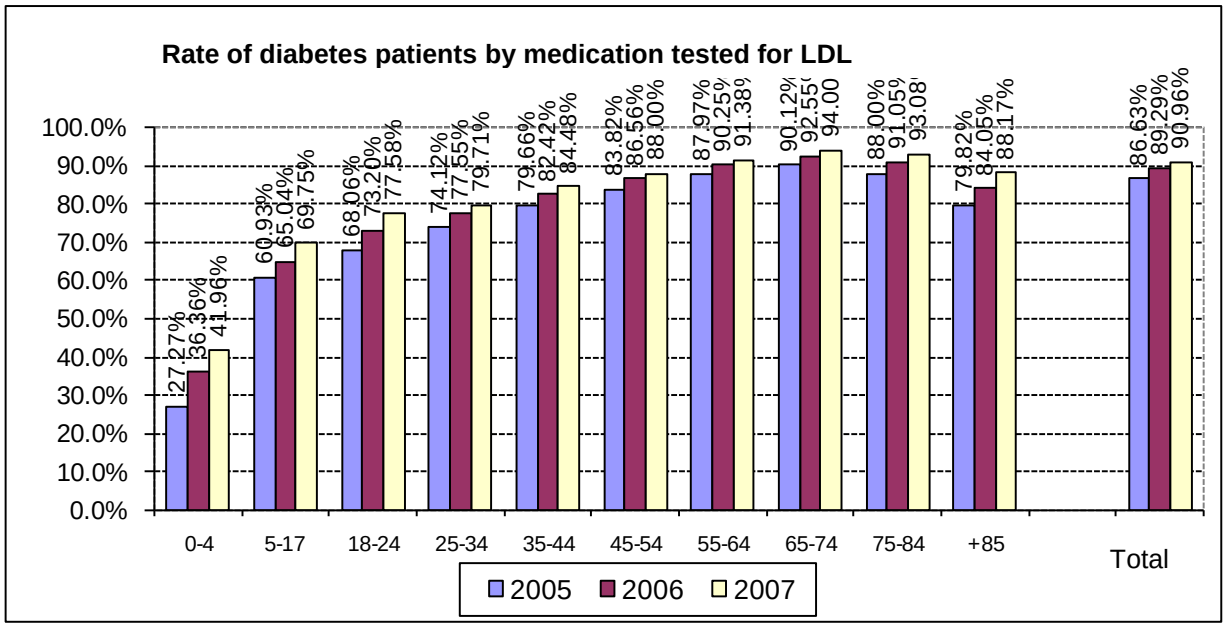


Figure 40: Performance rate of lipidogram at least once a year, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 0-4 | 37.50 % | 46.48 % | 41.96 % | 27 | 33 | 60 | 72 | 71 | 143 |
| 5-17 | 69.64 % | 69.87 % | 69.75 % | 679 | 684 | 1,363 | 975 | 979 | 1,954 |
| 18-24 | 77.56 % | 77.60 % | 77.58 % | 667 | 724 | 1,391 | 860 | 933 | 1,793 |
| 25-34 | 80.26 % | 79.13 % | 79.71 % | 1,948 | 1,835 | 3,783 | 2,427 | 2,319 | 4,746 |
| 35-44 | 82.29 % | 87.42 % | 84.48 % | 6,943 | 5,496 | 12,439 | 8,437 | 6,287 | 14,724 |
| 45-54 | 85.89 % | 90.58 % | 88.00 % | 22,260 | 19,208 | 41,468 | 25,917 | 21,205 | 47,122 |
| 55-64 | 90.08 % | 92.81 % | 91.38 % | 37,376 | 35,240 | 72,616 | 41,490 | 37,972 | 79,462 |
| 65-74 | 93.41 % | 94.50 % | 94.00 % | 34,835 | 40,789 | 75,624 | 37,291 | 43,164 | 80,455 |
| 75-84 | 93.42 % | 92.84 % | 93.08 % | 19,826 | 28,133 | 47,959 | 21,222 | 30,304 | 51,526 |
| 85+ | 89.66 % | 87.13 % | 88.17 % | 3,658 | 5,083 | 8,741 | 4,080 | 5,834 | 9,914 |
| **Total** | **89.81 %** | **92.06 %** | **90.96 %** | **128,219** | **137,225** | **265,444** | **142,771** | **149,068** | **291,839** |

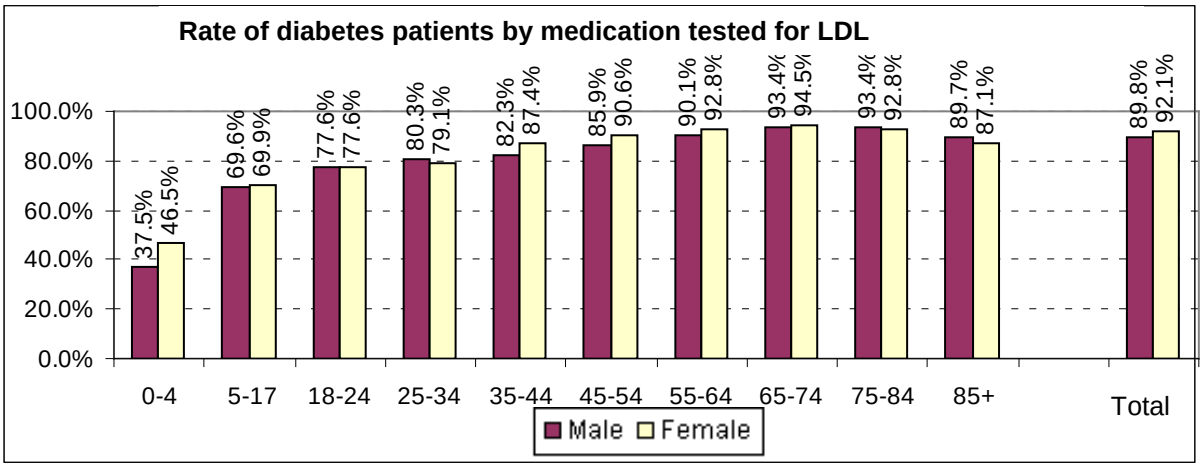
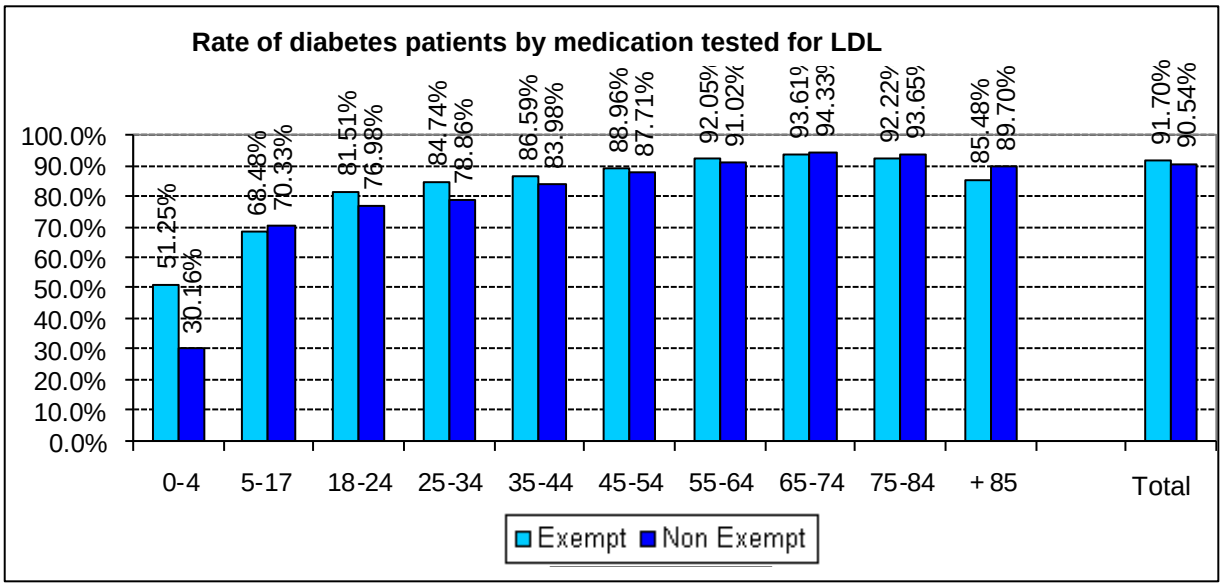


Figure 41: Rate of lipidograms performed at least once a year, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 51.25 % | 30.16 % | 41.96 % | 41 | 19 | 60 | 80 | 63 | 143 |
| 5-17 | 68.48 % | 70.33 % | 69.75 % | 415 | 948 | 1,363 | 606 | 1,348 | 1,954 |
| 18-24 | 81.51 % | 76.98 % | 77.58 % | 194 | 1,197 | 1,391 | 238 | 1,555 | 1,793 |
| 25-34 | 84.74 % | 78.86 % | 79.71 % | 583 | 3,200 | 3,783 | 688 | 4,058 | 4,746 |
| 35-44 | 86.59 % | 83.98 % | 84.48 % | 2,448 | 9,991 | 12,439 | 2,827 | 11,897 | 14,724 |
| 45-54 | 88.96 % | 87.71 % | 88.00 % | 9,738 | 31,730 | 41,468 | 10,946 | 36,176 | 47,122 |
| 55-64 | 92.05 % | 91.02 % | 91.38 % | 25,942 | 46,674 | 72,616 | 28,182 | 51,280 | 79,462 |
| 65-74 | 93.61 % | 94.33 % | 94.00 % | 34,735 | 40,889 | 75,624 | 37,107 | 43,348 | 80,455 |
| 75-84 | 92.22 % | 93.65 % | 93.08 % | 19,001 | 28,958 | 47,959 | 20,605 | 30,921 | 51,526 |
| 85+ | 85.48 % | 89.70 % | 88.17 % | 3,079 | 5,662 | 8,741 | 3,602 | 6,312 | 9,914 |
| **Total** | **91.70 %** | **90.54 %** | **90.96 %** | **96,176** | **169,268** | **265,444** | **104,881** | **186,958** | **291,839** |



### B.2 Percentage of diabetes patients with LDL cholesterol below 100 mg/dl

Definition of the indicator:

Diabetes patients treated with medication, whose LDL was tested in the measurement year, and whose most recent result was lower or equal to 100 mg/dL among diabetes patients treated with medication whose LDL was tested in the measurement year

Main Findings:

- According to HMO data for 2007, the percentage of patients with an LDL cholesterol level below 130 mg/dl was 60.5%. This reflects continued improvement, at an impressive rate of 6% (absolute) relative to the previous year. The improvement in the results was marked in the 45 and over age group (Figure 42), as a reflection of improvement in control of lipidemia in Type 2 diabetes patients. In the opinion of experts, this rate is high. For the sake of comparison, the 2007 NCQA report found that the performance rate for this indicator ranged from 30.6% - 46.9%, depending on the type of insurance and age of the insured [1].
- The rate of men with LDL cholesterol levels below 100 mg/dl was higher than the rate of women with this level, 66.6% compared to 57.6%, respectively (Figure 43). In the opinion of experts, this difference is significant.
- In 2007, no significant difference was found in the control of LDL cholesterol levels below 100 mg/dl among insured individuals exempt from NII payments. 59.8% among insured individuals exempt from payments were controlled as opposed to 60.9% among the rest of the patients (Figure 44).

Figure 42: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 50.00 % | 52.08 % | 61.67 % | 15 | 25 | 37 | 30 | 48 | 60 |
| 5-17 | 57.37 % | 62.43 % | 63.02 % | 619 | 776 | 859 | 1,079 | 1,243 | 1,363 |
| 18-24 | 56.87 % | 58.00 % | 59.24 % | 658 | 765 | 824 | 1,157 | 1,319 | 1,391 |
| 25-34 | 42.53 % | 46.95 % | 48.67 % | 1,392 | 1,719 | 1,841 | 3,273 | 3,661 | 3,783 |
| 35-44 | 39.66 % | 45.49 % | 49.39 % | 4,114 | 5,248 | 6,144 | 10,373 | 11,536 | 12,439 |
| 45-54 | 42.18 % | 49.21 % | 53.56 % | 15,052 | 19,317 | 22,209 | 35,683 | 39,255 | 41,468 |
| 55-64 | 47.29 % | 54.58 % | 60.30 % | 27,153 | 35,760 | 43,787 | 57,419 | 65,523 | 72,616 |
| 65-74 | 51.32 % | 58.97 % | 65.14 % | 33,454 | 41,737 | 49,263 | 65,181 | 70,771 | 75,624 |
| 75-84 | 50.07 % | 57.11 % | 64.41 % | 19,470 | 25,009 | 30,890 | 38,886 | 43,791 | 47,959 |
| 85+ | 42.51 % | 49.64 % | 56.10 % | 2,601 | 3,682 | 4,904 | 6,118 | 7,417 | 8,741 |
| **Total** | **47.69 %** | **54.81 %** | **60.56 %** | **104,528** | **134,038** | **160,758** | **219,199** | **244,564** | **265,444** |

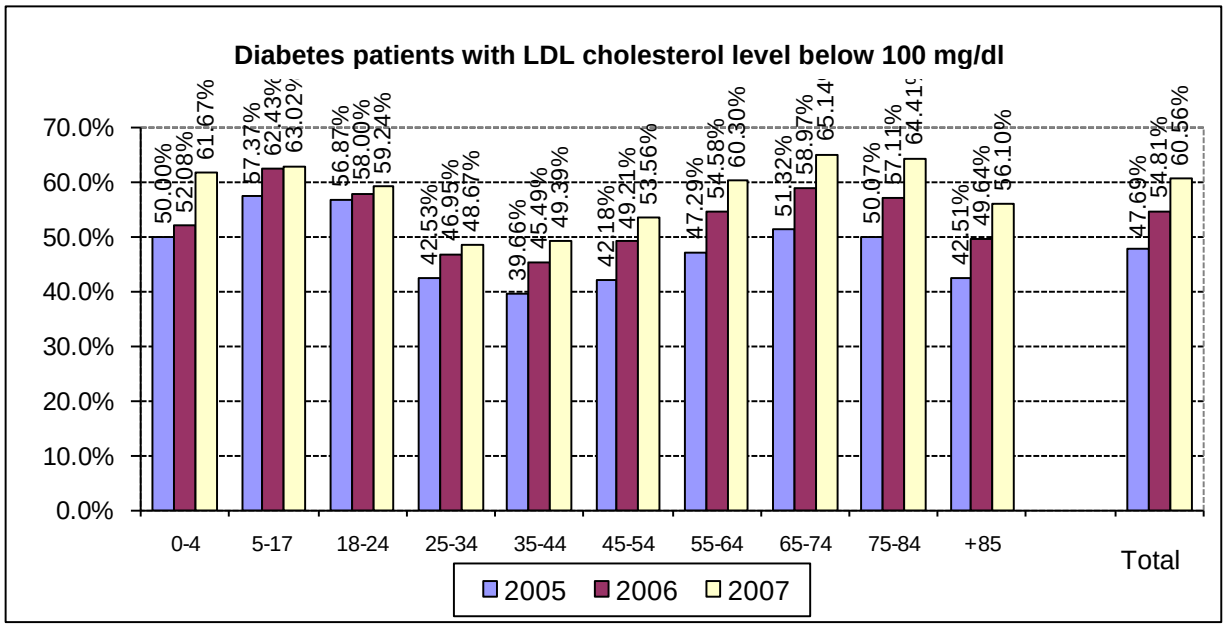


Figure 43: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 0-4 | 77.78 % | 48.48 % | 61.67 % | 21 | 16 | 37 | 27 | 33 | 60 |
| 5-17 | 69.37 % | 56.73 % | 63.02 % | 471 | 388 | 859 | 679 | 684 | 1,363 |
| 18-24 | 64.77 % | 54.14 % | 59.24 % | 432 | 392 | 824 | 667 | 724 | 1,391 |
| 25-34 | 50.98 % | 46.21 % | 48.67 % | 993 | 848 | 1,841 | 1,948 | 1,835 | 3,783 |
| 35-44 | 49.53 % | 49.22 % | 49.39 % | 3,439 | 2,705 | 6,144 | 6,943 | 5,496 | 12,439 |
| 45-54 | 55.78 % | 50.98 % | 53.56 % | 12,416 | 9,793 | 22,209 | 22,260 | 19,208 | 41,468 |
| 55-64 | 63.18 % | 57.24 % | 60.30 % | 23,616 | 20,171 | 43,787 | 37,376 | 35,240 | 72,616 |
| 65-74 | 69.04 % | 61.82 % | 65.14 % | 24,049 | 25,214 | 49,263 | 34,835 | 40,789 | 75,624 |
| 75-84 | 70.03 % | 60.45 % | 64.41 % | 13,885 | 17,005 | 30,890 | 19,826 | 28,133 | 47,959 |
| 85+ | 63.23 % | 50.97 % | 56.10 % | 2,313 | 2,591 | 4,904 | 3,658 | 5,083 | 8,741 |
| **Total** | **63.67 %** | **57.66 %** | **60.56 %** | **81,635** | **79,123** | **160,758** | **128,219** | **137,225** | **265,444** |

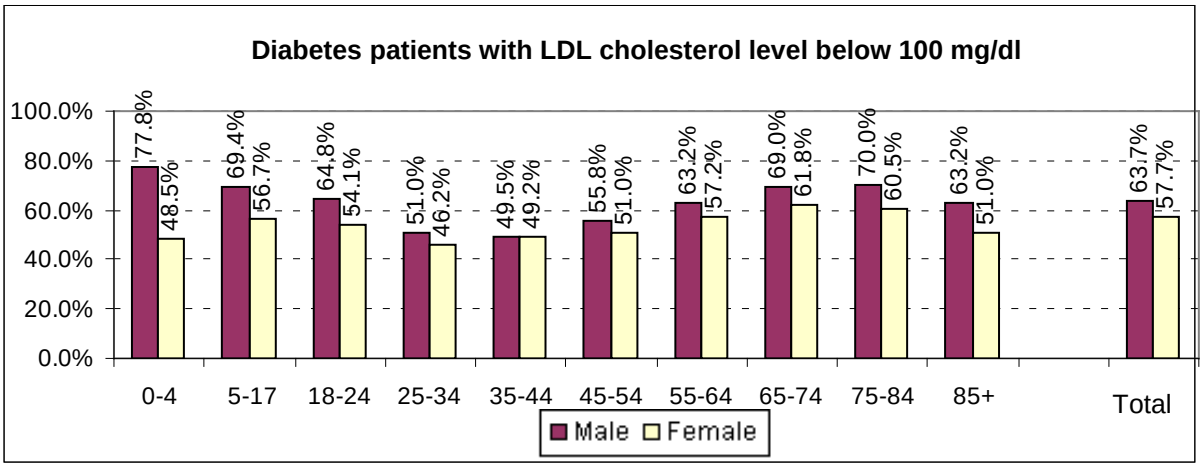
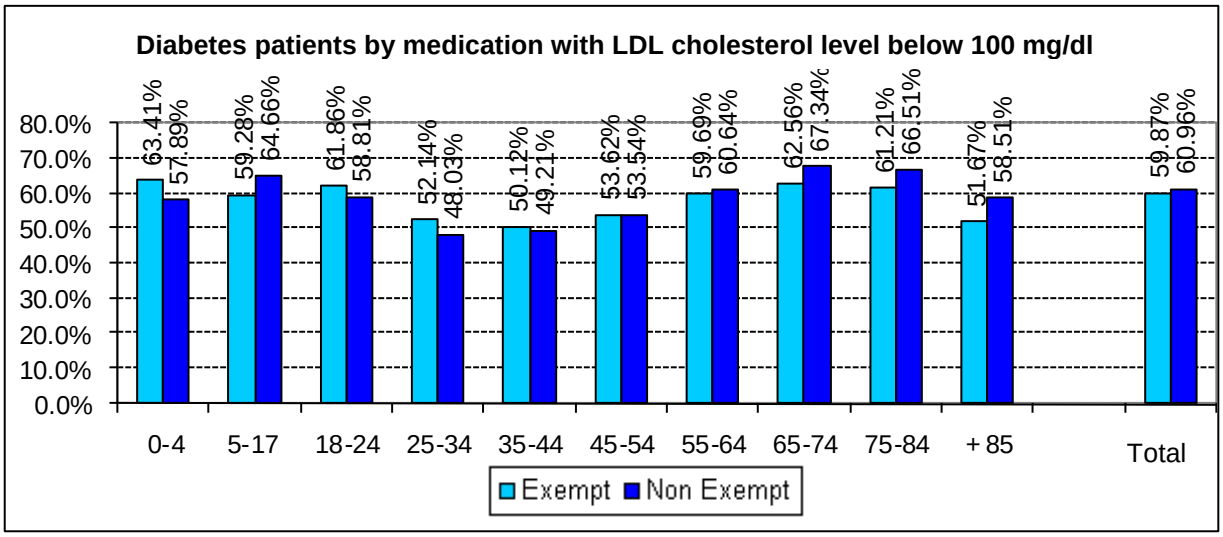



Figure 44: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 63.41 % | 57.89 % | 61.67 % | 26 | 11 | 37 | 41 | 19 | 60 |
| 5-17 | 59.28 % | 64.66 % | 63.02 % | 246 | 613 | 859 | 415 | 948 | 1,363 |
| 18-24 | 61.86 % | 58.81 % | 59.24 % | 120 | 704 | 824 | 194 | 1,197 | 1,391 |
| 25-34 | 52.14 % | 48.03 % | 48.67 % | 304 | 1,537 | 1,841 | 583 | 3,200 | 3,783 |
| 35-44 | 50.12 % | 49.21 % | 49.39 % | 1,227 | 4,917 | 6,144 | 2,448 | 9,991 | 12,439 |
| 45-54 | 53.62 % | 53.54 % | 53.56 % | 5,222 | 16,987 | 22,209 | 9,738 | 31,730 | 41,468 |
| 55-64 | 59.69 % | 60.64 % | 60.30 % | 15,484 | 28,303 | 43,787 | 25,942 | 46,674 | 72,616 |
| 65-74 | 62.56 % | 67.34 % | 65.14 % | 21,730 | 27,533 | 49,263 | 34,735 | 40,889 | 75,624 |
| 75-84 | 61.21 % | 66.51 % | 64.41 % | 11,630 | 19,260 | 30,890 | 19,001 | 28,958 | 47,959 |
| 85+ | 51.67 % | 58.51 % | 56.10 % | 1,591 | 3,313 | 4,904 | 3,079 | 5,662 | 8,741 |
| **Total** | **59.87 %** | **60.96 %** | **60.56 %** | **57,580** | **103,178** | **160,758** | **96,176** | **169,268** | **265,444** |




## C. Periodic Eye Examinations

### Background

Diabetes is the leading cause of blindness in Western countries, and the damage to the eye from diabetes (diabetic retinopathy) is a widespread complication of the disease. In this condition, capillaries in the retina are damaged and may cause weakened eyesight, sometimes to the point of blindness. This retinal disease is liable to develop with both types of diabetes and usually appears only 10-15 years after the onset of diabetes. For this reason, it is vital that once Type 2 diabetes is diagnosed the patient have annual eye examinations. The discovery of retinal damage requires appropriate treatment to prevent impaired eyesight.

Definition of the indicator:

Diabetes patients treated with medication who visited an ophthalmologist in the measurement year among diabetes patients treated with medication.

Limitations of the indicator: The guidelines recommend examination of the retinas, but in the absence of the necessary detailed information, we made due with a visit to the eye clinic. The assumption is that at least two thirds of these visits included examination of the retinas.

Main Findings:

- According to HMO data, 62.79% of patients had an eye examination in 2007. This percentage is a slight improvement over the previous year (Figure 45). The 2007 NCQA report from the US found that the performance rate for this indicator ranged from 51.4% - 62.3%, depending on the type of insurance and age of the insured [1].
- In 2007, the percentage of male patients who underwent an exam was 61.2% compared to 64.3% of women (Figure 46).
- In 2007, the rate of patients who had an eye examination among the insured individuals exempt from NII payments was 64.5% compared to 61.8% among the rest of insured individuals (Figure 47).

Figure 45: Rate of eye examinations performed at least once a year, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 32.73 % | 33.33 % | 45.45 % | 36 | 44 | 65 | 110 | 132 | 143 |
| 5-17 | 55.79 % | 58.19 % | 59.57 % | 988 | 1,112 | 1,164 | 1,771 | 1,911 | 1,954 |
| 18-24 | 49.71 % | 51.55 % | 52.04 % | 845 | 929 | 933 | 1,700 | 1,802 | 1,793 |
| 25-34 | 49.21 % | 49.71 % | 50.42 % | 2,173 | 2,347 | 2,393 | 4,416 | 4,721 | 4,746 |
| 35-44 | 50.24 % | 52.87 % | 53.63 % | 6,542 | 7,399 | 7,896 | 13,021 | 13,996 | 14,724 |
| 45-54 | 52.86 % | 55.61 % | 56.52 % | 22,503 | 25,221 | 26,634 | 42,573 | 45,350 | 47,122 |
| 55-64 | 58.99 % | 61.92 % | 62.33 % | 38,506 | 44,957 | 49,532 | 65,270 | 72,600 | 79,462 |
| 65-74 | 65.56 % | 68.58 % | 69.82 % | 47,417 | 52,441 | 56,174 | 72,325 | 76,464 | 80,455 |
| 75-84 | 61.49 % | 63.49 % | 64.87 % | 27,174 | 30,537 | 33,424 | 44,191 | 48,097 | 51,526 |
| 85+ | 46.93 % | 49.61 % | 50.65 % | 3,597 | 4,378 | 5,021 | 7,665 | 8,824 | 9,914 |
| **Total** | **59.19 %** | **61.84 %** | **62.79 %** | **149,781** | **169,365** | **183,236** | **253,042** | **273,897** | **291,839** |

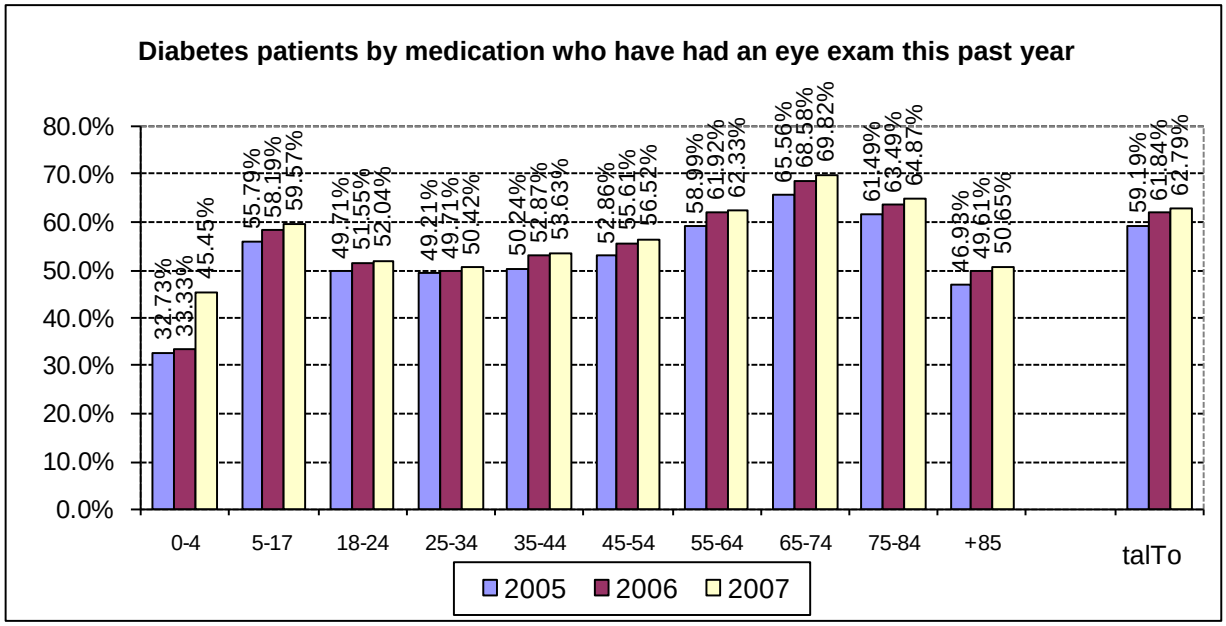

Diabetes patients by medication who have had an eye exam this past year
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
32.73%
33.33%
45.45%
55.79%
58.19%
59.57%
49.71%
51.55%
52.04%
49.21%
49.71%
50.42%
50.24%
52.87%
53.63%
52.86%
55.61%
56.52%
58.99%
61.92%
62.33%
65.56%
68.58%
69.82%
61.49%
63.49%
64.87%
46.93%
49.61%
50.65%
59.19%
61.84%
62.79%
0-4
5-17
18-24
25-34
35-44
45-54
55-64
65-74
75-84
+85
talTo
2005
2006
2007

Figure 46: Performance rate of eye exam at least once a year, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 0-4 | 41.67 % | 49.30 % | 45.45 % | 30 | 35 | 65 | 72 | 71 | 143 |
| 5-17 | 58.87 % | 60.27 % | 59.57 % | 574 | 590 | 1,164 | 975 | 979 | 1,954 |
| 18-24 | 51.86 % | 52.20 % | 52.04 % | 446 | 487 | 933 | 860 | 933 | 1,793 |
| 25-34 | 49.07 % | 51.83 % | 50.42 % | 1,191 | 1,202 | 2,393 | 2,427 | 2,319 | 4,746 |
| 35-44 | 50.79 % | 57.44 % | 53.63 % | 4,285 | 3,611 | 7,896 | 8,437 | 6,287 | 14,724 |
| 45-54 | 53.48 % | 60.24 % | 56.52 % | 13,861 | 12,773 | 26,634 | 25,917 | 21,205 | 47,122 |
| 55-64 | 59.87 % | 65.03 % | 62.33 % | 24,839 | 24,693 | 49,532 | 41,490 | 37,972 | 79,462 |
| 65-74 | 68.59 % | 70.89 % | 69.82 % | 25,577 | 30,597 | 56,174 | 37,291 | 43,164 | 80,455 |
| 75-84 | 67.28 % | 63.18 % | 64.87 % | 14,279 | 19,145 | 33,424 | 21,222 | 30,304 | 51,526 |
| 85+ | 56.50 % | 46.55 % | 50.65 % | 2,305 | 2,716 | 5,021 | 4,080 | 5,834 | 9,914 |
| **Total** | **61.21 %** | **64.30 %** | **62.79 %** | **87,387** | **95,849** | **183,236** | **142,771** | **149,068** | **291,839** |

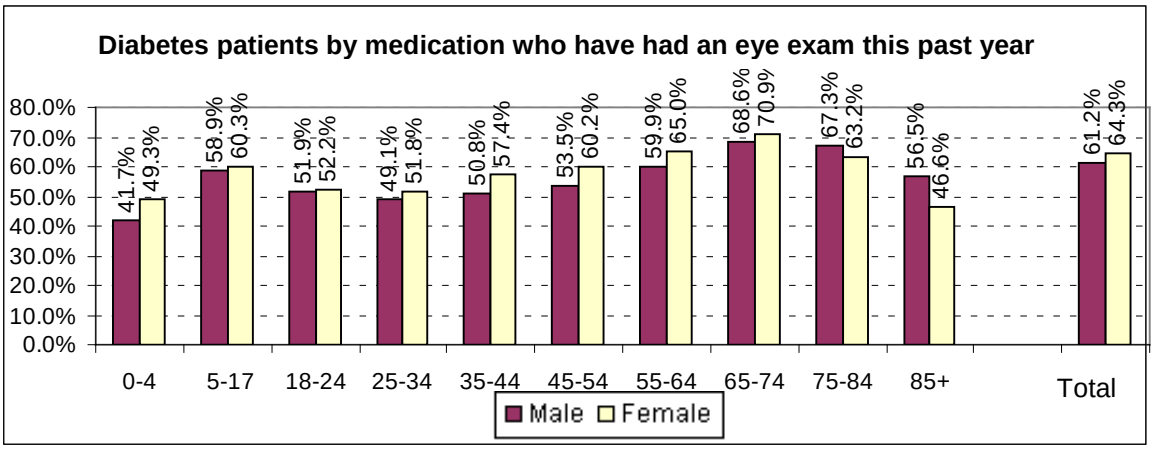
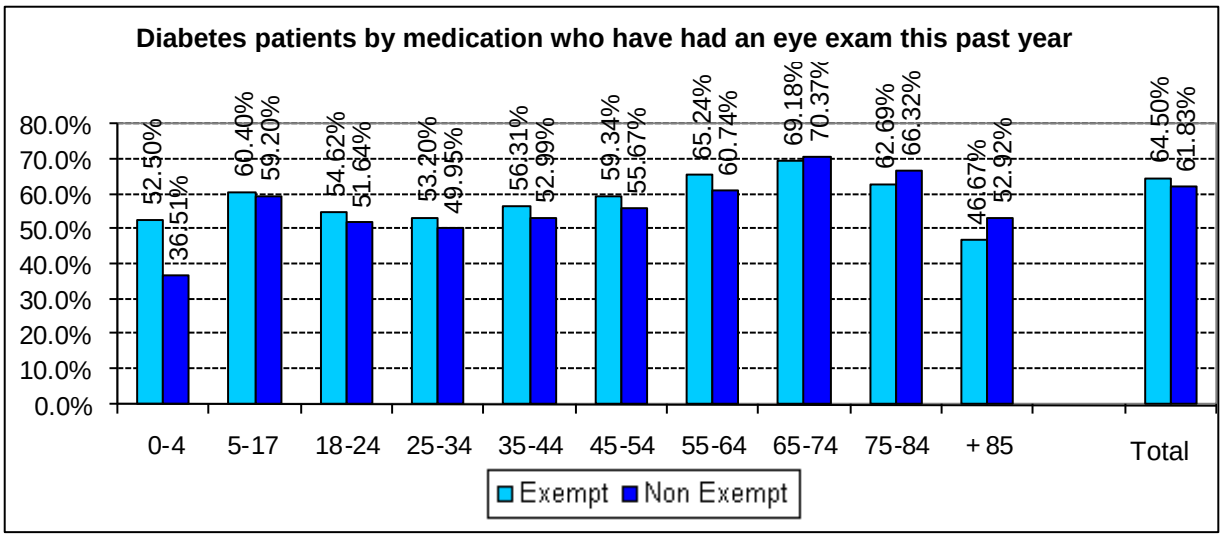



Figure 47: Rate of eye examinations performed at least once a year, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 52.50 % | 36.51 % | 45.45 % | 42 | 23 | 65 | 80 | 63 | 143 |
| 5-17 | 60.40 % | 59.20 % | 59.57 % | 366 | 798 | 1,164 | 606 | 1,348 | 1,954 |
| 18-24 | 54.62 % | 51.64 % | 52.04 % | 130 | 803 | 933 | 238 | 1,555 | 1,793 |
| 25-34 | 53.20 % | 49.95 % | 50.42 % | 366 | 2,027 | 2,393 | 688 | 4,058 | 4,746 |
| 35-44 | 56.31 % | 52.99 % | 53.63 % | 1,592 | 6,304 | 7,896 | 2,827 | 11,897 | 14,724 |
| 45-54 | 59.34 % | 55.67 % | 56.52 % | 6,495 | 20,139 | 26,634 | 10,946 | 36,176 | 47,122 |
| 55-64 | 65.24 % | 60.74 % | 62.33 % | 18,387 | 31,145 | 49,532 | 28,182 | 51,280 | 79,462 |
| 65-74 | 69.18 % | 70.37 % | 69.82 % | 25,670 | 30,504 | 56,174 | 37,107 | 43,348 | 80,455 |
| 75-84 | 62.69 % | 66.32 % | 64.87 % | 12,918 | 20,506 | 33,424 | 20,605 | 30,921 | 51,526 |
| 85+ | 46.67 % | 52.92 % | 50.65 % | 1,681 | 3,340 | 5,021 | 3,602 | 6,312 | 9,914 |
| **Total** | **64.50 %** | **61.83 %** | **62.79 %** | **67,647** | **115,589** | **183,236** | **104,881** | **186,958** | **291,839** |




## D. Examination of albumin/microalbumin in urine

### Background

Type 2 diabetes is one of the leading causes of damage to the kidneys, up to an advanced stage of kidney disease, in which the kidney function deteriorates to the point where dialysis treatment is required. The most important laboratory test for early indication of deteriorating kidney function is monitoring the levels of microalbumin secreted in urine. When kidney function begins to deteriorate, the level of microalbumin in the urine gradually begins to rise. In the first stage of kidney damage, the level of the albumin is within the range of 3-30 mg/dl.

Microalbumin tests should initially be performed once a year, and then the frequency of tests is determined by the level of albumin measured.

Definition of the indicator:

Diabetes patients treated with medication who have undergone microalbuminuria or proteinuria or micro/creat ratio tests (urine collection or urine sample) in the measurement year among diabetes patients treated with medication.

Limitations of the indicator: The guidelines recommend examination of the urine albumin/microalbumin level as one of a series of specific methods, including albumin in the dipstick or in the first urine specimen, or in a 24 hour urine collection for microalbumin or the albumin/creatinine ratio. We have limited the current indicator to urine collection microalbumin tests in order to maintain the uniformity of information received from the HMOs. It is therefore possible that actual performance is higher than the measured results.

Main Findings:

- According to HMO data, 70.7% of patients were tested in 2007. This figure indicates 3% improvement over 2006 in all age groups (Figure 48). The 2007 NCQA report from the US found that the performance rate for this indicator ranged from 74.6% - 85.4%, depending on the type of insurance and age of the insured [1].
- No significant difference in performance rate was found by the sex of the patients (Figure 49) or status of exemption from NII payments (Figure 50).

Figure 48: Rate of performance of albumin/microalbumin in urine test at least once a year, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 0-4 | 19.09 % | 22.73 % | 38.46 % | 21 | 30 | 55 | 110 | 132 | 143 |
| 5-17 | 48.28 % | 51.96 % | 56.50 % | 855 | 993 | 1,104 | 1,771 | 1,911 | 1,954 |
| 18-24 | 52.18 % | 57.05 % | 59.79 % | 887 | 1,028 | 1,072 | 1,700 | 1,802 | 1,793 |
| 25-34 | 54.57 % | 60.75 % | 63.17 % | 2,410 | 2,868 | 2,998 | 4,416 | 4,721 | 4,746 |
| 35-44 | 58.00 % | 65.67 % | 69.17 % | 7,552 | 9,191 | 10,185 | 13,021 | 13,996 | 14,724 |
| 45-54 | 59.29 % | 68.04 % | 71.21 % | 25,240 | 30,858 | 33,554 | 42,573 | 45,350 | 47,122 |
| 55-64 | 61.66 % | 70.94 % | 73.80 % | 40,244 | 51,503 | 58,643 | 65,270 | 72,600 | 79,462 |
| 65-74 | 60.58 % | 71.39 % | 74.80 % | 43,812 | 54,588 | 60,177 | 72,325 | 76,464 | 80,455 |
| 75-84 | 51.59 % | 62.74 % | 65.61 % | 22,798 | 30,178 | 33,807 | 44,191 | 48,097 | 51,526 |
| 85+ | 35.88 % | 45.75 % | 49.53 % | 2,750 | 4,037 | 4,910 | 7,665 | 8,824 | 9,914 |
| **Total** | **57.92 %** | **67.64 %** | **70.76 %** | **146,569** | **185,274** | **206,505** | **253,042** | **273,897** | **291,839** |

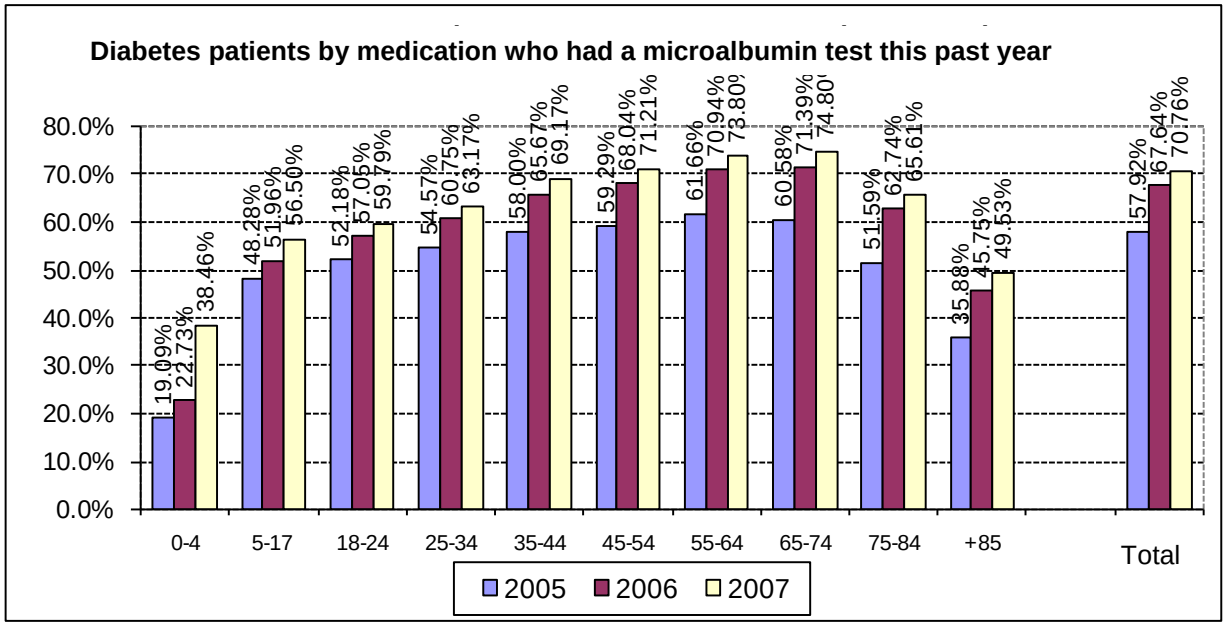



Figure 49: Performance rate of albumin/microalbumin in urine test at least once a year, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 0-4 | 33.33 % | 43.66 % | 38.46 % | 24 | 31 | 55 | 72 | 71 | 143 |
| 5-17 | 57.64 % | 55.36 % | 56.50 % | 562 | 542 | 1,104 | 975 | 979 | 1,954 |
| 18-24 | 63.95 % | 55.95 % | 59.79 % | 550 | 522 | 1,072 | 860 | 933 | 1,793 |
| 25-34 | 63.99 % | 62.31 % | 63.17 % | 1,553 | 1,445 | 2,998 | 2,427 | 2,319 | 4,746 |
| 35-44 | 68.42 % | 70.18 % | 69.17 % | 5,773 | 4,412 | 10,185 | 8,437 | 6,287 | 14,724 |
| 45-54 | 70.83 % | 71.67 % | 71.21 % | 18,356 | 15,198 | 33,554 | 25,917 | 21,205 | 47,122 |
| 55-64 | 73.78 % | 73.82 % | 73.80 % | 30,612 | 28,031 | 58,643 | 41,490 | 37,972 | 79,462 |
| 65-74 | 76.06 % | 73.70 % | 74.80 % | 28,365 | 31,812 | 60,177 | 37,291 | 43,164 | 80,455 |
| 75-84 | 69.22 % | 63.09 % | 65.61 % | 14,689 | 19,118 | 33,807 | 21,222 | 30,304 | 51,526 |
| 85+ | 55.88 % | 45.08 % | 49.53 % | 2,280 | 2,630 | 4,910 | 4,080 | 5,834 | 9,914 |
| **Total** | **71.98 %** | **69.59 %** | **70.76 %** | **102,764** | **103,741** | **206,505** | **142,771** | **149,068** | **291,839** |

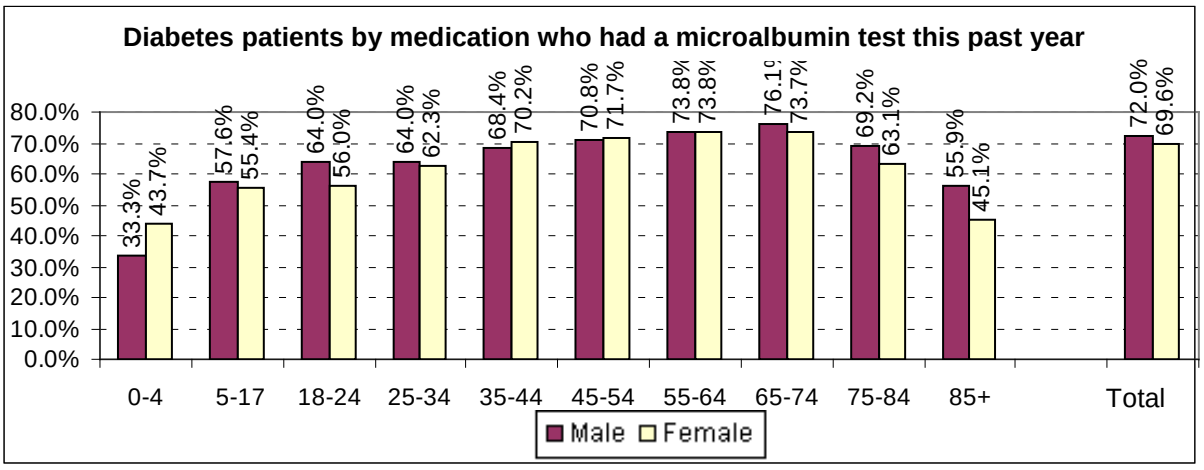
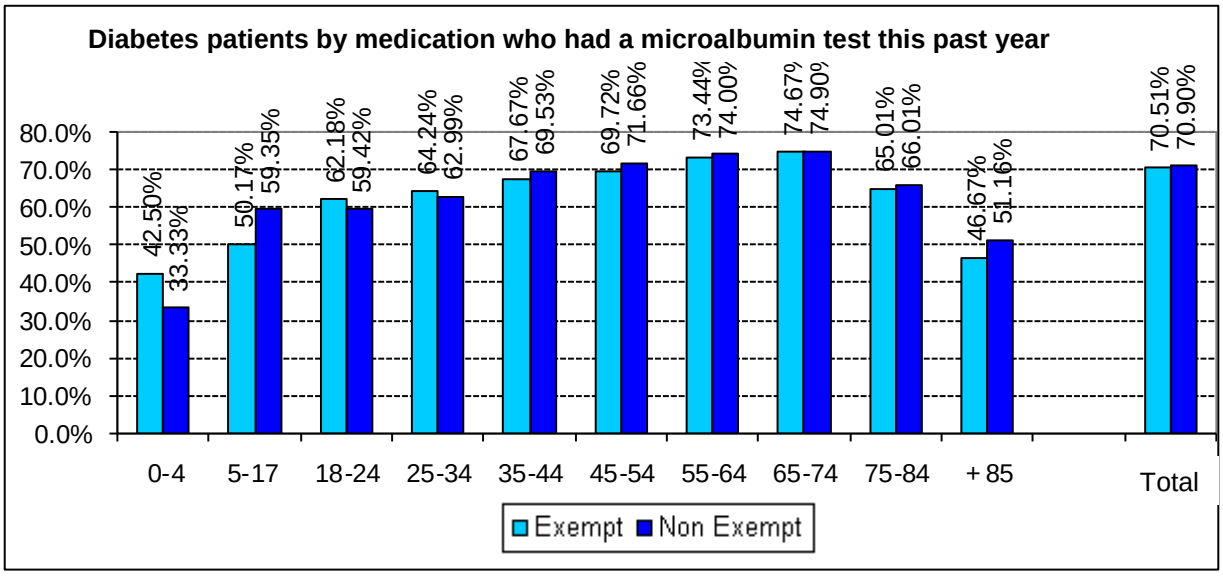


Figure 50: Rate of performance of albumin/microalbumin in urine test at least once a year, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 0-4 | 42.50 % | 33.33 % | 38.46 % | 34 | 21 | 55 | 80 | 63 | 143 |
| 5-17 | 50.17 % | 59.35 % | 56.50 % | 304 | 800 | 1,104 | 606 | 1,348 | 1,954 |
| 18-24 | 62.18 % | 59.42 % | 59.79 % | 148 | 924 | 1,072 | 238 | 1,555 | 1,793 |
| 25-34 | 64.24 % | 62.99 % | 63.17 % | 442 | 2,556 | 2,998 | 688 | 4,058 | 4,746 |
| 35-44 | 67.67 % | 69.53 % | 69.17 % | 1,913 | 8,272 | 10,185 | 2,827 | 11,897 | 14,724 |
| 45-54 | 69.72 % | 71.66 % | 71.21 % | 7,632 | 25,922 | 33,554 | 10,946 | 36,176 | 47,122 |
| 55-64 | 73.44 % | 74.00 % | 73.80 % | 20,698 | 37,945 | 58,643 | 28,182 | 51,280 | 79,462 |
| 65-74 | 74.67 % | 74.90 % | 74.80 % | 27,709 | 32,468 | 60,177 | 37,107 | 43,348 | 80,455 |
| 75-84 | 65.01 % | 66.01 % | 65.61 % | 13,395 | 20,412 | 33,807 | 20,605 | 30,921 | 51,526 |
| 85+ | 46.67 % | 51.16 % | 49.53 % | 1,681 | 3,229 | 4,910 | 3,602 | 6,312 | 9,914 |
| **Total** | **70.51 %** | **70.90 %** | **70.76 %** | **73,956** | **132,549** | **206,505** | **104,881** | **186,958** | **291,839** |




## E. Rate of flu vaccination for diabetes patients

Definition of indicator:

The percentage of insured diabetes patients who were vaccinated against the flu in the winter season (September – February) of the measurement year.

Main Findings:

- According to HMO data, 49.7% of diabetes patients were vaccinated against the flu in 2007. This finding marks a significant absolute increase of 11.6% compared to the previous year and shows a return to the improvement trend we had seen each year (Figure 51), without sex-related differences (Figure 52).
- The rate of flu vaccination among diabetes patients increases with age, reaching its peak at 85+ - 66.6% (Figure 51).
- In 2007, the number of patients up to the age of 65 exempt from NII payments received more flu vaccines than patients without an exemption, while over the age of 65 the trend reversed itself and fewer exempt patients were vaccinated. In total, 51.9% of those exempt from NII payments were vaccinated compared to 48.5% of the other insured individuals (Figure 53).

Figure 51: Rate of flu vaccination among diabetes patients by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 5-17 | 28.74 % | 18.05 % | 27.53 % | 509 | 345 | 538 | 1,771 | 1,911 | 1,954 |
| 18-24 | 26.06 % | 16.65 % | 24.99 % | 443 | 300 | 448 | 1,700 | 1,802 | 1,793 |
| 25-34 | 26.68 % | 17.81 % | 27.64 % | 1,178 | 841 | 1,312 | 4,416 | 4,721 | 4,746 |
| 35-44 | 28.31 % | 21.17 % | 32.09 % | 3,686 | 2,963 | 4,725 | 13,021 | 13,996 | 14,724 |
| 45-54 | 32.84 % | 24.06 % | 33.66 % | 13,982 | 10,912 | 15,861 | 42,573 | 45,350 | 47,122 |
| 55-64 | 43.70 % | 33.23 % | 42.78 % | 28,526 | 24,127 | 33,996 | 65,270 | 72,600 | 79,462 |
| 65-74 | 54.78 % | 46.88 % | 60.13 % | 39,618 | 35,845 | 48,379 | 72,325 | 76,464 | 80,455 |
| 75-84 | 58.28 % | 51.42 % | 64.55 % | 25,755 | 24,731 | 33,262 | 44,191 | 48,097 | 51,526 |
| 85+ | 57.00 % | 50.51 % | 66.66 % | 4,369 | 4,457 | 6,609 | 7,665 | 8,824 | 9,914 |
| **Total** | **46.68 %** | **38.18 %** | **49.75 %** | **118,066** | **104,521** | **145,130** | **252,932** | **273,765** | **291,696** |

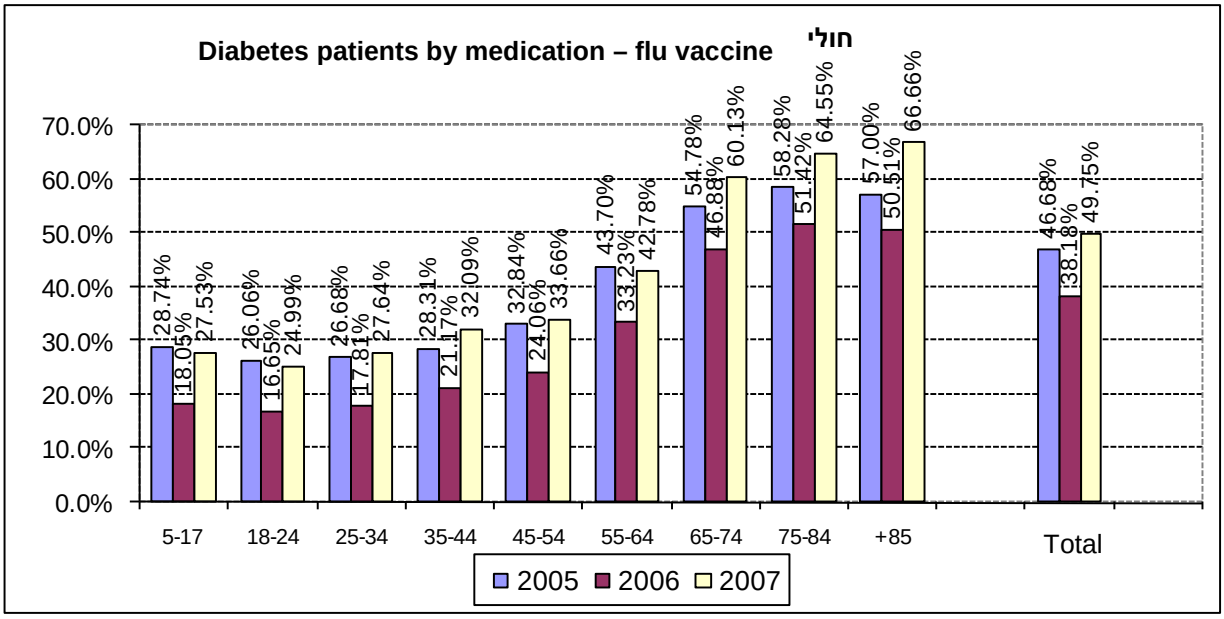



Figure 52: Rate of flu vaccination among diabetes patients in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 5-17 | 28.62 % | 26.46 % | 27.53 % | 279 | 259 | 538 | 975 | 979 | 1,954 |
| 18-24 | 29.53 % | 20.79 % | 24.99 % | 254 | 194 | 448 | 860 | 933 | 1,793 |
| 25-34 | 29.30 % | 25.92 % | 27.64 % | 711 | 601 | 1,312 | 2,427 | 2,319 | 4,746 |
| 35-44 | 32.27 % | 31.84 % | 32.09 % | 2,723 | 2,002 | 4,725 | 8,437 | 6,287 | 14,724 |
| 45-54 | 33.94 % | 33.31 % | 33.66 % | 8,797 | 7,064 | 15,861 | 25,917 | 21,205 | 47,122 |
| 55-64 | 43.72 % | 41.75 % | 42.78 % | 18,141 | 15,855 | 33,996 | 41,490 | 37,972 | 79,462 |
| 65-74 | 63.03 % | 57.63 % | 60.13 % | 23,503 | 24,876 | 48,379 | 37,291 | 43,164 | 80,455 |
| 75-84 | 69.20 % | 61.30 % | 64.55 % | 14,686 | 18,576 | 33,262 | 21,222 | 30,304 | 51,526 |
| 85+ | 72.06 % | 62.89 % | 66.66 % | 2,940 | 3,669 | 6,609 | 4,080 | 5,834 | 9,914 |
| **Total** | **50.48 %** | **49.06 %** | **49.75 %** | **72,034** | **73,096** | **145,130** | **142,699** | **148,997** | **291,696** |

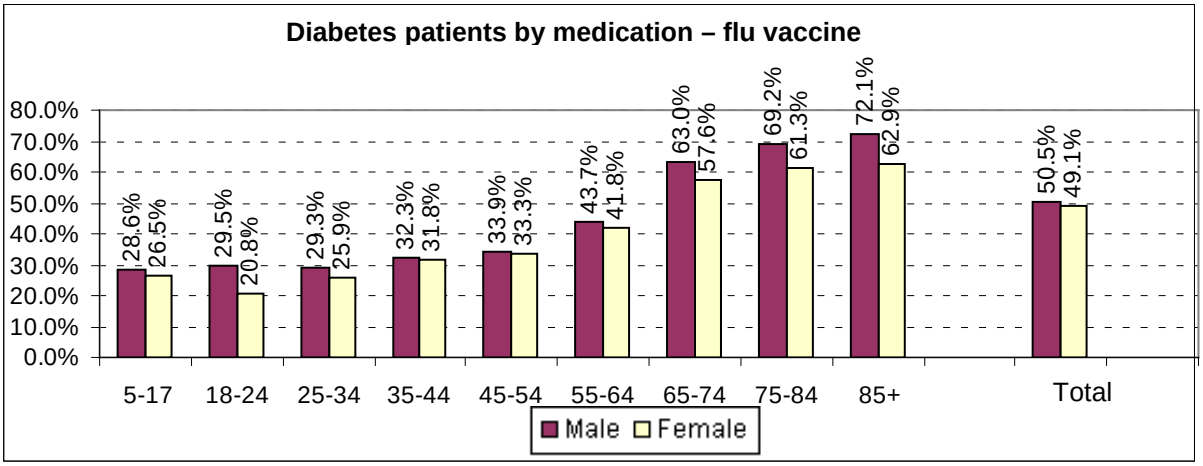
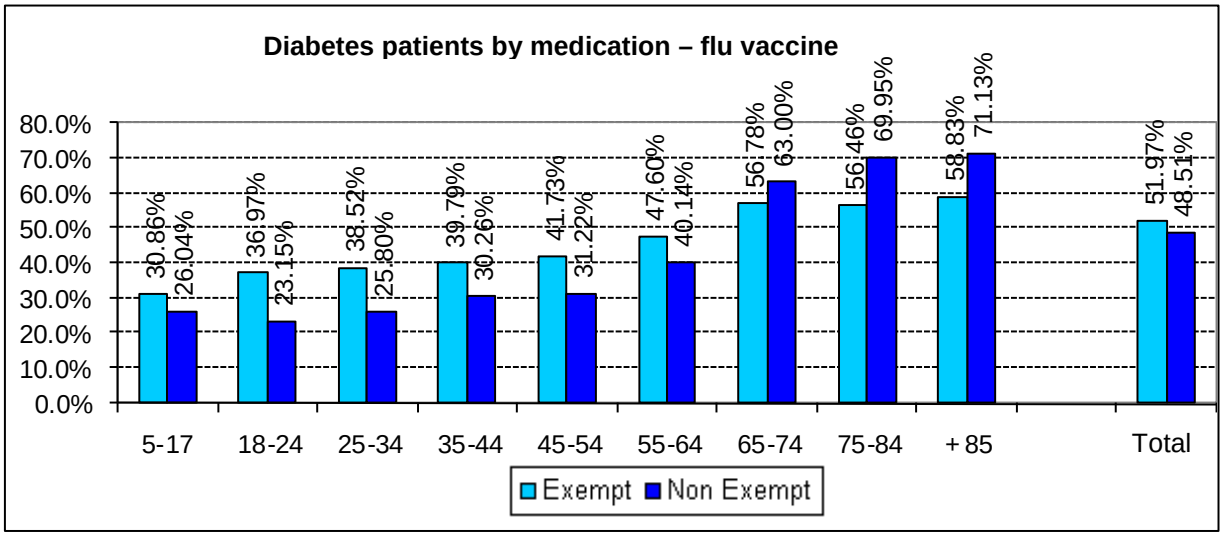


Figure 53: Rate of flu vaccination among diabetes patients in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 5-17 | 30.86 % | 26.04 % | 27.53 % | 187 | 351 | 538 | 606 | 1,348 | 1,954 |
| 18-24 | 36.97 % | 23.15 % | 24.99 % | 88 | 360 | 448 | 238 | 1,555 | 1,793 |
| 25-34 | 38.52 % | 25.80 % | 27.64 % | 265 | 1,047 | 1,312 | 688 | 4,058 | 4,746 |
| 35-44 | 39.79 % | 30.26 % | 32.09 % | 1,125 | 3,600 | 4,725 | 2,827 | 11,897 | 14,724 |
| 45-54 | 41.73 % | 31.22 % | 33.66 % | 4,568 | 11,293 | 15,861 | 10,946 | 36,176 | 47,122 |
| 55-64 | 47.60 % | 40.14 % | 42.78 % | 13,414 | 20,582 | 33,996 | 28,182 | 51,280 | 79,462 |
| 65-74 | 56.78 % | 63.00 % | 60.13 % | 21,069 | 27,310 | 48,379 | 37,107 | 43,348 | 80,455 |
| 75-84 | 56.46 % | 69.95 % | 64.55 % | 11,633 | 21,629 | 33,262 | 20,605 | 30,921 | 51,526 |
| 85+ | 58.83 % | 71.13 % | 66.66 % | 2,119 | 4,490 | 6,609 | 3,602 | 6,312 | 9,914 |
| **Total** | **51.97 %** | **48.51 %** | **49.75 %** | **54,468** | **90,662** | **145,130** | **104,801** | **186,895** | **291,696** |




## F. Obesity and diabetes: BMI documentation

**Background:**

Obesity is an independent risk factor for cardiovascular diseases [18]. Approximately 80% of Type 2 diabetes cases are related to obesity, which increases the risk of heart disease – already high in diabetes patients.

Guidelines for treatment of diabetes include monitoring body weight and maintaining a healthy weight, primarily by adopting a healthy diet and engaging in regular exercise.

Obesity can be defined in several ways, the simplest of which is based on a formula that calculates the ratio between body weight and height.

To enable assessment of obesity of the population, proper documentation of the two components is necessary – body weight and height. The obesity indicator we report is the BMI indicator, which is calculated in this report according to weight documentation over the past year and height documentation over the past five years. BMI reflects the ratio between weight in kilograms and height in meters squared. At this stage of the Indicators Program, we decided to report only on the level of BMI documentation, hoping that the improvement over the next year or two will facilitate reporting of the BMI values, meaning the state of obesity among diabetes patients.

Definition of the indicator:

Diabetes patients aged 18-85 for whom BMI could be calculated in the measurement year.

Main Findings:

- In 2007, body weight was documented for 74.4% of diabetes patients and height documented for 85.4% of diabetes patients. Thus, BMI could be calculated for 72.9% of diabetes patients. Compared to the past two years, we can see that the documentation level is showing accelerated improvement. However, most of the documentation was done for patients aged 35-74 (Figure 54).
- No difference was found in BMI documentation by sex (Figure 55) or by status of exemption from NII payments (Figure 56).

Figure 54: Rate of documentation of BMI components among diabetes patients, by age and year of measurement (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 18-24 | 26.93 % | 43.41 % | 58.76 % | 394 | 682 | 916 | 1,463 | 1,571 | 1,559 |
| 25-34 | 34.69 % | 49.46 % | 61.61 % | 1,416 | 2,151 | 2,707 | 4,082 | 4,349 | 4,394 |
| 35-44 | 41.13 % | 56.35 % | 69.20 % | 5,101 | 7,499 | 9,675 | 12,403 | 13,308 | 13,982 |
| 45-54 | 40.85 % | 57.91 % | 73.37 % | 16,722 | 25,293 | 33,308 | 40,935 | 43,680 | 45,397 |
| 55-64 | 40.99 % | 58.03 % | 74.83 % | 25,852 | 40,819 | 57,749 | 63,063 | 70,337 | 77,169 |
| 65-74 | 40.09 % | 58.66 % | 76.19 % | 28,118 | 43,648 | 59,682 | 70,141 | 74,409 | 78,332 |
| 75-84 | 33.82 % | 51.35 % | 70.38 % | 14,622 | 24,226 | 35,595 | 43,239 | 47,176 | 50,575 |
| 85+ | 22.49 % | 36.04 % | 55.26 % | 1,692 | 3,121 | 5,393 | 7,524 | 8,660 | 9,759 |
| **Total** | **38.67 %** | **55.96 %** | **72.92 %** | **93,917** | **147,439** | **205,025** | **242,850** | **263,490** | **281,167** |

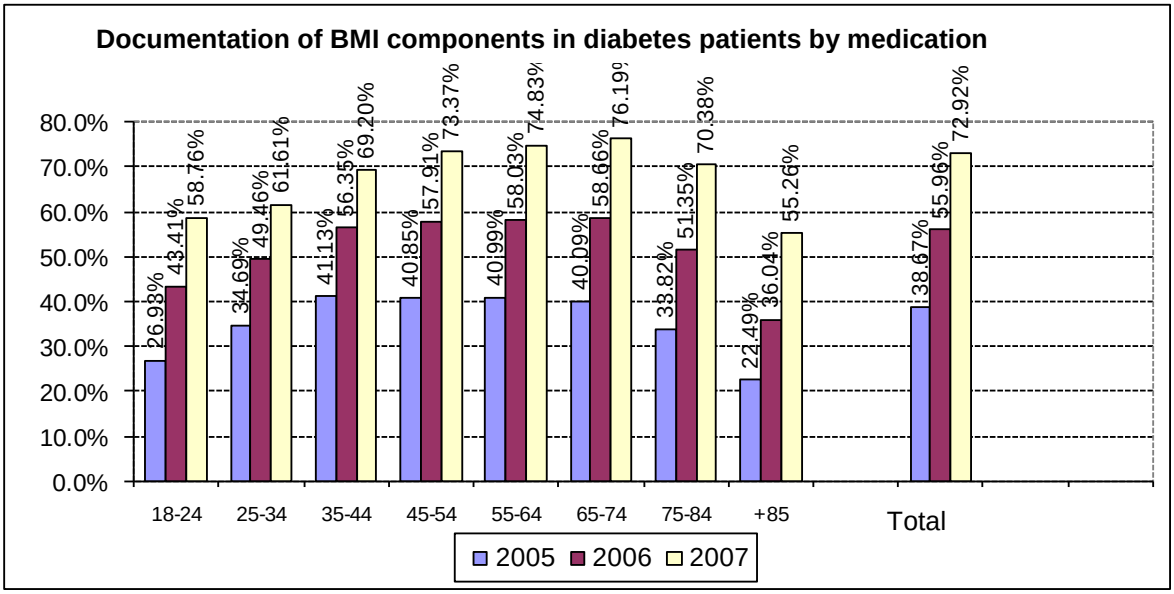


Figure 55: Rate of documentation of BMI components among diabetes patients in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 18-24 | 57.79 % | 59.65 % | 58.76 % | 434 | 482 | 916 | 751 | 808 | 1,559 |
| 25-34 | 62.15 % | 61.04 % | 61.61 % | 1,386 | 1,321 | 2,707 | 2,230 | 2,164 | 4,394 |
| 35-44 | 66.72 % | 72.48 % | 69.20 % | 5,319 | 4,356 | 9,675 | 7,972 | 6,010 | 13,982 |
| 45-54 | 70.54 % | 76.81 % | 73.37 % | 17,574 | 15,734 | 33,308 | 24,912 | 20,485 | 45,397 |
| 55-64 | 72.84 % | 77.02 % | 74.83 % | 29,422 | 28,327 | 57,749 | 40,390 | 36,779 | 77,169 |
| 65-74 | 75.29 % | 76.97 % | 76.19 % | 27,357 | 32,325 | 59,682 | 36,335 | 41,997 | 78,332 |
| 75-84 | 72.96 % | 68.57 % | 70.38 % | 15,231 | 20,364 | 35,595 | 20,876 | 29,699 | 50,575 |
| 85+ | 60.59 % | 51.55 % | 55.26 % | 2,428 | 2,965 | 5,393 | 4,007 | 5,752 | 9,759 |
| **Total** | **72.12 %** | **73.68 %** | **72.92 %** | **99,151** | **105,874** | **205,025** | **137,473** | **143,694** | **281,167** |

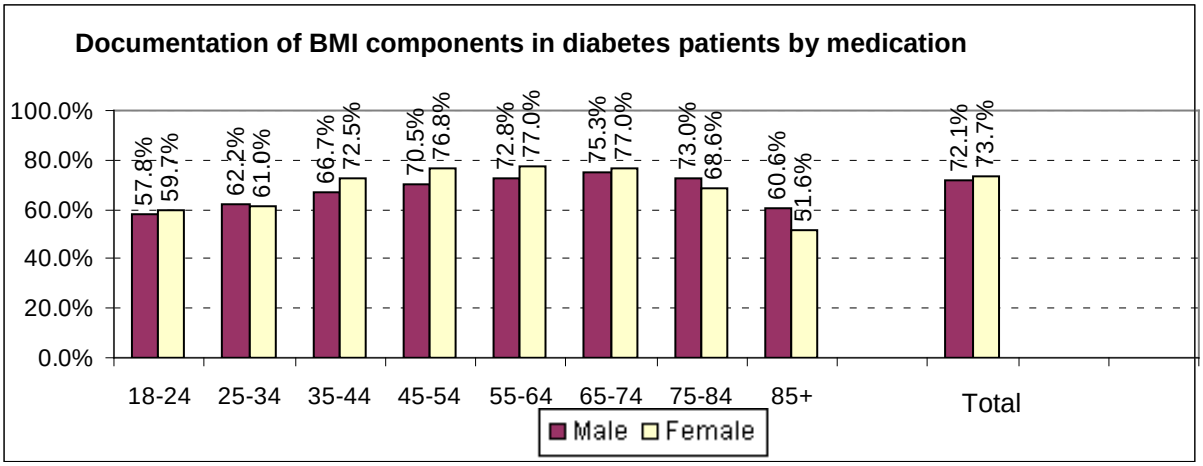
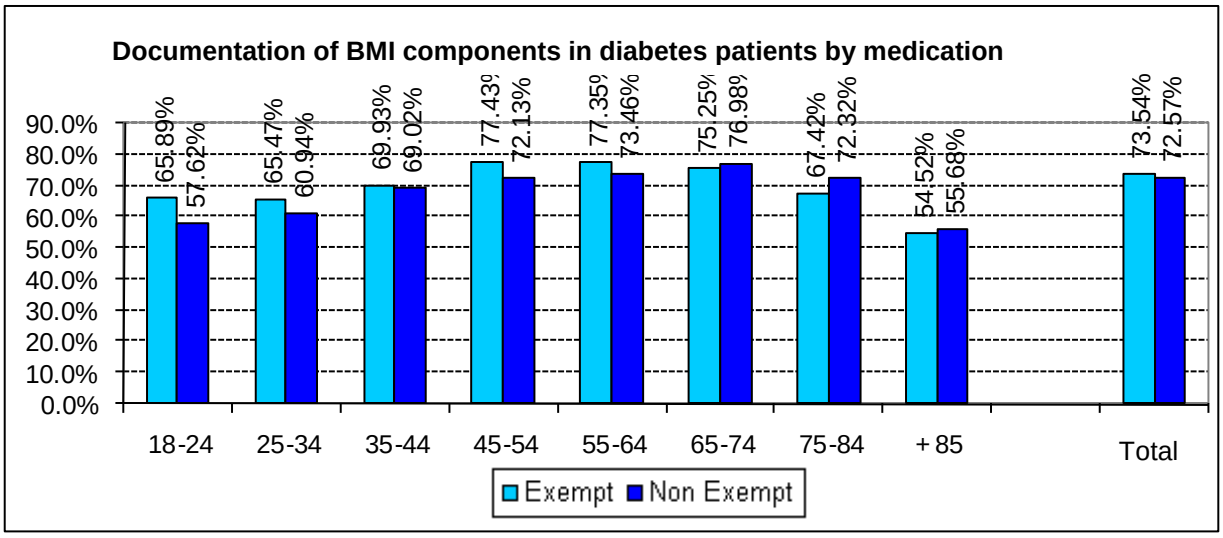



Figure 56: Rate of documentation of BMI components among diabetes patients in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 18-24 | 65.89 % | 57.62 % | 58.76 % | 141 | 775 | 916 | 214 | 1,345 | 1,559 |
| 25-34 | 65.47 % | 60.94 % | 61.61 % | 421 | 2,286 | 2,707 | 643 | 3,751 | 4,394 |
| 35-44 | 69.93 % | 69.02 % | 69.20 % | 1,891 | 7,784 | 9,675 | 2,704 | 11,278 | 13,982 |
| 45-54 | 77.43 % | 72.13 % | 73.37 % | 8,211 | 25,097 | 33,308 | 10,604 | 34,793 | 45,397 |
| 55-64 | 77.35 % | 73.46 % | 74.83 % | 21,093 | 36,656 | 57,749 | 27,270 | 49,899 | 77,169 |
| 65-74 | 75.25 % | 76.98 % | 76.19 % | 26,913 | 32,769 | 59,682 | 35,766 | 42,566 | 78,332 |
| 75-84 | 67.42 % | 72.32 % | 70.38 % | 13,498 | 22,097 | 35,595 | 20,020 | 30,555 | 50,575 |
| 85+ | 54.52 % | 55.68 % | 55.26 % | 1,925 | 3,468 | 5,393 | 3,531 | 6,228 | 9,759 |
| **Total** | **73.54 %** | **72.57 %** | **72.92 %** | **74,093** | **130,932** | **205,025** | **100,752** | **180,415** | **281,167** |




## G. Blood pressure readings for diabetes patients

### Background

High blood pressure may accelerate the appearance of complications in diabetes patients. UKPDS research found that blood pressure control in diabetes patients is at least as important as control of blood sugar levels [19]. The guidelines for treatment of diabetes include periodic blood pressure readings and treatment of high blood pressure to attain strict control targets.

Definition of the indicator:

Diabetes patients aged 18-85 who had their blood pressure checked at least once a year.

Main Findings:

- In 2007, blood pressure values were documented for 89.3% of diabetes patients. Compared to the past two years, we can see that the documentation level is showing accelerated improvement. We believe that this level of documentation enables calculation of blood pressure control among diabetes patients (Figure 57).
- The level of documentation increases with age, reaching 92.5% documentation in patients aged 65-74 (Figure 57).
- The rate of documentation is higher for women (90%) than for men (88.6%) (Figure 58).
- The level of documentation is higher among individuals exempt from NII payments (91.1%) than for other patients (88.3%) (Figure 59).

Figure 57: Rate of blood pressure readings among diabetes patients, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 18-24 | 45.47 % | 54.38 % | 69.10 % | 773 | 980 | 1,239 | 1,700 | 1,802 | 1,793 |
| 25-34 | 59.15 % | 66.36 % | 77.16 % | 2,612 | 3,133 | 3,662 | 4,416 | 4,721 | 4,746 |
| 35-44 | 69.43 % | 77.38 % | 85.59 % | 9,040 | 10,830 | 12,602 | 13,021 | 13,996 | 14,724 |
| 45-54 | 73.70 % | 81.01 % | 88.27 % | 31,378 | 36,737 | 41,596 | 42,573 | 45,350 | 47,122 |
| 55-64 | 77.44 % | 83.88 % | 89.70 % | 50,542 | 60,899 | 71,275 | 65,270 | 72,600 | 79,462 |
| 65-74 | 81.56 % | 87.50 % | 92.51 % | 58,989 | 66,908 | 74,432 | 72,325 | 76,464 | 80,455 |
| 75-84 | 79.33 % | 84.90 % | 89.67 % | 35,057 | 40,836 | 46,203 | 44,191 | 48,097 | 51,526 |
| 85+ | 68.61 % | 73.53 % | 79.35 % | 5,259 | 6,488 | 7,867 | 7,665 | 8,824 | 9,914 |
| **Total** | **77.10 %** | **83.43 %** | **89.35 %** | **193,650** | **226,811** | **258,876** | **251,161** | **271,854** | **289,742** |

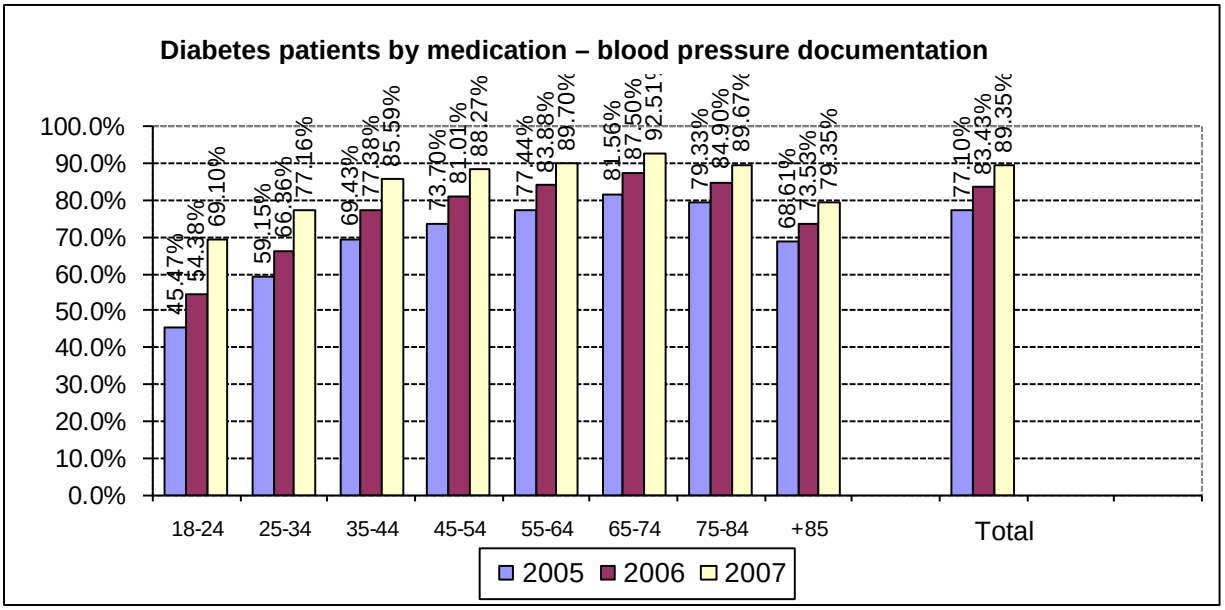



Figure 58: Rate of blood pressure readings among diabetes patients, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 18-24 | 68.14 % | 69.99 % | 69.10 % | 586 | 653 | 1,239 | 860 | 933 | 1,793 |
| 25-34 | 76.97 % | 77.36 % | 77.16 % | 1,868 | 1,794 | 3,662 | 2,427 | 2,319 | 4,746 |
| 35-44 | 84.51 % | 87.04 % | 85.59 % | 7,130 | 5,472 | 12,602 | 8,437 | 6,287 | 14,724 |
| 45-54 | 86.52 % | 90.42 % | 88.27 % | 22,423 | 19,173 | 41,596 | 25,917 | 21,205 | 47,122 |
| 55-64 | 88.19 % | 91.35 % | 89.70 % | 36,589 | 34,686 | 71,275 | 41,490 | 37,972 | 79,462 |
| 65-74 | 91.86 % | 93.08 % | 92.51 % | 34,254 | 40,178 | 74,432 | 37,291 | 43,164 | 80,455 |
| 75-84 | 90.94 % | 88.78 % | 89.67 % | 19,299 | 26,904 | 46,203 | 21,222 | 30,304 | 51,526 |
| 85+ | 83.82 % | 76.23 % | 79.35 % | 3,420 | 4,447 | 7,867 | 4,080 | 5,834 | 9,914 |
| **Total** | **88.60 %** | **90.06 %** | **89.35 %** | **125,569** | **133,307** | **258,876** | **141,724** | **148,018** | **289,742** |

**Diabetes patients by medication – blood pressure documentation**

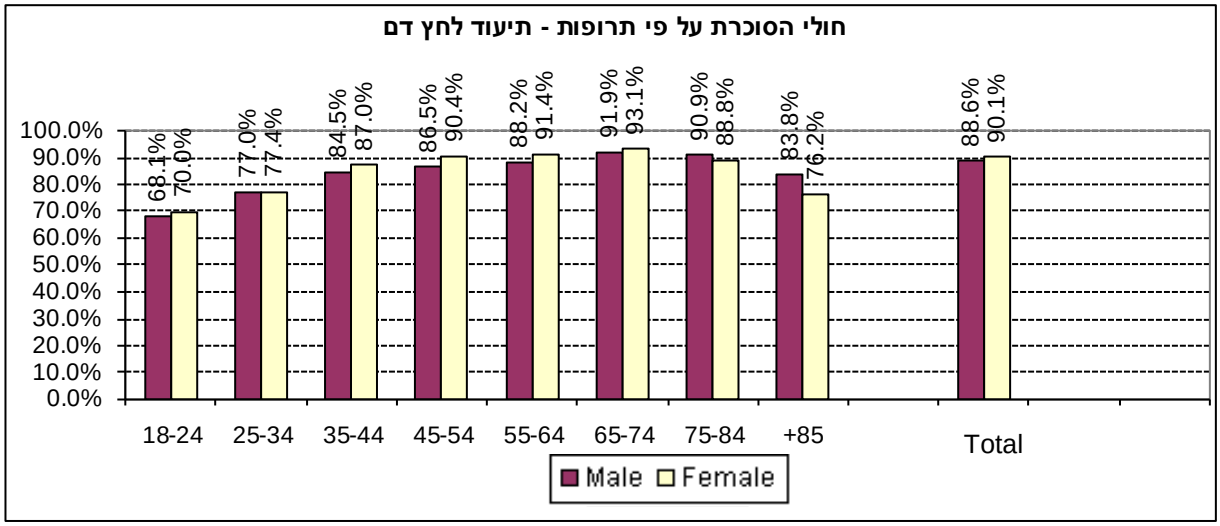
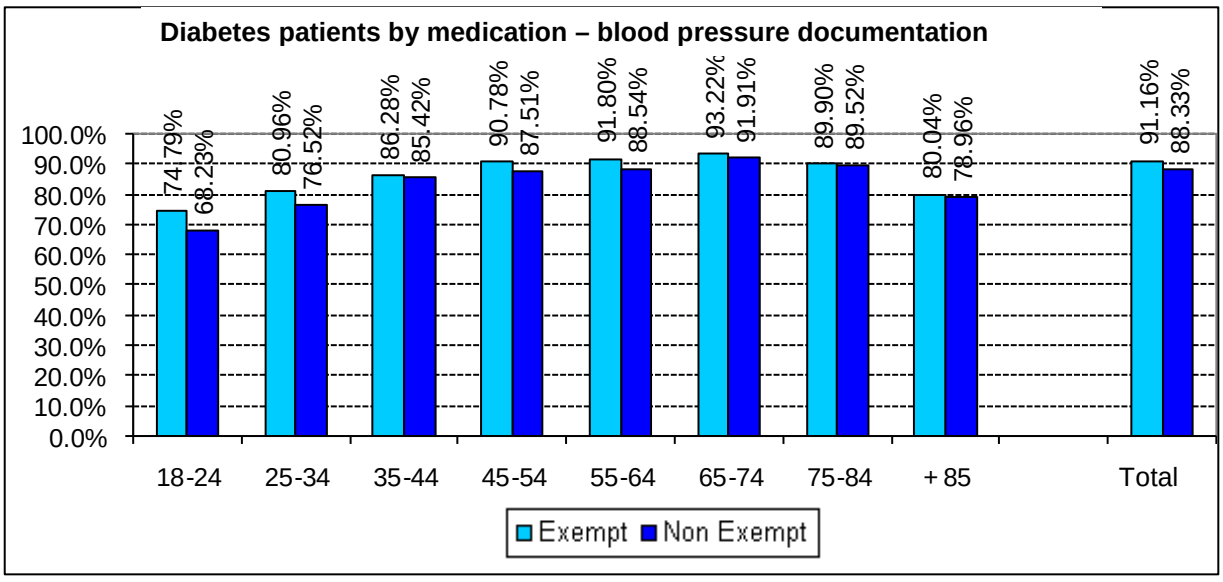



Figure 59: Rate of blood pressure readings among diabetes patients, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 18-24 | 74.79 % | 68.23 % | 69.10 % | 178 | 1,061 | 1,239 | 238 | 1,555 | 1,793 |
| 25-34 | 80.96 % | 76.52 % | 77.16 % | 557 | 3,105 | 3,662 | 688 | 4,058 | 4,746 |
| 35-44 | 86.28 % | 85.42 % | 85.59 % | 2,439 | 10,163 | 12,602 | 2,827 | 11,897 | 14,724 |
| 45-54 | 90.78 % | 87.51 % | 88.27 % | 9,937 | 31,659 | 41,596 | 10,946 | 36,176 | 47,122 |
| 55-64 | 91.80 % | 88.54 % | 89.70 % | 25,871 | 45,404 | 71,275 | 28,182 | 51,280 | 79,462 |
| 65-74 | 93.22 % | 91.91 % | 92.51 % | 34,590 | 39,842 | 74,432 | 37,107 | 43,348 | 80,455 |
| 75-84 | 89.90 % | 89.52 % | 89.67 % | 18,524 | 27,679 | 46,203 | 20,605 | 30,921 | 51,526 |
| 85+ | 80.04 % | 78.96 % | 79.35 % | 2,883 | 4,984 | 7,867 | 3,602 | 6,312 | 9,914 |
| **Total** | **91.16 %** | **88.33 %** | **89.35 %** | **94,979** | **163,897** | **258,876** | **104,195** | **185,547** | **289,742** |



## H. Blood pressure control in diabetes patients

### Background

Diabetes patients must maintain tight control of their blood pressure, and the control target for them is stricter than it is for the general public. The blood pressure control target for diabetes patients is a systolic value lower than 130 mmHg and a diastolic value lower than 80 mmHg [19].

Definition of the indicator:

Diabetes patients aged 18-85 with blood pressure documentation over the past year, whose last blood pressure reading was systolic pressure of 130 mmHg or less and diastolic pressure of 80 mmHg or less.

Main Findings:

- In 2007 blood pressure control targets were achieved in 66.8% of diabetes patients, for whom blood pressure readings are documented (Figure 60). This value is slightly higher than in 2006, by approximately 3%.
- The blood pressure control value was attained in 66.3% of men and 67.3% of women (Figure 61).
- No difference in control was found between patients with exemptions from NII payments and other patients (Figure 62).

Figure 60: Rate of blood pressure control among diabetes patients, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 18-24 | 87.45 % | 88.37 % | 86.68 % | 676 | 866 | 1,074 | 773 | 980 | 1,239 |
| 25-34 | 76.76 % | 77.63 % | 80.01 % | 2,005 | 2,432 | 2,930 | 2,612 | 3,133 | 3,662 |
| 35-44 | 68.85 % | 70.35 % | 71.12 % | 6,224 | 7,619 | 8,962 | 9,040 | 10,830 | 12,602 |
| 45-54 | 62.16 % | 64.76 % | 67.38 % | 19,503 | 23,791 | 28,028 | 31,378 | 36,737 | 41,596 |
| 55-64 | 59.39 % | 61.79 % | 64.62 % | 30,019 | 37,631 | 46,058 | 50,542 | 60,899 | 71,275 |
| 65-74 | 59.65 % | 63.01 % | 66.13 % | 35,186 | 42,160 | 49,222 | 58,989 | 66,908 | 74,432 |
| 75-84 | 61.46 % | 64.64 % | 67.84 % | 21,547 | 26,397 | 31,346 | 35,057 | 40,836 | 46,203 |
| 85+ | 62.24 % | 65.32 % | 68.01 % | 3,273 | 4,238 | 5,350 | 5,259 | 6,488 | 7,867 |
| **Total** | **61.16 %** | **63.99 %** | **66.82 %** | **118,433** | **145,134** | **172,970** | **193,650** | **226,811** | **258,876** |

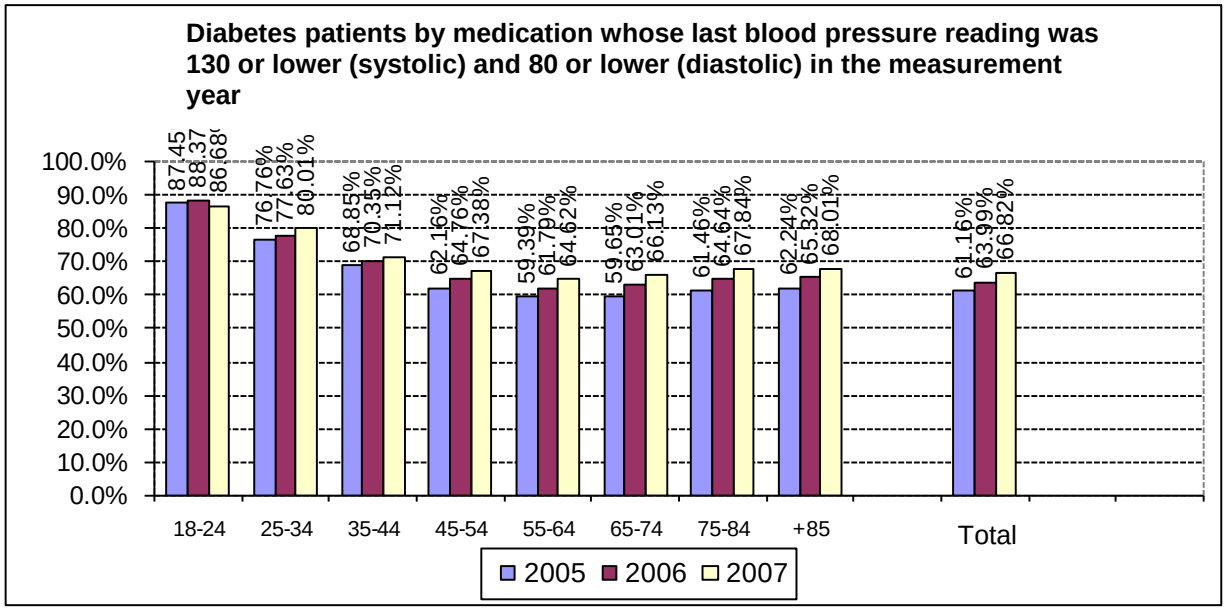



Figure 61: Rate of blood pressure control among diabetes patients, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 18-24 | 83.79 % | 89.28 % | 86.68 % | 491 | 583 | 1,074 | 586 | 653 | 1,239 |
| 25-34 | 76.98 % | 83.17 % | 80.01 % | 1,438 | 1,492 | 2,930 | 1,868 | 1,794 | 3,662 |
| 35-44 | 67.95 % | 75.24 % | 71.12 % | 4,845 | 4,117 | 8,962 | 7,130 | 5,472 | 12,602 |
| 45-54 | 64.90 % | 70.28 % | 67.38 % | 14,553 | 13,475 | 28,028 | 22,423 | 19,173 | 41,596 |
| 55-64 | 63.44 % | 65.87 % | 64.62 % | 23,212 | 22,846 | 46,058 | 36,589 | 34,686 | 71,275 |
| 65-74 | 66.75 % | 65.61 % | 66.13 % | 22,863 | 26,359 | 49,222 | 34,254 | 40,178 | 74,432 |
| 75-84 | 69.71 % | 66.50 % | 67.84 % | 13,454 | 17,892 | 31,346 | 19,299 | 26,904 | 46,203 |
| 85+ | 70.12 % | 66.38 % | 68.01 % | 2,398 | 2,952 | 5,350 | 3,420 | 4,447 | 7,867 |
| **Total** | **66.30 %** | **67.30 %** | **66.82 %** | **83,254** | **89,716** | **172,970** | **125,569** | **133,307** | **258,876** |

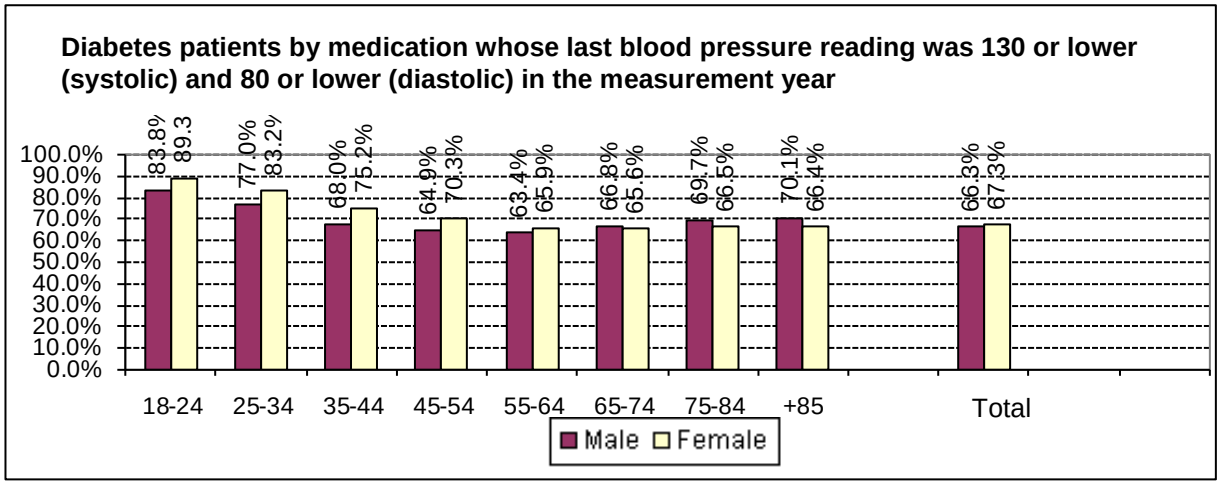
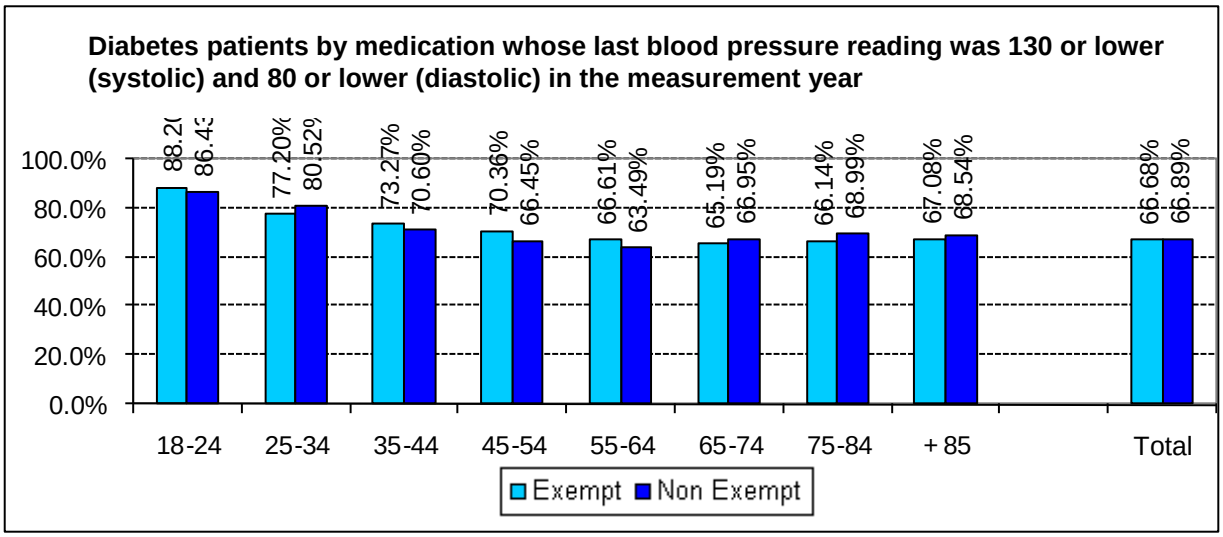


Figure 62: Rate of blood pressure control among diabetes patients, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 18-24 | 88.20 % | 86.43 % | 86.68 % | 157 | 917 | 1,074 | 178 | 1,061 | 1,239 |
| 25-34 | 77.20 % | 80.52 % | 80.01 % | 430 | 2,500 | 2,930 | 557 | 3,105 | 3,662 |
| 35-44 | 73.27 % | 70.60 % | 71.12 % | 1,787 | 7,175 | 8,962 | 2,439 | 10,163 | 12,602 |
| 45-54 | 70.36 % | 66.45 % | 67.38 % | 6,992 | 21,036 | 28,028 | 9,937 | 31,659 | 41,596 |
| 55-64 | 66.61 % | 63.49 % | 64.62 % | 17,232 | 28,826 | 46,058 | 25,871 | 45,404 | 71,275 |
| 65-74 | 65.19 % | 66.95 % | 66.13 % | 22,549 | 26,673 | 49,222 | 34,590 | 39,842 | 74,432 |
| 75-84 | 66.14 % | 68.99 % | 67.84 % | 12,251 | 19,095 | 31,346 | 18,524 | 27,679 | 46,203 |
| 85+ | 67.08 % | 68.54 % | 68.01 % | 1,934 | 3,416 | 5,350 | 2,883 | 4,984 | 7,867 |
| **Total** | **66.68 %** | **66.89 %** | **66.82 %** | **63,332** | **109,638** | **172,970** | **94,979** | **163,897** | **258,876** |



## I. Pneumococcal vaccine among diabetes patients

Definition of the indicator:
Diabetes patients taking medication, aged 18 and older, who have received pneumococcal vaccines in the past six years.

Main Findings:

- According to HMO data, in 2007 the vaccine was given to 24.8% of insured individuals aged 18 and older, for a total of 69,171 insured individuals. In 2007 the rate of the indicator increased by approximately 7.6% over 2006 (Figure 63).
- The vaccination rate peaked for the ages of 65-74 (42.5%) (Figure 63). This indicator is not reported in the US NCQA.
- The rate of vaccination among men is 24.3% and 25.2% among women (Figure 64).
- Insured individuals exempt from NII payments were vaccinated less than the other insured individuals – in 2007, the rate of vaccination in this group was 28.2% compared to 22.9% among individuals not exempt from NII payments (Figure 65).

Figure 63: Rate of diabetes patients by medication who received pneumococcal vaccine (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 18-24 | 2.14 % | 2.37 % | 2.63 % | 30 | 36 | 40 | 1,402 | 1,522 | 1,523 |
| 25-34 | 3.07 % | 3.07 % | 3.24 % | 121 | 129 | 139 | 3,942 | 4,197 | 4,284 |
| 35-44 | 3.63 % | 3.65 % | 4.35 % | 442 | 478 | 599 | 12,169 | 13,105 | 13,782 |
| 45-54 | 5.44 % | 5.28 % | 6.03 % | 2,193 | 2,277 | 2,710 | 40,331 | 43,131 | 44,907 |
| 55-64 | 10.68 % | 10.53 % | 12.51 % | 6,644 | 7,327 | 9,569 | 62,199 | 69,554 | 76,519 |
| 65-74 | 26.96 % | 27.42 % | 42.56 % | 18,613 | 20,164 | 33,047 | 69,032 | 73,533 | 77,649 |
| 75-84 | 28.26 % | 26.30 % | 39.11 % | 12,083 | 12,308 | 19,663 | 42,753 | 46,806 | 50,278 |
| 85+ | 26.08 % | 24.06 % | 35.04 % | 1,947 | 2,071 | 3,404 | 7,465 | 8,607 | 9,715 |
| **Total** | **17.58 %** | **17.20 %** | **24.82 %** | **42,073** | **44,790** | **69,171** | **239,293** | **260,455** | **278,657** |

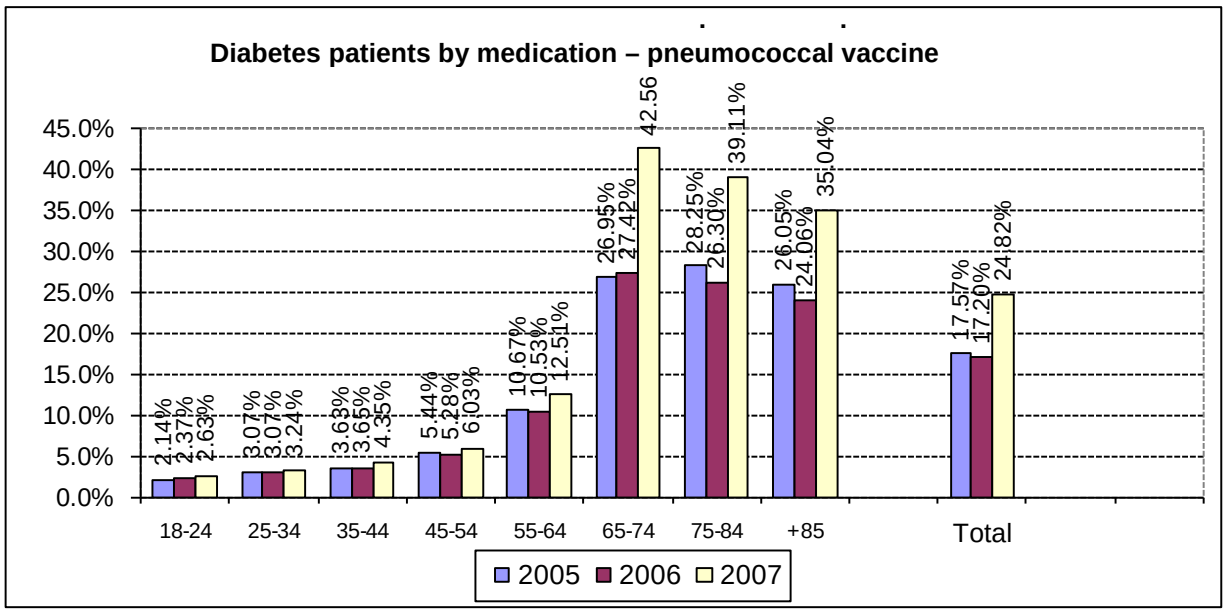



Figure 64: Rate of diabetes patients by medication with pneumococcal vaccine, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 18-24 | 3.24 % | 2.05 % | 2.63 % | 24 | 16 | 40 | 741 | 782 | 1,523 |
| 25-34 | 3.59 % | 2.89 % | 3.24 % | 78 | 61 | 139 | 2,171 | 2,113 | 4,284 |
| 35-44 | 4.41 % | 4.27 % | 4.35 % | 346 | 253 | 599 | 7,851 | 5,931 | 13,782 |
| 45-54 | 6.04 % | 6.03 % | 6.03 % | 1,487 | 1,223 | 2,710 | 24,623 | 20,284 | 44,907 |
| 55-64 | 12.16 % | 12.88 % | 12.51 % | 4,877 | 4,692 | 9,569 | 40,098 | 36,421 | 76,519 |
| 65-74 | 44.45 % | 40.92 % | 42.56 % | 16,026 | 17,021 | 33,047 | 36,050 | 41,599 | 77,649 |
| 75-84 | 42.43 % | 36.77 % | 39.11 % | 8,810 | 10,853 | 19,663 | 20,762 | 29,516 | 50,278 |
| 85+ | 39.00 % | 32.28 % | 35.04 % | 1,556 | 1,848 | 3,404 | 3,990 | 5,725 | 9,715 |
| **Total** | **24.36 %** | **25.26 %** | **24.82 %** | **33,204** | **35,967** | **69,171** | **136,286** | **142,371** | **278,657** |

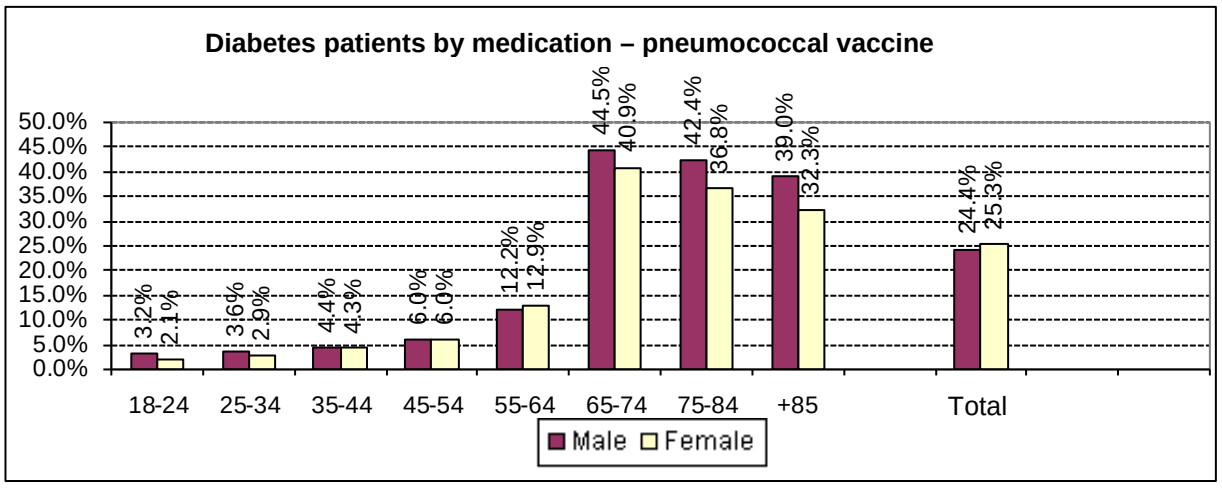
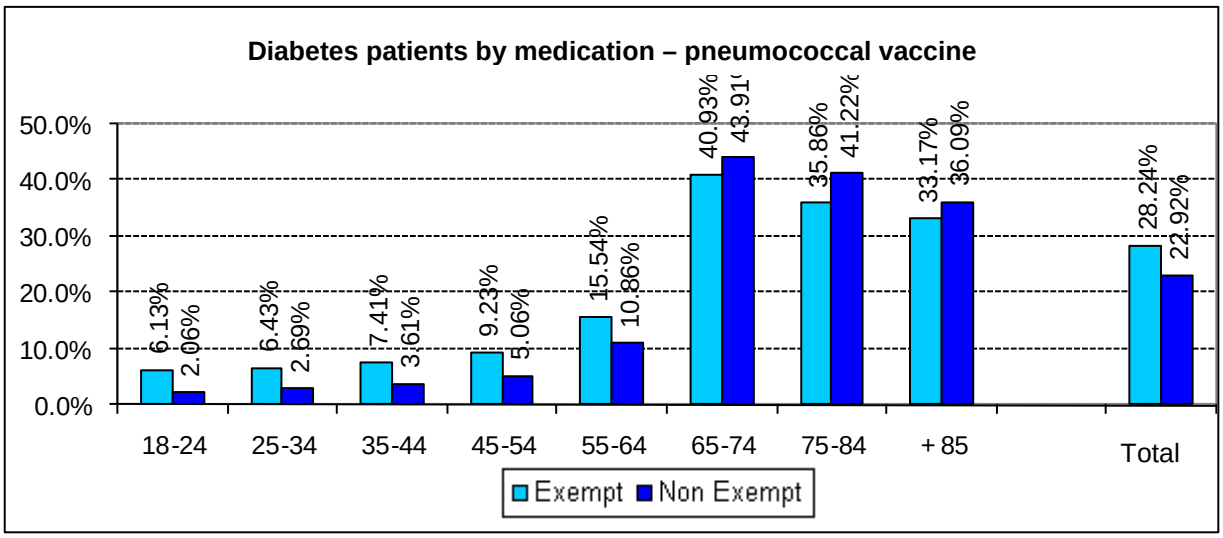


Figure 65: Rate of diabetes patients by medication with pneumococcal vaccine, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 18-24 | 6.13 % | 2.06 % | 2.63 % | 13 | 27 | 40 | 212 | 1,311 | 1,523 |
| 25-34 | 6.43 % | 2.69 % | 3.24 % | 41 | 98 | 139 | 638 | 3,646 | 4,284 |
| 35-44 | 7.41 % | 3.61 % | 4.35 % | 198 | 401 | 599 | 2,672 | 11,110 | 13,782 |
| 45-54 | 9.23 % | 5.06 % | 6.03 % | 969 | 1,741 | 2,710 | 10,493 | 34,414 | 44,907 |
| 55-64 | 15.54 % | 10.86 % | 12.51 % | 4,188 | 5,381 | 9,569 | 26,955 | 49,564 | 76,519 |
| 65-74 | 40.93 % | 43.91 % | 42.56 % | 14,436 | 18,611 | 33,047 | 35,266 | 42,383 | 77,649 |
| 75-84 | 35.86 % | 41.22 % | 39.11 % | 7,110 | 12,553 | 19,663 | 19,826 | 30,452 | 50,278 |
| 85+ | 33.17 % | 36.09 % | 35.04 % | 1,163 | 2,241 | 3,404 | 3,506 | 6,209 | 9,715 |
| **Total** | **28.24 %** | **22.92 %** | **24.82 %** | **28,118** | **41,053** | **69,171** | **99,568** | **179,089** | **278,657** |



# Children

## Measurement of BMI components among children

**Background**

Obesity in children and teenagers is an ever-growing problem in the west, both due to the health risks and the social problems that are exacerbated in the older age group. Coping with this issue at the individual and social level is contingent upon the abilities of the healthcare systems to assess the scope of the problem and offer intervention programs.

Ronen is 16 and will soon receive his first order to appear at the recruitment office. Ronen heard that they do not recruit young men who are overweight. He contacted his family doctor. His height and weight were measured, and together with the doctor he defined his target weight. The doctor referred Ronen to a dietician and recommended that he engage in physical activity. Ronen signed up at a gym, changed his diet, and has already lost 3 kg, and is on his way to losing another 5 kg…

Child obesity experts note risks such as a correlation with diabetes, asthma and high blood pressure, which in the past had been considered problems faced by adults. Additional problems related to obesity among children, both orthopedic and psychological include low self-esteem, poor self-image, depression and social isolation. Obese teenagers tend to smoke more, a combination with implications for sclerotic and pulmonary diseases.

Identification of teens who are overweight allows them to receive behavioral guidance and training, advice from a dietician and physical activity.

Therefore, the first step is to improve the ability to identify overweight children by using the BMI indicator, as is done for adults. BMI can be calculated for teenagers who are about 14 and is therefore included in the current set of indicators.

Definition of the indicator:

The population of insured individuals aged 14-18 with documentation of BMI components (weight and height documentation) over the past three years.

Main Findings:

- BMI documentation was only found for 41.19% of the population. Impressive improvement of approximately 26.2% [absolute] in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 66).
- BMI documentation was slightly better for teenage girls than for teenage boys, 43.5% compared to 38.5% (Figure 67).
- Individuals exempted from NII payments had slightly better BMI documentation than insured individuals who are not exempt, 57.1% compared to 39.6% (Figure 68).
- The level of BMI documentation is too low to enable the report to relate to the BMI value of the population. This indicator will be evaluated again next year.

Figure 66: Measurement of BMI components in children (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 14-15 | 10.73 % | 16.34 % | 24.97 % | 24,333 | 37,174 | 57,293 | 226,823 | 227,542 | 229,481 |
| 16-18 | 11.75 % | 18.47 % | 29.03 % | 31,616 | 50,003 | 79,217 | 268,999 | 270,665 | 272,914 |
| **Total** | **11.28 %** | **17.50 %** | **27.17 %** | **55,949** | **87,177** | **136,510** | **495,822** | **498,207** | **502,395** |

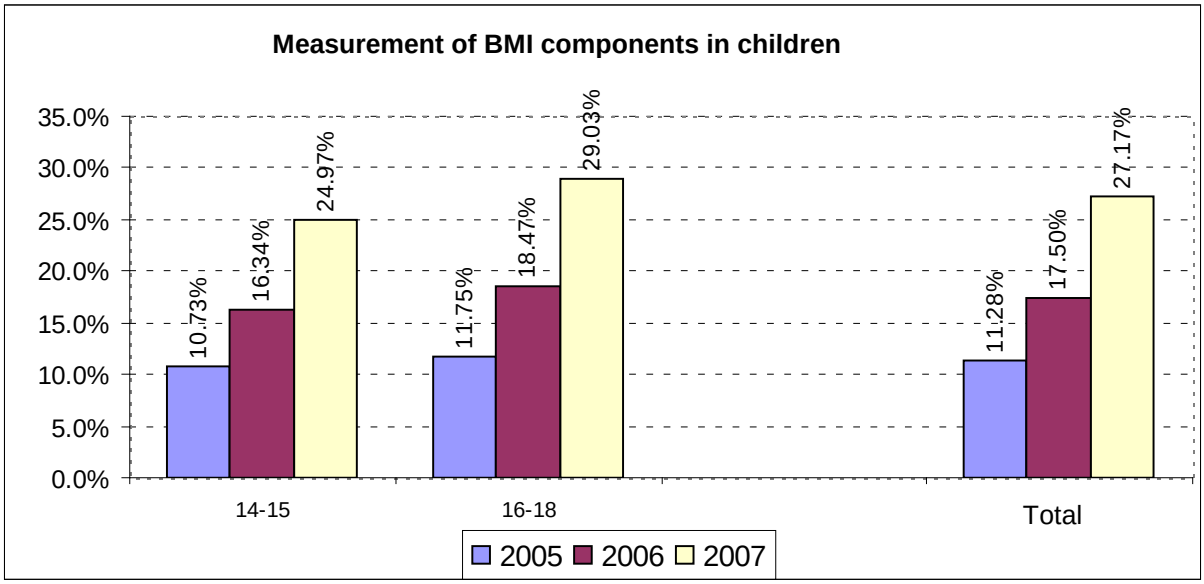


Figure 67: Measurement of BMI components in children, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 14-15 | 23.85 % | 26.13 % | 24.97 % | 28,011 | 29,282 | 57,293 | 117,428 | 112,053 | 229,481 |
| 16-18 | 27.53 % | 30.57 % | 29.03 % | 38,125 | 41,092 | 79,217 | 138,474 | 134,440 | 272,914 |
| **Total** | **25.84 %** | **28.55 %** | **27.17 %** | **66,136** | **70,374** | **136,510** | **255,902** | **246,493** | **502,395** |

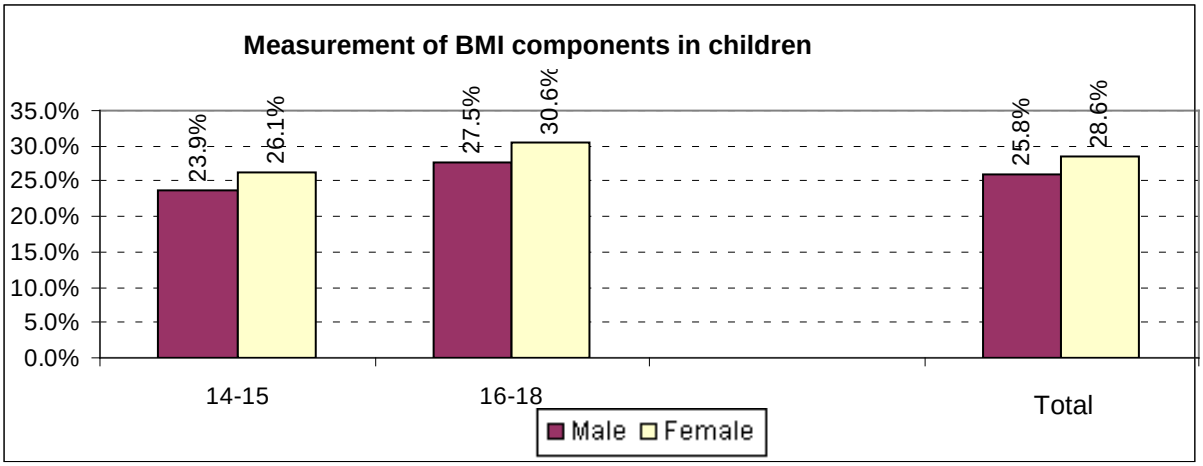
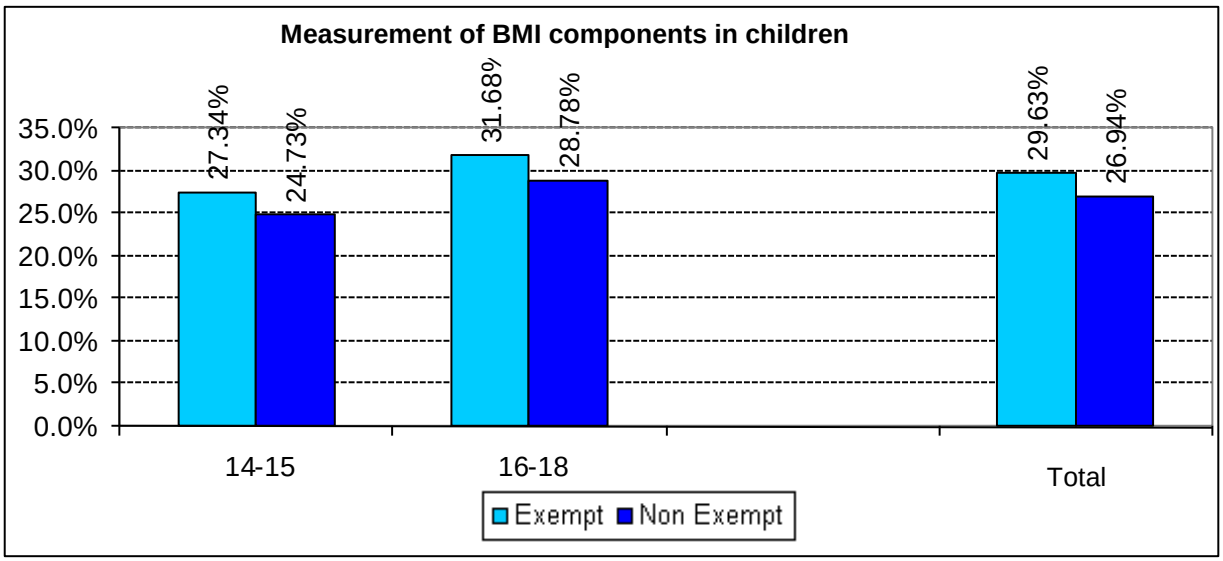



Figure 68: Measurement of BMI components in children, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 14-15 | 27.34 % | 24.73 % | 24.97 % | 5,691 | 51,602 | 57,293 | 20,819 | 208,662 | 229,481 |
| 16-18 | 31.68 % | 28.78 % | 29.03 % | 7,379 | 71,838 | 79,217 | 23,291 | 249,623 | 272,914 |
| **Total** | **29.63 %** | **26.94 %** | **27.17 %** | **13,070** | **123,440** | **136,510** | **44,110** | **458,285** | **502,395** |



# Measurement of hemoglobin values in babies

## Background

Identifying anemia in babies is important for proper child development, including cognitive development. One of the reasons for anemia in babies is iron deficiency, which is relatively easy to remedy.

The guideline for routine screening of babies for anemia is not one of the recommendations made by the U.S. Preventive Services Task Force, but is include among the recommendations of some of the professional pediatrics associations.

Definition of the indicator:

The insured population aged 9-18 months during the measurement year who have undergone at least one Hgb test during the period.

Main Findings:

Yaheli is a year old. His parents make sure he has games that promote his development and gets the vaccinations for his health. This week the pediatrician sent Yaheli for a blood test for iron deficiency. His parents didn't understand how a baby who eats well and is active could be anemic. The doctor explained that iron deficiency can even go back to when he was a fetus, and that it is simple to treat. The test showed that Yaheli was, in fact, slightly anemic. He was treated and three months later the test was normal.

- In 2007, at least one blood test for anemia was performed for 66.34% of the babies during the recommended period. This represents a significant increase over previous years (Figure 69).
- Performance of the test was the same for both baby girls and boys (Figure 70).
- Performance of the test was influenced by exemption from NII payment status (Figure 71).

Figure 69: Measurement of hemoglobin values in babies (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 6-8 months | 65.23 % | 68.10 % | 74.30 % | 21,490 | 22,749 | 25,352 | 32,943 | 33,405 | 34,119 |
| 9-11 months | 60.46 % | 61.33 % | 68.06 % | 20,700 | 20,936 | 23,810 | 34,236 | 34,137 | 34,983 |
| 12-14 months | 56.50 % | 57.46 % | 63.01 % | 20,710 | 21,374 | 23,017 | 36,657 | 37,201 | 36,532 |
| 15-17 months | 54.21 % | 56.92 % | 60.73 % | 20,274 | 20,832 | 22,562 | 37,399 | 36,599 | 37,151 |
| **Total** | **58.89 %** | **60.77 %** | **66.35 %** | **83,174** | **85,891** | **94,741** | **141,235** | **141,342** | **142,785** |

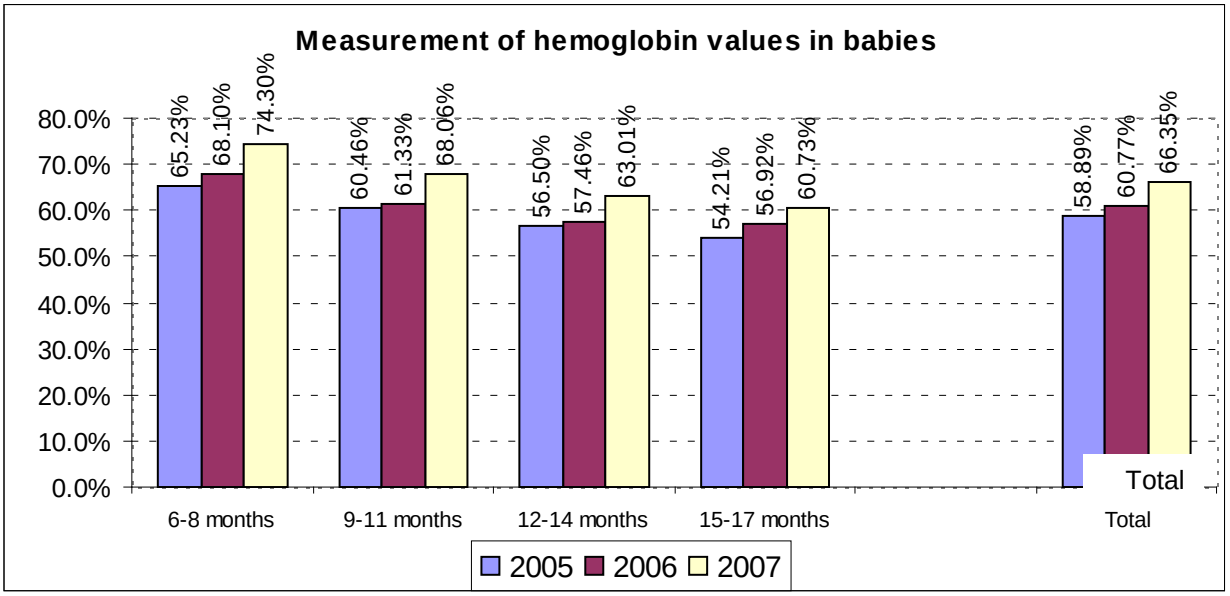



Figure 70: Measurement of hemoglobin values in babies, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 6-8 months | 74.62 % | 73.97 % | 74.30 % | 13,116 | 12,236 | 25,352 | 17,578 | 16,541 | 34,119 |
| 9-11 months | 68.72 % | 67.36 % | 68.06 % | 12,399 | 11,411 | 23,810 | 18,042 | 16,941 | 34,983 |
| 12-14 months | 62.66 % | 63.37 % | 63.01 % | 11,741 | 11,276 | 23,017 | 18,738 | 17,794 | 36,532 |
| 15-17 months | 60.59 % | 60.88 % | 60.73 % | 11,662 | 10,900 | 22,562 | 19,247 | 17,904 | 37,151 |
| **Total** | **66.46 %** | **66.24 %** | **66.35 %** | **48,918** | **45,823** | **94,741** | **73,605** | **69,180** | **142,785** |

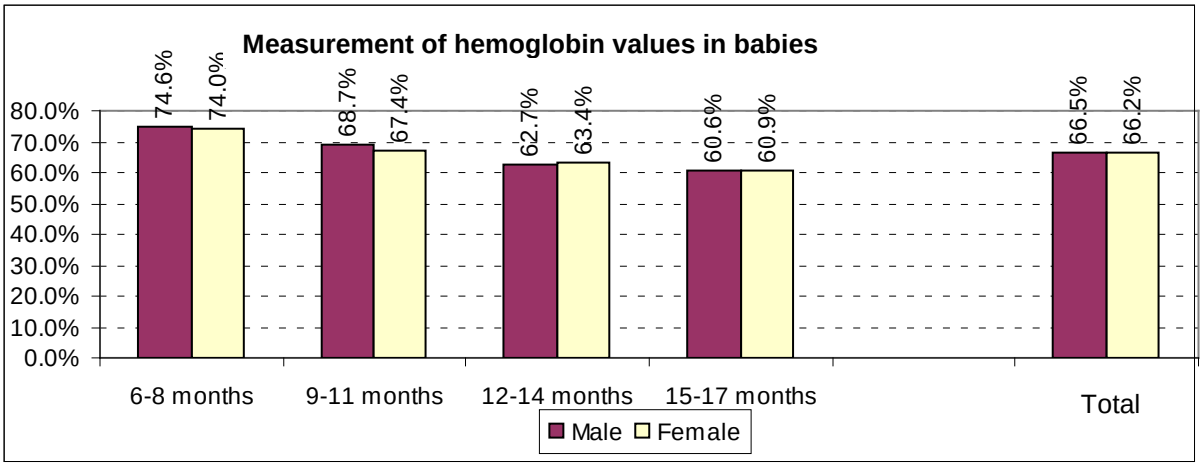
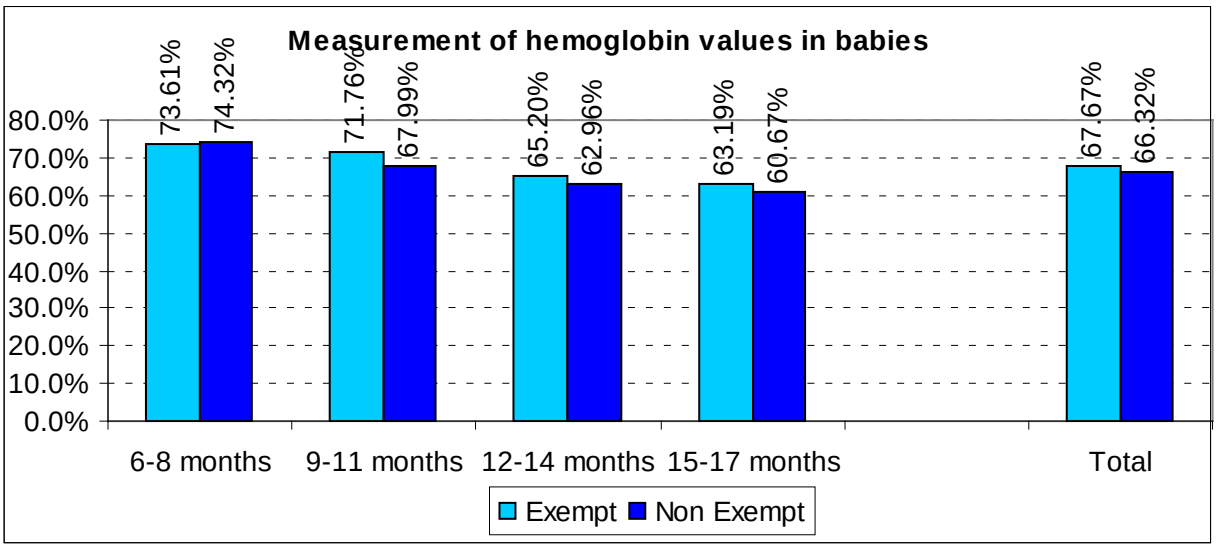



Figure 71: Measurement of hemoglobin values in babies, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 6-8 months | 73.61 % | 74.32 % | 74.30 % | 424 | 24,928 | 25,352 | 576 | 33,543 | 34,119 |
| 9-11 months | 71.76 % | 67.99 % | 68.06 % | 470 | 23,340 | 23,810 | 655 | 34,328 | 34,983 |
| 12-14 months | 65.20 % | 62.96 % | 63.01 % | 517 | 22,500 | 23,017 | 793 | 35,739 | 36,532 |
| 15-17 months | 63.19 % | 60.67 % | 60.73 % | 582 | 21,980 | 22,562 | 921 | 36,230 | 37,151 |
| **Total** | **67.67 %** | **66.32 %** | **66.35 %** | **1,993** | **92,748** | **94,741** | **2,945** | **139,840** | **142,785** |



# Prevention and treatment of cardiovascular disease

## Background

Diseases of the coronary blood vessels, those that supply the heart, are the most common form of heart disease. Coronary arteriosclerosis is characterized by the formation of plaques in the blood vessels, and one of the primary causes is high cholesterol levels. Heart attack, chest pains under stressful conditions and sudden death are three typical forms in which coronary heart disease manifests itself.

Heart disease is the leading cause of chronic morbidity and mortality in the West. The incidence of heart attack in Israel is approximately 470 per 100,000 a year among men and approximately 180 cases per 100,000 for women. Death resulting from heart attacks constitutes 40% of all deaths in the West.

Yona Blank, 51, is a respected manager at a well-known high-tech company. Yona adheres strictly to a daily schedule that includes a good diet and gym twice a week. She is concerned about her family background that includes her father suffering a heart attack at 50, and her younger brother's high blood fat levels. In a routine blood test, her family physician found a cholesterol level that concerned him. He recommended that she strictly follow her lifestyle and diet, and in addition prescribed treatment with statins. Yona breathed a sigh of relief when the follow-up blood test showed an impressive improvement.

The various types of treatment for coronary disease patients include drugs, therapeutic angiography and coronary bypass surgery. The aim of these types of treatment is to improve the supply of blood to the heart muscles and thus assure its vital function.

Reducing cholesterol to target levels is important both to prevent the progression of sclerosis in known cardiac patients (secondary prevention) and to reduce the risk of developing heart disease among people with risk factors for cardiovascular disease (primary prevention).

The treatment for high cholesterol levels includes a change in lifestyle as well as medication. Statins are a major group of drugs used for treatment of high cholesterol levels. Proper treatment is important for the following reasons:

- Lowering cholesterol levels can prevent heart attacks, reduce the severity of heart disease and decrease the need for invasive intervention.

- An overall reduction of 10% in cholesterol level can lead to a 30% reduction in heart disease.
- It is estimated that the benefit from an overall reduction of 25% in cholesterol and LDL level in 35% of 1,000 patients is:
    - Saving the lives of 40 out of 90 people who would otherwise die of heart attack.
    - Prevention of 70 of 240 non-fatal heart attacks.
    - Prevention of 60 of 210 anticipated coronary bypass operations.

## Primary prevention of cardiovascular disease

A high blood cholesterol level is one of the important risk factors for the occurrence and increasing severity of atherosclerosis in the general population. Over one quarter of the adult population has cholesterol levels that require monitoring and treatment. International guidelines have set an LDL cholesterol target level of less than 130 mg/dl as desirable for the general population, in people without known sclerosis [7].

The indicators for primary prevention of cardiovascular disease are presented in two groups: Group 1 – the portion of the general population that has been tested for detection or monitoring of the level of LDL cholesterol in their blood ("bad" cholesterol); Group 2 – the portion of insured individuals in the general population whose most recent test for LDL cholesterol showed a value below the target level of 130 mg/dl.

The following findings are based on data of the HMOs and are presented for the entire population of insured individuals at risk for developing cardiovascular disease, by age group (35-44, 45-54, 55-64, 65-74) and socioeconomic status (exempt/not exempt from NII payments).

Limitations of the indicator: The selected indicators present a relatively restricted view of the clinical conditions that can be affected by the health system in its efforts to reduce morbidity and mortality from cardiovascular disease. We chose to report on those indicators whose completeness is relatively high. In the future, we hope to expand the plan to include evaluation of indicators for primary prevention of cardiovascular disease. This indicator portrays the way the system copes with the main risk factors for coronary heart disease, such as smoking and high blood pressure, as well as the general risk for development of cardiovascular disease among middle aged adults and the elderly. This year we examined the *documentation level* for some of these variables in the hope that the improvement derived from a

repeat measurement will enable us to report to the public on all primary prevention indicators within a few years. The documentation indicators are not reported in this publication, but have been reported to the HMOs and in the future will be reported on the national level as well.

## A. Cholesterol testing for the general population

### A.1 Performance of cholesterol testing for the general population – young adults

Definition of the indicator:

The percentage of insured individuals, men and women, in the 35-54 age group, who had at least one LDL cholesterol test in the past five years. The target population for this indicator includes 1,498,856 subjects.

Limitations of the indicator: This indicator is affected by the completeness of the documentation in the computer file used by the family doctor. The indicator ignores the fact that some of the insured individuals in the target population already suffer from atherosclerosis and are supposed to have their cholesterol level tested as part of the secondary prevention regimen. However, in this young age group, the prevalence of cardiovascular disease is relatively low.

Main Findings:

- In 2007, 1,179,983 people underwent tests for LDL cholesterol level, as defined by the indicator, meaning 78.1%. The percentage increased with age, from 72.2% of the 35-44 age group to 84.5% of the 45-54 age group (Figure 72). These values show continued improvement in performance of the indicator.
- Women were tested than men – 83.5% compared to 72.4%, respectively (Figure 73).
- A significant difference was found in performance of the test, in favor of individuals exempt from NII payments in the group examined: 85.3% compared to 77.5% for the rest of the population (Figure 74).

Figure 72: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, by age and year of reporting (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 64.41 % | 68.37 % | 72.26 % | 481,802 | 522,692 | 566,540 | 747,981 | 764,496 | 784,027 |
| 45-54 | 79.41 % | 82.04 % | 84.56 % | 565,396 | 592,849 | 613,443 | 711,997 | 722,667 | 725,433 |
| **Total** | **71.73 %** | **75.01 %** | **78.17 %** | **1,047,198** | **1,115,541** | **1,179,983** | **1,459,978** | **1,487,163** | **1,509,460** |

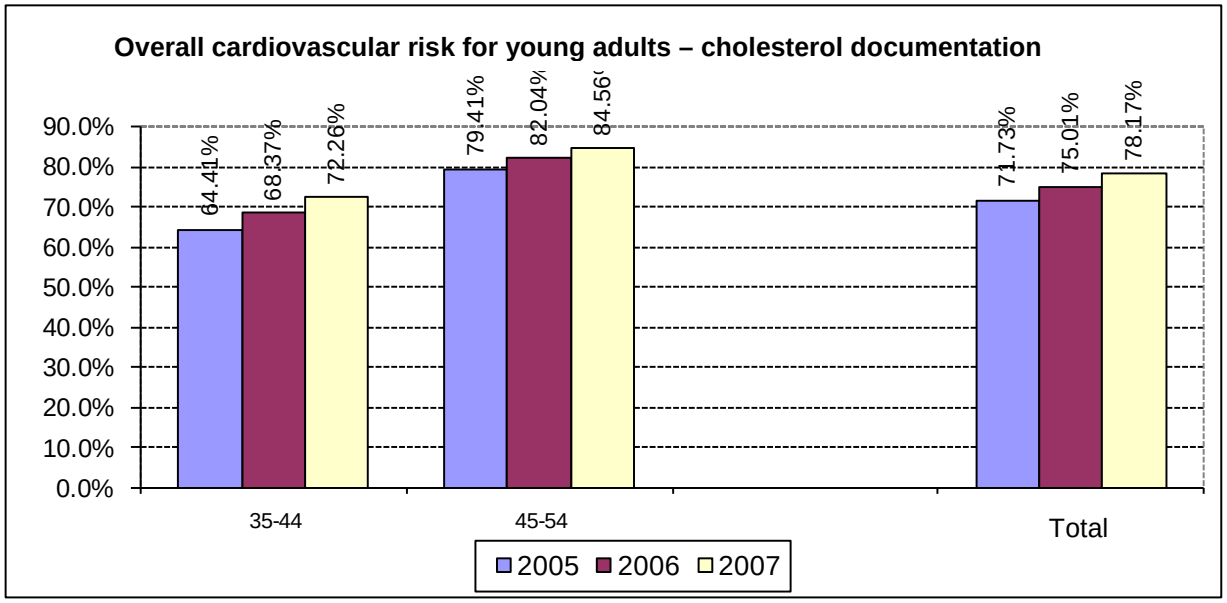



Figure 73: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 65.70 % | 78.41 % | 72.26 % | 249,136 | 317,404 | 566,540 | 379,216 | 404,811 | 784,027 |
| 45-54 | 79.76 % | 88.99 % | 84.56 % | 277,628 | 335,815 | 613,443 | 348,080 | 377,353 | 725,433 |
| **Total** | **72.43 %** | **83.51 %** | **78.17 %** | **526,764** | **653,219** | **1,179,983** | **727,296** | **782,164** | **1,509,460** |

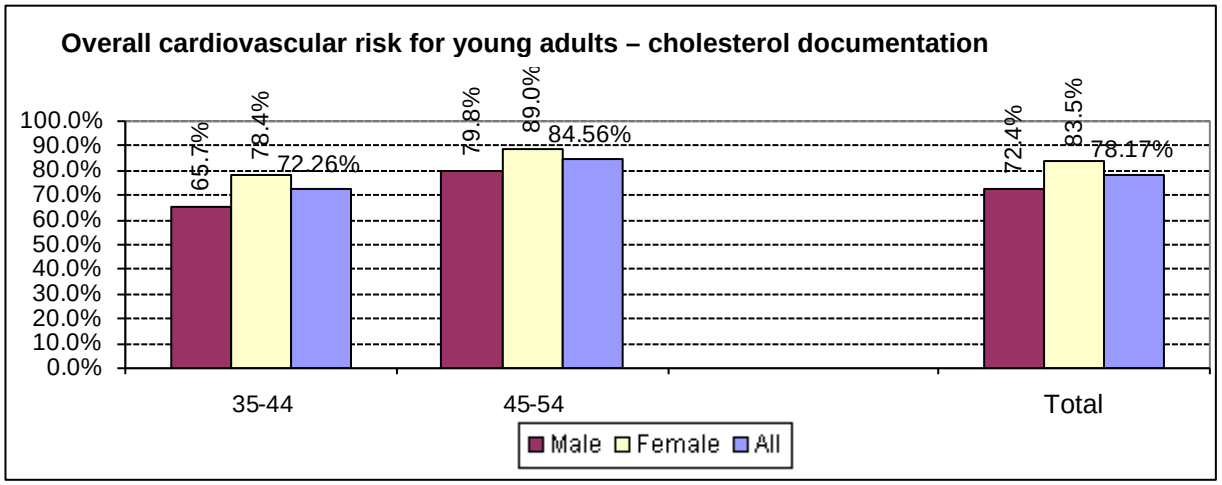
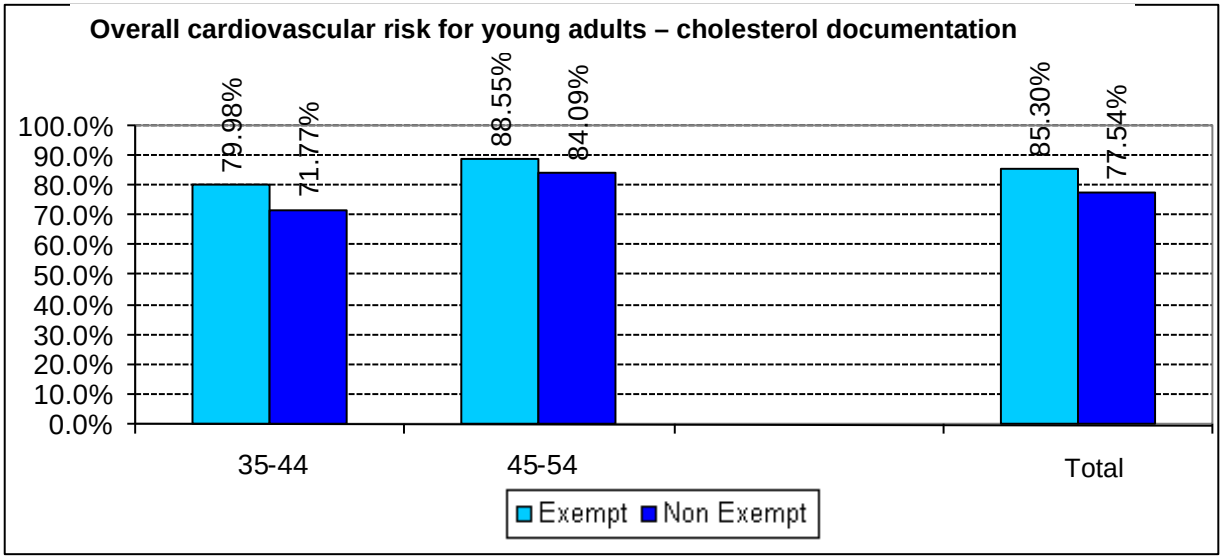


Figure 74: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 79.98 % | 71.77 % | 72.26 % | 37,450 | 529,090 | 566,540 | 46,825 | 737,202 | 784,027 |
| 45-54 | 88.55 % | 84.09 % | 84.56 % | 67,875 | 545,568 | 613,443 | 76,650 | 648,783 | 725,433 |
| **Total** | **85.30 %** | **77.54 %** | **78.17 %** | **105,325** | **1,074,658** | **1,179,983** | **123,475** | **1,385,985** | **1,509,460** |




## A.2 Performance of cholesterol testing for the general population – older adults

Definition of the indicator:

The percentage of insured individuals, men and women, in the 55-74 age group, who had at least one LDL cholesterol test in the past year. The target population for this indicator includes 961,381 subjects.

Limitations of the indicator: The indicator is affected by the completeness of the documentation in the computer file used by the family doctor. Furthermore, this indicator ignores the fact that some of the insured individuals in the target population already suffer atherosclerosis. This limitation is marginal in this age group, as the indicator requires a test to be performed at least once a year, a requirement that is the same for both primary and secondary prevention.

Main Findings:

- In 2007, 731,986 people underwent tests for LDL cholesterol level in the relevant age group, meaning 76.1%. The percentage increased with age, from 71.8% of the 55-64 age group to 82.7% of the 65-74 age group (Figure 75).
- Women were tested than men, 79.1% compared to 72.7%, respectively (Figure 76).
- A difference was found in the number of tests performed, in favor of individuals exempt from NII payments, 79.9% compared to 74.6% for the rest of the population (Figure 77).

Figure 75: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test 2007, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 55-64 | 64.61 % | 68.16 % | 71.88 % | 337,867 | 376,758 | 419,561 | 522,930 | 552,735 | 583,714 |
| 65-74 | 75.05 % | 78.77 % | 82.72 % | 278,280 | 294,903 | 312,425 | 370,780 | 374,363 | 377,667 |
| **Total** | **68.94 %** | **72.45 %** | **76.14 %** | **616,147** | **671,661** | **731,986** | **893,710** | **927,098** | **961,381** |

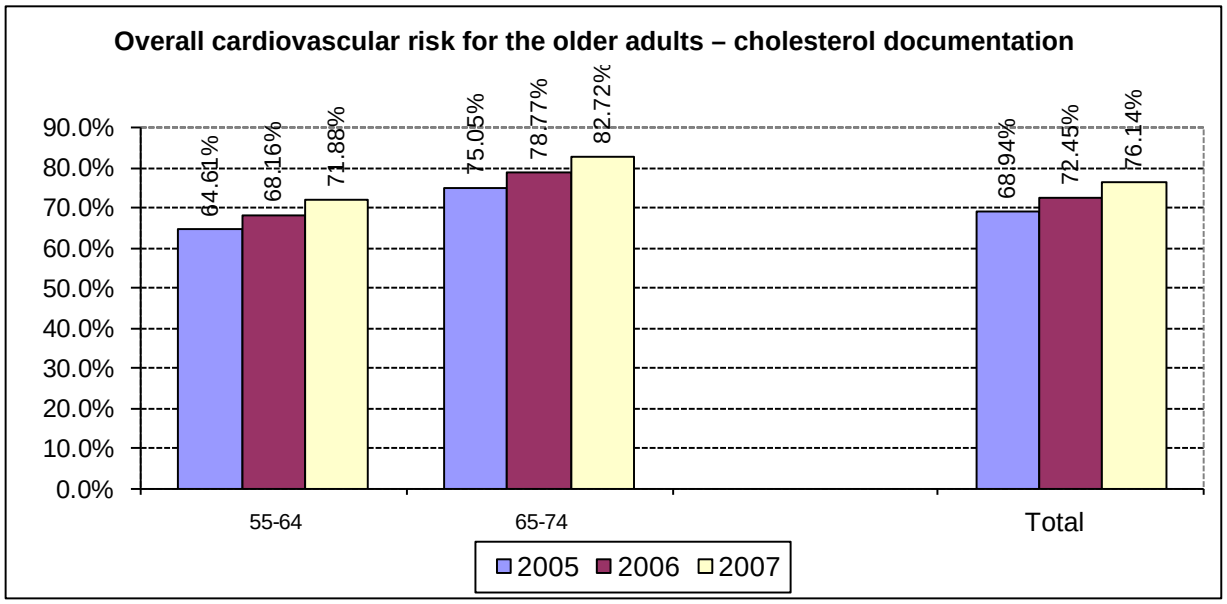


Figure 76: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 55-64 | 67.92 % | 75.48 % | 71.88 % | 189,156 | 230,405 | 419,561 | 278,480 | 305,234 | 583,714 |
| 65-74 | 80.67 % | 84.41 % | 82.72 % | 137,184 | 175,241 | 312,425 | 170,059 | 207,608 | 377,667 |
| **Total** | **72.76 %** | **79.10 %** | **76.14 %** | **326,340** | **405,646** | **731,986** | **448,539** | **512,842** | **961,381** |

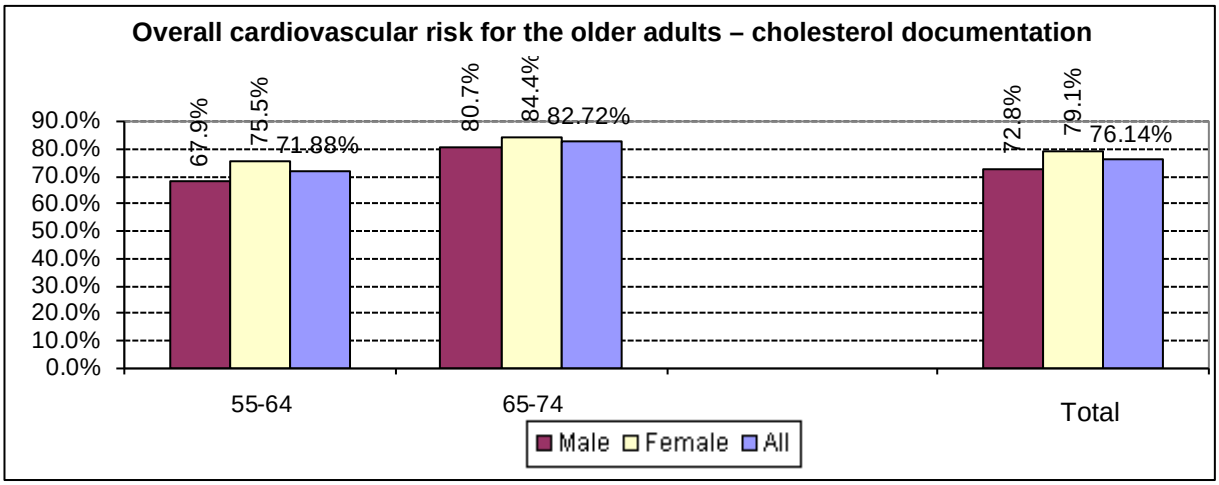
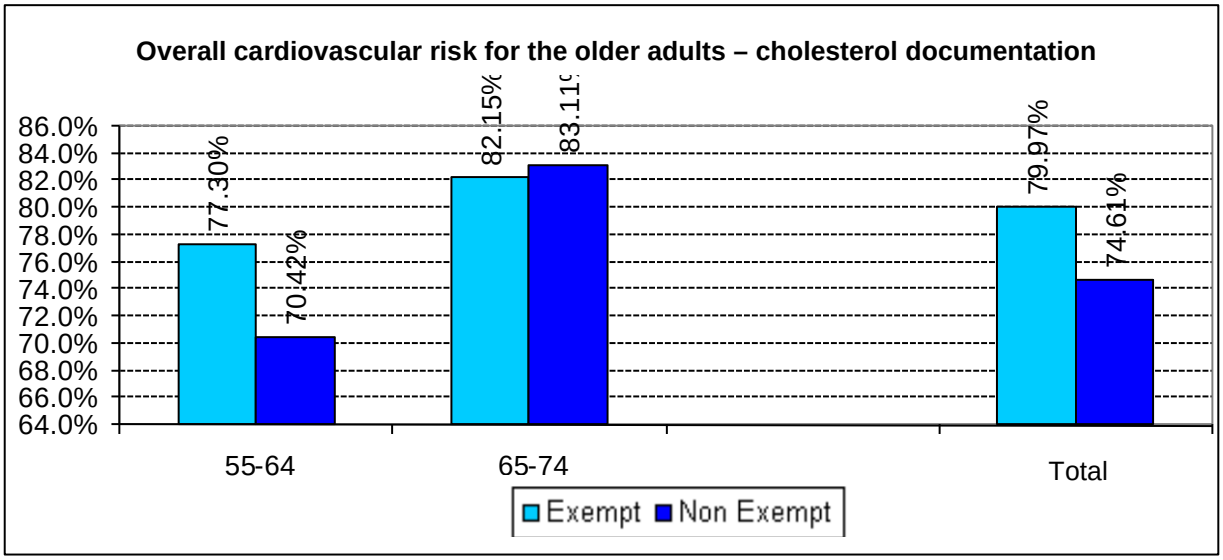



Figure 77: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 55-64 | 77.30 % | 70.42 % | 71.88 % | 95,534 | 324,027 | 419,561 | 123,589 | 460,125 | 583,714 |
| 65-74 | 82.15 % | 83.11 % | 82.72 % | 123,968 | 188,457 | 312,425 | 150,905 | 226,762 | 377,667 |
| **Total** | **79.97 %** | **74.61 %** | **76.14 %** | **219,502** | **512,484** | **731,986** | **274,494** | **686,887** | **961,381** |




## B. Cholesterol control in the general population

### B.1 Percentage of the general population with cholesterol at target level – young adults

Definition of the indicator:

The percentage of insured men and women in the 35-54 age group whose most recent test for LDL cholesterol in the past five years showed a level below 130 mg/dl (the target value). The target population for this indicator includes 1,179,983 subjects.

Limitations of the indicator: The target level is stricter for patients with diabetes or a known atherosclerotic illness.

Main Findings:

- In 2007, 791,082 individuals met the target level, in other words 67.0%. The rate of control decreased with age, from 71.0% in the 35-44 age group to 63.3% of the 45-54 age group (Figure 78). This decrease was expected, as cholesterol levels increase with age.
- More women conformed to the control target than men, 69.99% compared to 63.39%, respectively (Figure 79). This biological difference partially explains the higher risk for development of atherosclerosis among younger men.
- The control target in these age groups, by exemption from NII payment status is 68.1% compared to 66.9% among the population without an exemption (Figure 80).

Figure 78: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 68.27 % | 69.62 % | 71.01 % | 328,943 | 363,892 | 402,310 | 481,802 | 522,692 | 566,540 |
| 45-54 | 58.85 % | 61.22 % | 63.38 % | 332,718 | 362,967 | 388,772 | 565,396 | 592,849 | 613,443 |
| **Total** | **63.18 %** | **65.16 %** | **67.04 %** | **661,661** | **726,859** | **791,082** | **1,047,198** | **1,115,541** | **1,179,983** |

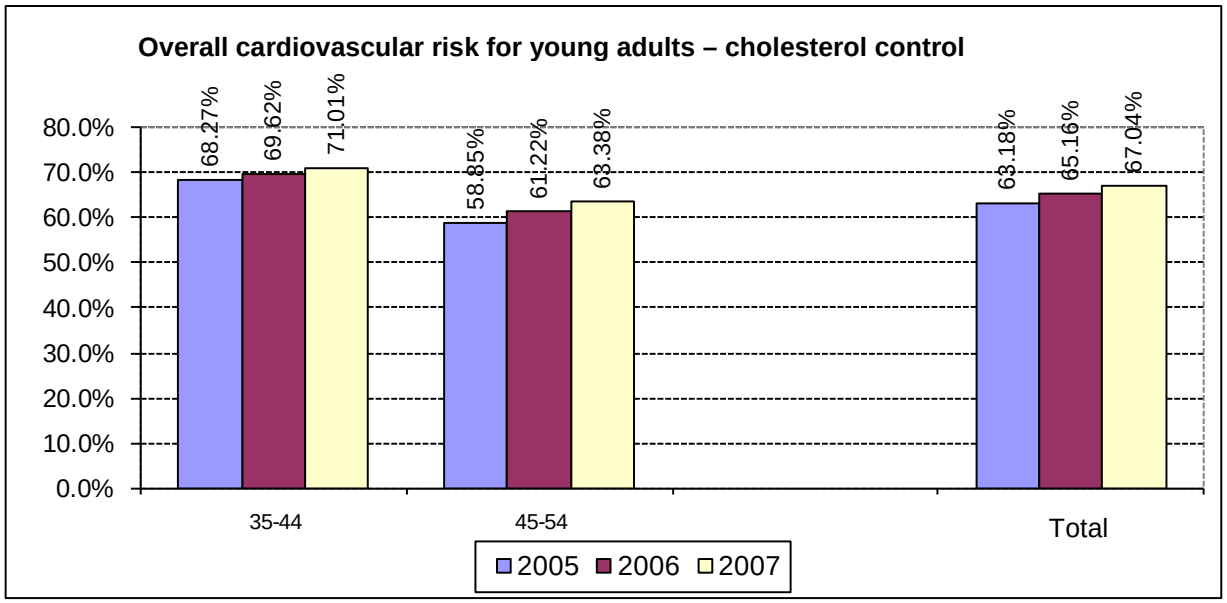



Figure 79: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 64.08 % | 76.45 % | 71.01 % | 159,651 | 242,659 | 402,310 | 249,136 | 317,404 | 566,540 |
| 45-54 | 62.77 % | 63.88 % | 63.38 % | 174,254 | 214,518 | 388,772 | 277,628 | 335,815 | 613,443 |
| **Total** | **63.39 %** | **69.99 %** | **67.04 %** | **333,905** | **457,177** | **791,082** | **526,764** | **653,219** | **1,179,983** |

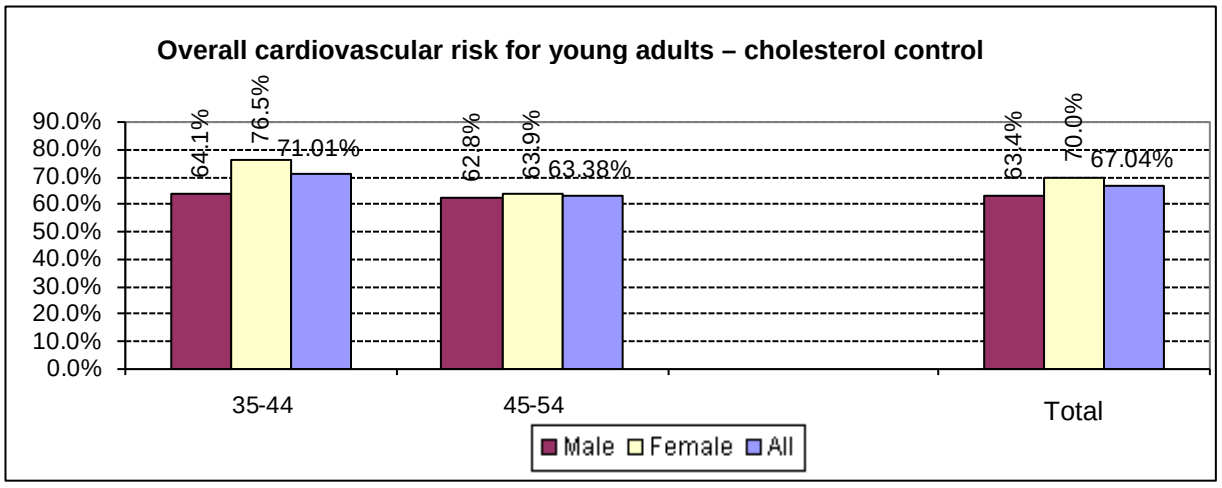
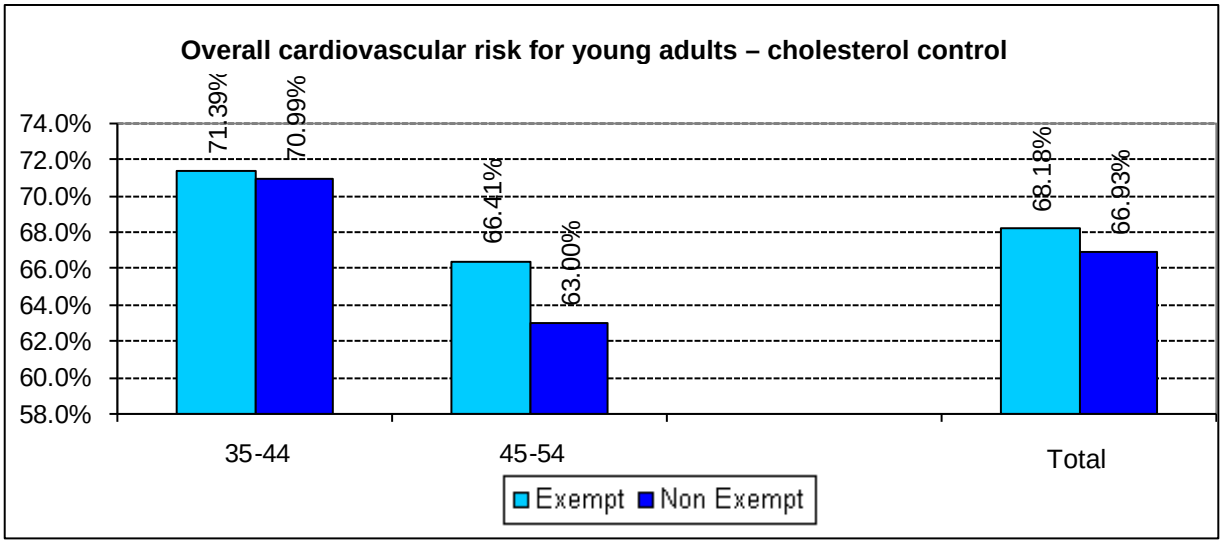


Figure 80: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 71.39 % | 70.99 % | 71.01 % | 26,735 | 375,575 | 402,310 | 37,450 | 529,090 | 566,540 |
| 45-54 | 66.41 % | 63.00 % | 63.38 % | 45,077 | 343,695 | 388,772 | 67,875 | 545,568 | 613,443 |
| **Total** | **68.18 %** | **66.93 %** | **67.04 %** | **71,812** | **719,270** | **791,082** | **105,325** | **1,074,658** | **1,179,983** |




## B.2 Percentage of the general population with cholesterol at target level – older adults

Definition of the indicator:

The percentage of insured men and women in the 55-74 age group, whose most recent test for LDL cholesterol in the measurement year showed a level below 130 mg/dl (the target value). The target population for this indicator includes 731,986 subjects.

Limitations of the indicator: The target level is stricter for patients in the group tested with diabetes or known atherosclerosis. The number of such patients in this age group, most of whom are being treated with statins, is significant.

Main Findings:

- In 2007, 526,446 individuals met the target level, that is 71.9%. The rate of control increased with age, from 68.2% in the 55-64 age group to 76.8% of the 65-74 age group (Figure 81). This increase is evidently attributable to treatment with statin

drugs, which increases with age, to reduce the blood cholesterol level. An annual 3% improvement was found for this indicator in the reporting period.

- More men met the target than women, 75.8% compared to 68.7%, respectively (Figure 82).
- 73.6% of individuals exempt from NII payments reached the target level compared to 71.2% of the remaining population (Figure 83).

Figure 81: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 55-64 | 60.74 % | 65.24 % | 68.24 % | 205,217 | 245,784 | 286,294 | 337,867 | 376,758 | 419,561 |
| 65-74 | 69.12 % | 73.52 % | 76.87 % | 192,335 | 216,804 | 240,152 | 278,280 | 294,903 | 312,425 |
| **Total** | **64.52 %** | **68.87 %** | **71.92 %** | **397,552** | **462,588** | **526,446** | **616,147** | **671,661** | **731,986** |

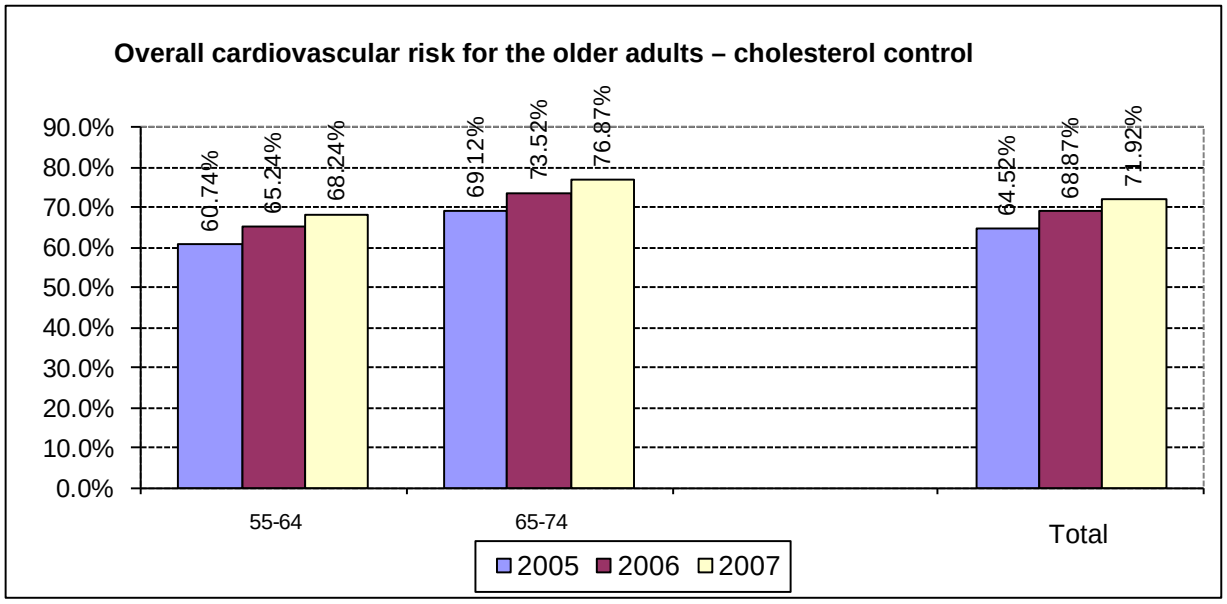



Figure 82: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 55-64 | 72.43 % | 64.79 % | 68.24 % | 137,008 | 149,286 | 286,294 | 189,156 | 230,405 | 419,561 |
| 65-74 | 80.50 % | 74.02 % | 76.87 % | 110,433 | 129,719 | 240,152 | 137,184 | 175,241 | 312,425 |
| **Total** | **75.82 %** | **68.78 %** | **71.92 %** | **247,441** | **279,005** | **526,446** | **326,340** | **405,646** | **731,986** |

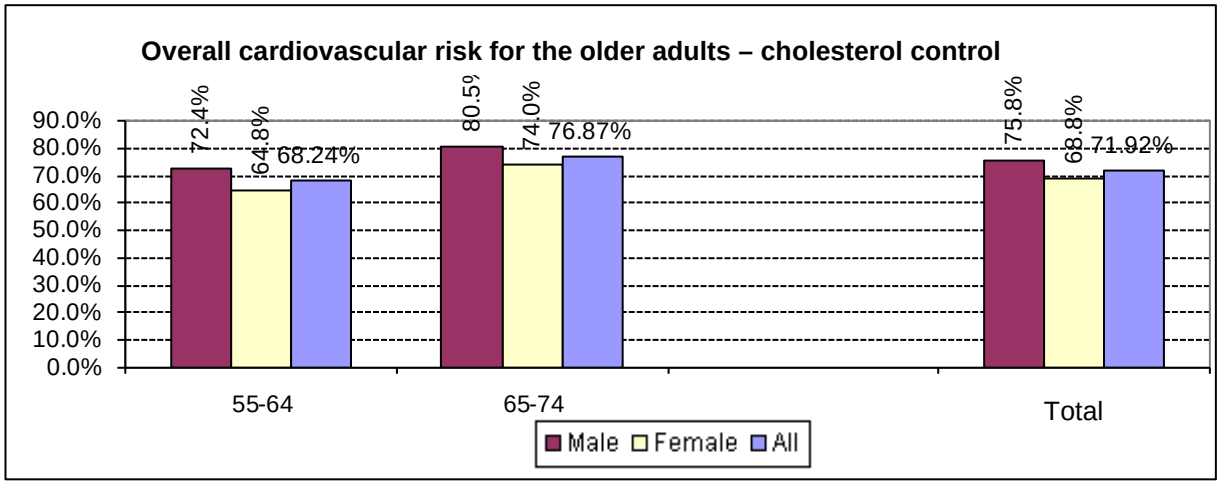
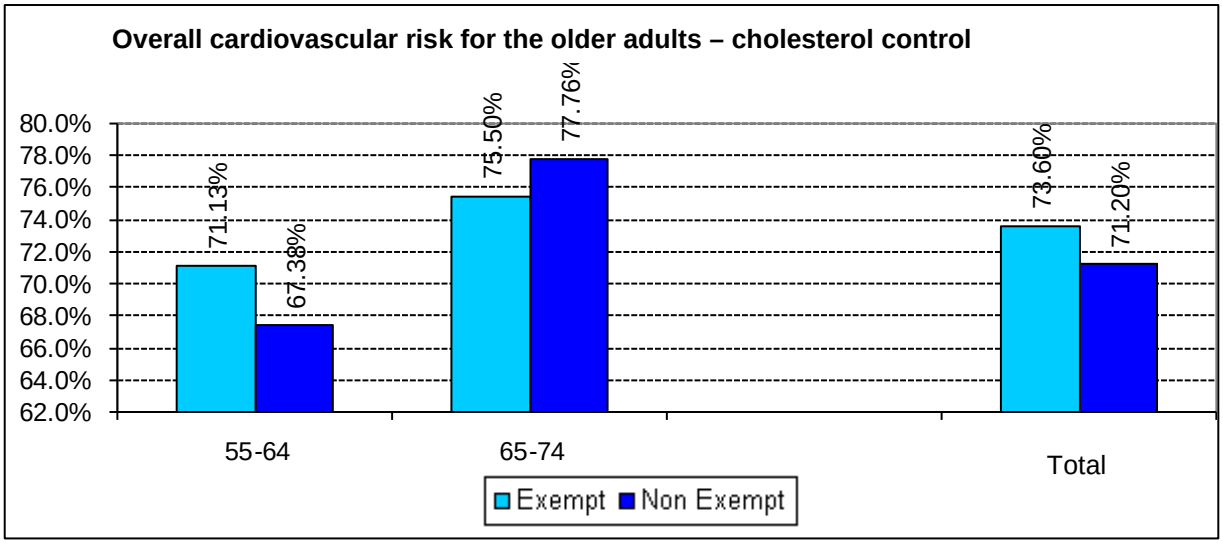



Figure 83: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 55-64 | 71.13 % | 67.38 % | 68.24 % | 67,949 | 218,345 | 286,294 | 95,534 | 324,027 | 419,561 |
| 65-74 | 75.50 % | 77.76 % | 76.87 % | 93,602 | 146,550 | 240,152 | 123,968 | 188,457 | 312,425 |
| **Total** | **73.60 %** | **71.20 %** | **71.92 %** | **161,551** | **364,895** | **526,446** | **219,502** | **512,484** | **731,986** |



## C. Obesity indicators

**Background**

Obesity is considered the latest epidemic to threaten the West. It is expected to increase morbidity and accelerate mortality [20], in addition to the tremendous economic burden it places on healthcare systems. Over one-third of the population of the US, UK and additional countries in the West are overweight [21, 22].

BMI is a measure of body fat based on weight and height, using the following formula: Weight in kilograms is divided by height [in meters] squared. Values of 19-25 kg/m are considered desirable. Values between 25 and 30 are considered overweight that poses a risk to people with abdominal obesity. Values of 30-35 are considered to be obesity that moderately increases the risk of cardiac morbidity, while for values over 35, the risk is significantly high. International guidelines include periodic BMI measurement for the population to assess the total risk for developing heart disease and metabolic diseases related to obesity.

### C.1 Documentation of weight for young adults

Definition of the indicator:

The percentage of insured individuals aged 20-54 whose weight was documented in their medical file in the last five years.

Main Findings:

- Documentation of weight was only found for 24.9% of the population, though an impressive improvement of approximately 15% [absolute] in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 84).
- Among women, weight documentation is slightly better than for men, 28.2% compared to 21.2% (Figure 85).
- Individuals exempted from NII payments had somewhat better BMI documentation that insured individuals who are not exempt, 33.2% compared to 24.3% (Figure 86).

Figure 84: Rate of insured individuals aged 20-54 who were weighed at least once in the past five years, by age and year of reporting (2005-2007)

| Age | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 | 2005 | 2006 | 2007 |
| 20-34 | 12.00 % | 20.41 % | 33.10 % | 134,804 | 233,439 | 382,469 | 1,123,176 | 1,143,711 | 1,155,642 |
| 35-44 | 14.63 % | 24.99 % | 39.15 % | 109,391 | 190,947 | 306,745 | 747,566 | 763,959 | 783,434 |
| 45-54 | 21.45 % | 34.19 % | 52.92 % | 152,713 | 246,991 | 383,720 | 711,809 | 722,389 | 725,115 |
| **Total** | **15.37 %** | **25.53 %** | **40.27 %** | **396,908** | **671,377** | **1,072,934** | **2,582,551** | **2,630,059** | **2,664,191** |

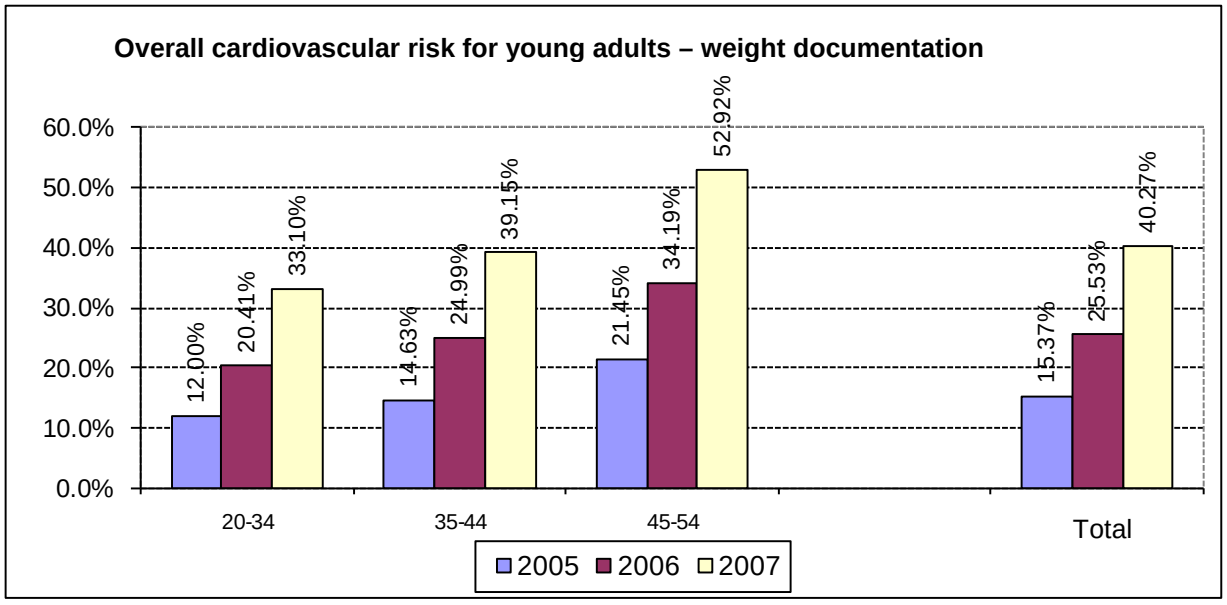



Figure 85: Rate of insured individuals aged 20-54 who were weighed at least once in the past five years, in 2007, by age and sex

| Age | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | All | Male | Female | All | Male | Female | All |
| 20-34 | 25.61 % | 39.49 % | 33.10 % | 136,378 | 246,091 | 382,469 | 532,485 | 623,157 | 1,155,642 |
| 35-44 | 35.33 % | 42.73 % | 39.15 % | 133,831 | 172,914 | 306,745 | 378,785 | 404,649 | 783,434 |
| 45-54 | 50.32 % | 55.31 % | 52.92 % | 175,028 | 208,692 | 383,720 | 347,830 | 377,285 | 725,115 |
| **Total** | **35.36 %** | **44.67 %** | **40.27 %** | **445,237** | **627,697** | **1,072,934** | **1,259,100** | **1,405,091** | **2,664,191** |

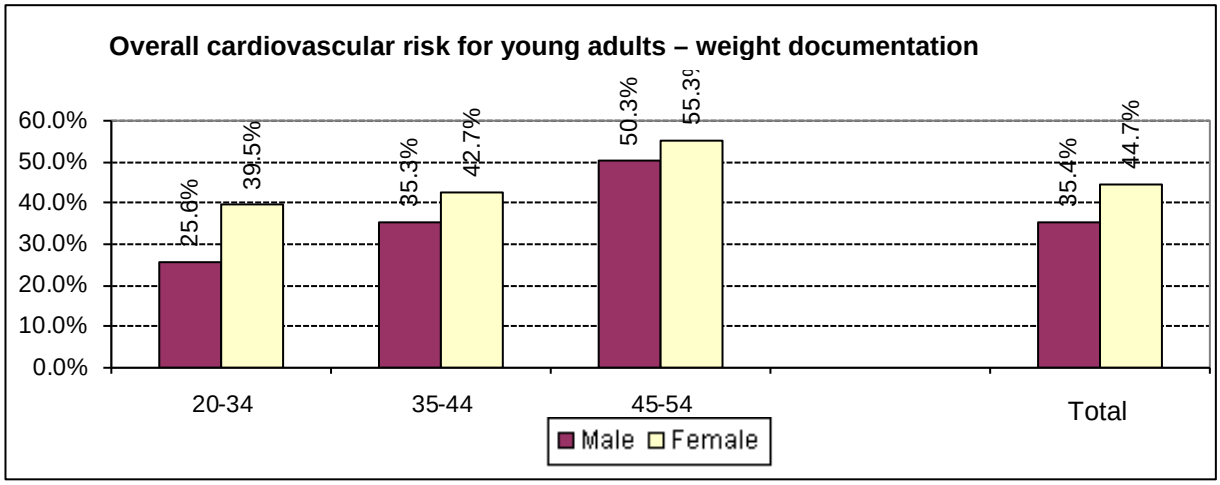
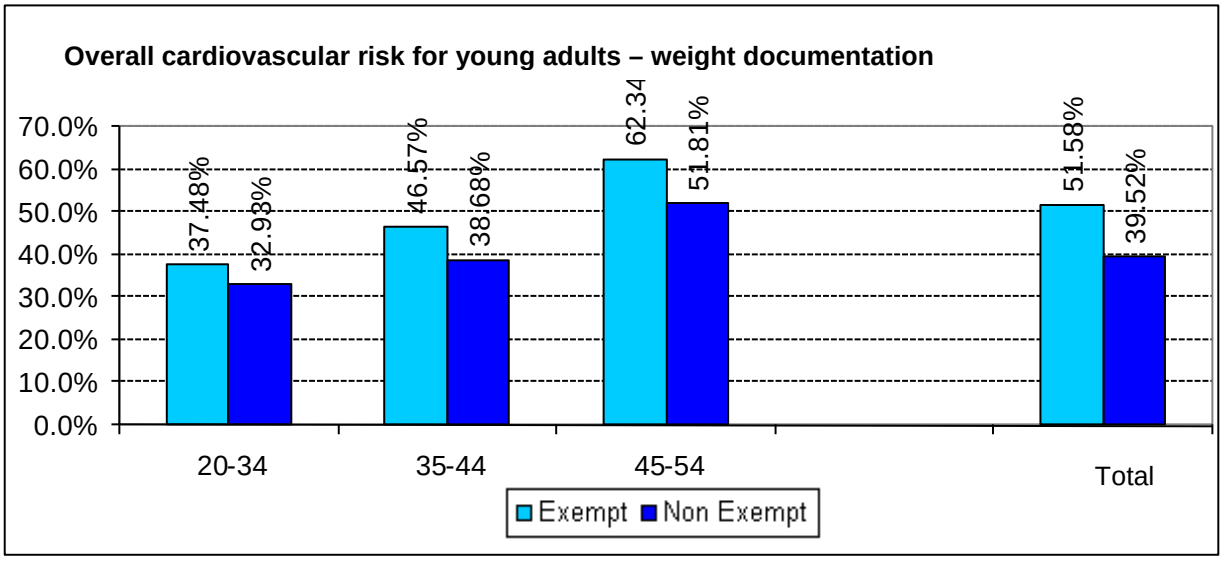



Figure 86: Rate of insured individuals aged 20-54 who were weighed at least once in the past five years, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 20-34 | 37.48 % | 32.93 % | 33.10 % | 15,679 | 366,790 | 382,469 | 41,837 | 1,113,805 | 1,155,642 |
| 35-44 | 46.57 % | 38.68 % | 39.15 % | 21,798 | 284,947 | 306,745 | 46,809 | 736,625 | 783,434 |
| 45-54 | 62.34 % | 51.81 % | 52.92 % | 47,772 | 335,948 | 383,720 | 76,631 | 648,484 | 725,115 |
| **Total** | **51.58 %** | **39.52 %** | **40.27 %** | **85,249** | **987,685** | **1,072,934** | **165,277** | **2,498,914** | **2,664,191** |




## C.2 Documentation of weight for the older adults

Definition of the indicator:

Percentage of insured individuals aged 55-74 whose weight was documented in their medical file in the last year.

Main Findings:

- Documentation of weight was only found for 54.6% of the population, though an impressive improvement in documentation of 20.5% [absolute] during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 87).
- Among women, weight documentation is slightly better than for men, 56.3% compared to 52.7% (Figure 88).
- Individuals exempt from NII payments had slightly better weight documentation than insured individuals who are not exempt, 59.0% compared to 52.8% (Figure 89).

Figure 87: Rate of insured individuals aged 55-74 who were weighed at least once in the past year, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 55-64 | 18.46 % | 30.95 % | 50.60 % | 96,509 | 171,085 | 295,342 | 522,930 | 552,735 | 583,714 |
| 65-74 | 23.11 % | 38.81 % | 60.87 % | 85,688 | 145,286 | 229,903 | 370,780 | 374,363 | 377,667 |
| **Total** | **20.39 %** | **34.12 %** | **54.63 %** | **182,197** | **316,371** | **525,245** | **893,710** | **927,098** | **961,381** |

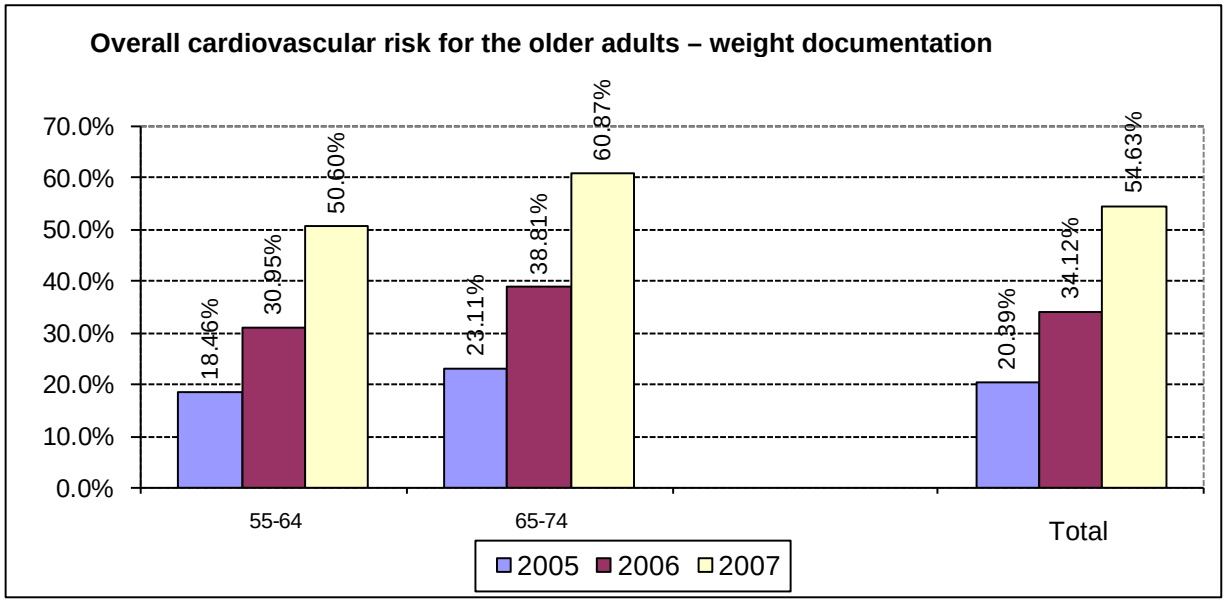


Figure 88: Rate of insured individuals aged 55-74 who were weighed at least once in the past year, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 55-64 | 48.57 % | 52.45 % | 50.60 % | 135,254 | 160,088 | 295,342 | 278,480 | 305,234 | 583,714 |
| 65-74 | 59.58 % | 61.93 % | 60.87 % | 101,323 | 128,580 | 229,903 | 170,059 | 207,608 | 377,667 |
| **Total** | **52.74 %** | **56.29 %** | **54.63 %** | **236,577** | **288,668** | **525,245** | **448,539** | **512,842** | **961,381** |

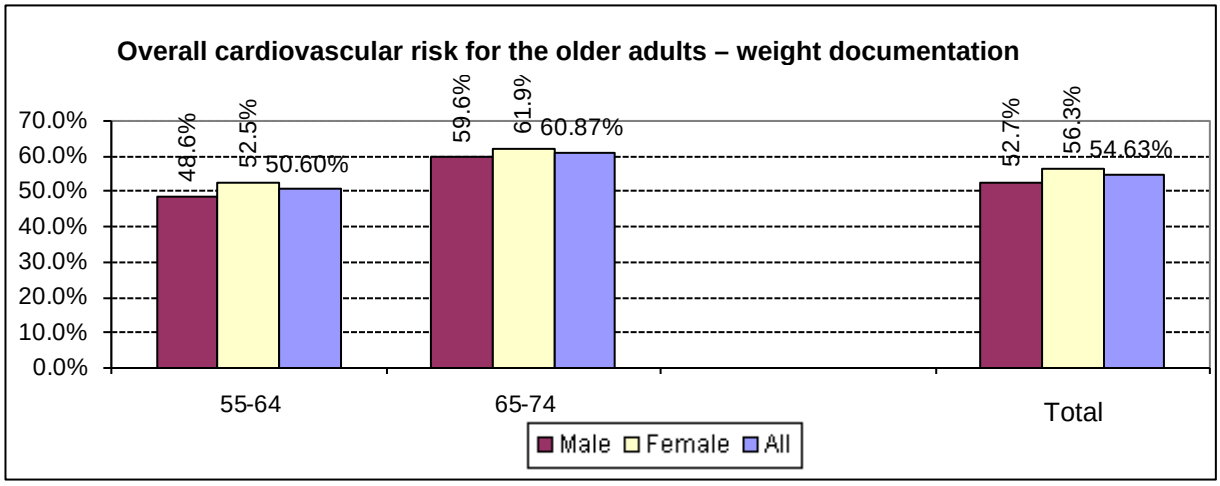
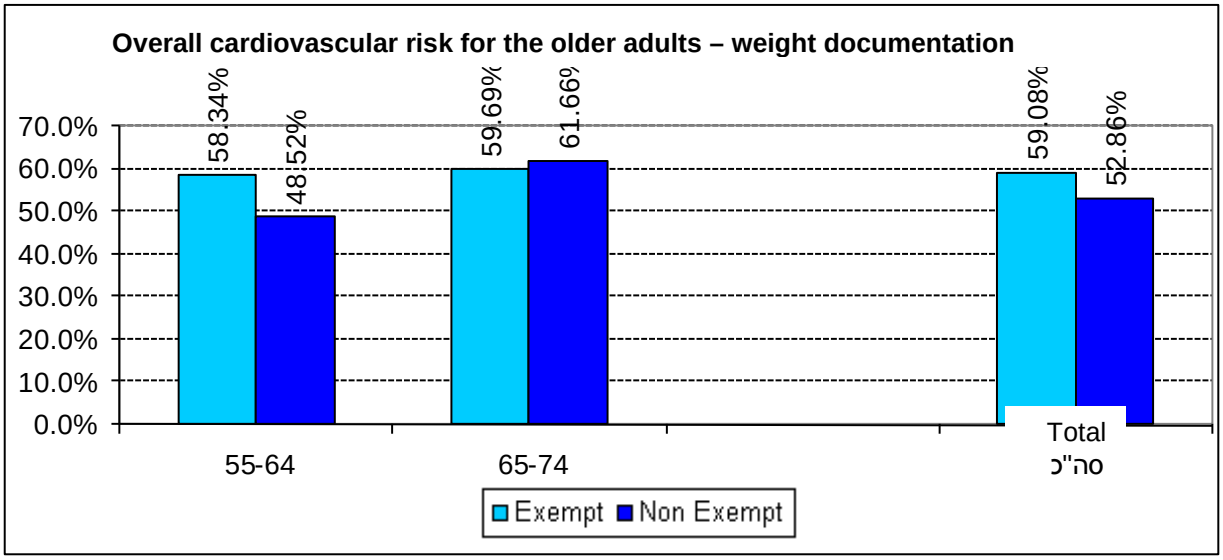



Figure 89: Rate of insured individuals aged 55-74 who were weighed at least once in the past year, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 55-64 | 58.34 % | 48.52 % | 50.60 % | 72,096 | 223,246 | 295,342 | 123,589 | 460,125 | 583,714 |
| 65-74 | 59.69 % | 61.66 % | 60.87 % | 90,079 | 139,824 | 229,903 | 150,905 | 226,762 | 377,667 |
| **Total** | **59.08 %** | **52.86 %** | **54.63 %** | **162,175** | **363,070** | **525,245** | **274,494** | **686,887** | **961,381** |


Overall cardiovascular risk for the older adults – weight documentation
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
58.34%
48.52%
59.69%
61.66%
59.08%
52.86%
55-64
65-74
Total
סה"כ
Exempt
Non Exempt

### C.3 Documentation of height for young adults

Definition of the indicator:

The percentage of insured individuals aged 20-54 whose height was documented in their medical file in the last five years.

Main Findings:

- Documentation of height was only found for 36.9% of the population, though an impressive improvement of approximately 23.9% [absolute] during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 90).
- Among women, height documentation was slightly better than for men, 39.4% compared to 34.1% (Figure 91).
- Individuals exempt from NII payments had better height documentation than insured individuals who are not exempt, 48.8% compared to 36.9% (Figure 92).

Figure 90: Rate of insured individuals aged 20-54, in 2007, whose height was checked at least once in the past five years, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 20-34 | 9.04 % | 16.49 % | 28.46 % | 101,485 | 188,582 | 328,894 | 1,123,176 | 1,143,711 | 1,155,642 |
| 35-44 | 12.73 % | 22.51 % | 36.28 % | 95,166 | 171,939 | 284,251 | 747,566 | 763,959 | 783,434 |
| 45-54 | 19.70 % | 32.39 % | 51.31 % | 140,223 | 233,953 | 372,069 | 711,809 | 722,389 | 725,115 |
| **Total** | **13.04 %** | **22.60 %** | **36.98 %** | **336,874** | **594,474** | **985,214** | **2,582,551** | **2,630,059** | **2,664,191** |

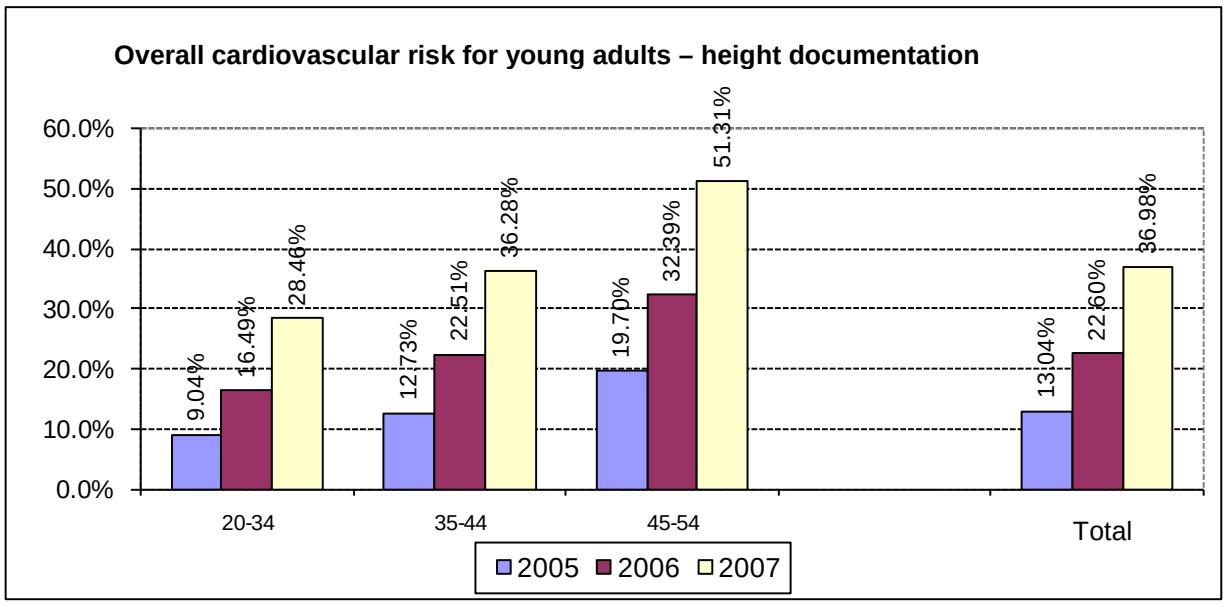


Figure 91: Rate of insured individuals aged 20-54, in 2007, who had their height checked least once in the past five years, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 20-34 | 24.59 % | 31.77 % | 28.46 % | 130,930 | 197,964 | 328,894 | 532,485 | 623,157 | 1,155,642 |
| 35-44 | 34.13 % | 38.30 % | 36.28 % | 129,288 | 154,963 | 284,251 | 378,785 | 404,649 | 783,434 |
| 45-54 | 48.90 % | 53.54 % | 51.31 % | 170,075 | 201,994 | 372,069 | 347,830 | 377,285 | 725,115 |
| **Total** | **34.17 %** | **39.49 %** | **36.98 %** | **430,293** | **554,921** | **985,214** | **1,259,100** | **1,405,091** | **2,664,191** |

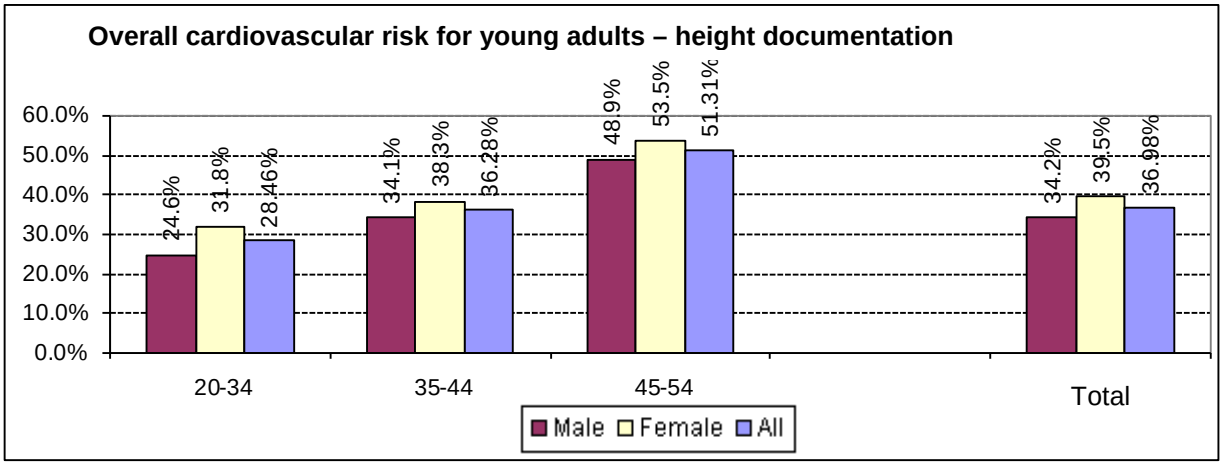
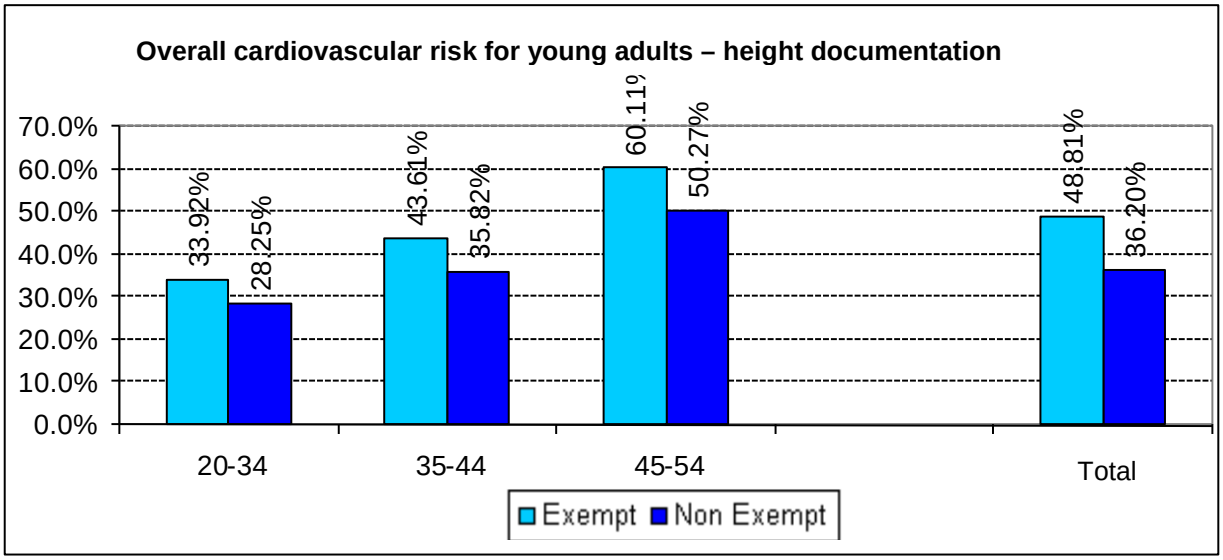



Figure 92: Rate of insured individuals aged 20-54, in 2007, who had their height checked least once in the past five years, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 20-34 | 33.92 % | 28.25 % | 28.46 % | 14,193 | 314,701 | 328,894 | 41,837 | 1,113,805 | 1,155,642 |
| 35-44 | 43.61 % | 35.82 % | 36.28 % | 20,413 | 263,838 | 284,251 | 46,809 | 736,625 | 783,434 |
| 45-54 | 60.11 % | 50.27 % | 51.31 % | 46,063 | 326,006 | 372,069 | 76,631 | 648,484 | 725,115 |
| **Total** | **48.81 %** | **36.20 %** | **36.98 %** | **80,669** | **904,545** | **985,214** | **165,277** | **2,498,914** | **2,664,191** |




## C.4 Documentation of height in the older adults

Definition of the indicator:

The percentage of insured individuals aged 55-74 whose height was documented in their medical file in the last five years.

Main Findings:

- Documentation of height was only found for 66.2% of the population, though an impressive improvement of approximately 22% [absolute] during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 93).
- Among women, height documentation was slightly better than for men, 67.9% compared to 64.2% (Figure 94).
- Individuals exempt from NII payments had slightly better height documentation than insured individuals who are not exempt, 69.8% compared to 64.8% (Figure 95).

Figure 93: Rate of insured individuals aged 55-74 whose height was checked at least once in the past five years, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 55-64 | 26.07 % | 41.07 % | 63.03 % | 130,583 | 218,611 | 355,339 | 500,969 | 532,251 | 563,723 |
| 65-74 | 30.94 % | 48.30 % | 71.16 % | 110,021 | 174,353 | 259,731 | 355,620 | 360,953 | 364,989 |
| **Total** | **28.09 %** | **43.99 %** | **66.23 %** | **240,604** | **392,964** | **615,070** | **856,589** | **893,204** | **928,712** |

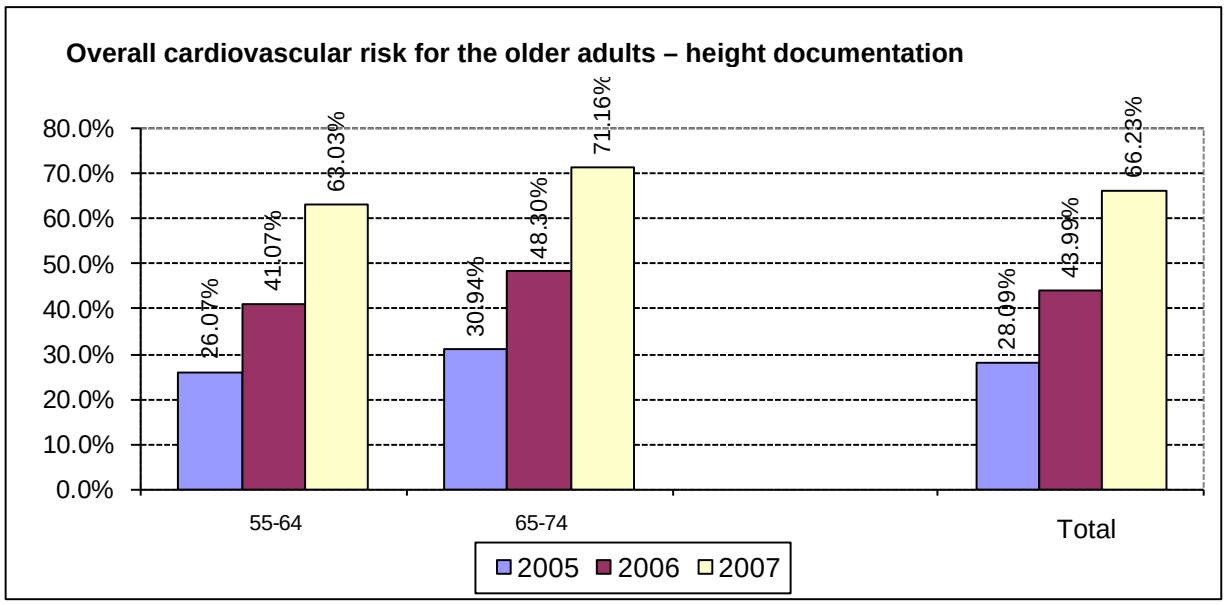



Figure 94: Rate of insured individuals aged 55-74, in 2007, who had their height checked least once in the past five years, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 55-64 | 60.82 % | 65.06 % | 63.03 % | 163,807 | 191,532 | 355,339 | 269,313 | 294,410 | 563,723 |
| 65-74 | 69.91 % | 72.19 % | 71.16 % | 114,831 | 144,900 | 259,731 | 164,262 | 200,727 | 364,989 |
| **Total** | **64.27 %** | **67.95 %** | **66.23 %** | **278,638** | **336,432** | **615,070** | **433,575** | **495,137** | **928,712** |

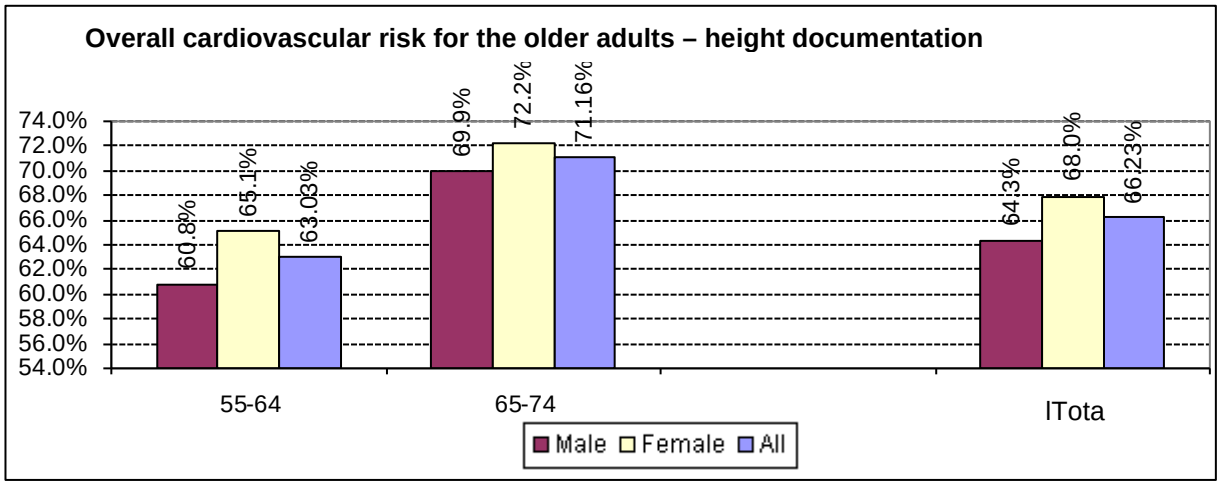
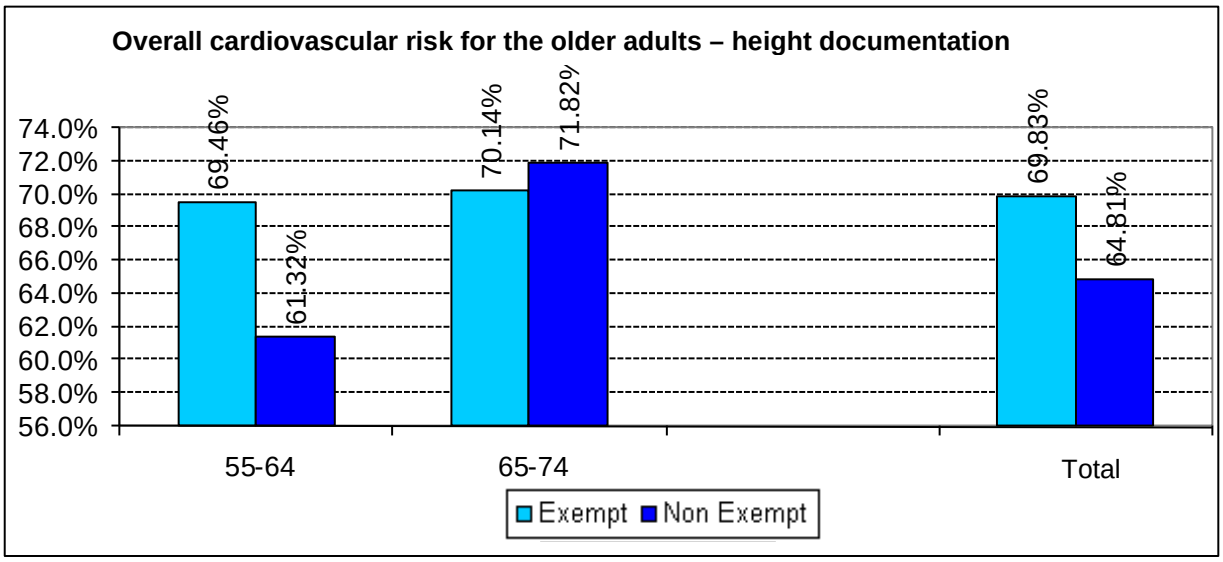


Figure 95: Rate of insured individuals aged 55-74, in 2007, who had their height checked least once in the past five years, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 55-64 | 69.46 % | 61.32 % | 63.03 % | 82,383 | 272,956 | 355,339 | 118,599 | 445,124 | 563,723 |
| 65-74 | 70.14 % | 71.82 % | 71.16 % | 100,739 | 158,992 | 259,731 | 143,625 | 221,364 | 364,989 |
| **Total** | **69.83 %** | **64.81 %** | **66.23 %** | **183,122** | **431,948** | **615,070** | **262,224** | **666,488** | **928,712** |




## C.5 Documentation of components for calculation of BMI in young adults

Definition of the indicator:

The percentage of insured individuals aged 20-64 with documentation of BMI components (weight and height) at least once in the last five years in their medical file.

Main Findings:

- BMI documentation was only found for 41.19% of the population. Impressive improvement of approximately 26.2% [absolute] in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 96).
- Among women, BMI documentation was slightly better than for men, 43.5% compared to 38.5% (Figure 97).

- Individuals exempted from NII payments had somewhat better BMI documentation than insured individuals who are not exempt, 57.1% compared to 39.6% (Figure 98).
- The level of BMI documentation is too low to enable the report to relate to the BMI value of the population. This indicator will be evaluated again next year.

Figure 96: Rate of individuals aged 20-64 with documentation of BMI components, by age and year of reporting (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 20-34 | 8.84 % | 16.22 % | 28.14 % | 99,250 | 185,528 | 325,209 | 1,123,176 | 1,143,711 | 1,155,642 |
| 35-44 | 12.51 % | 22.22 % | 35.96 % | 93,500 | 169,768 | 281,757 | 747,566 | 763,959 | 783,434 |
| 45-54 | 19.43 % | 32.05 % | 50.95 % | 138,272 | 231,535 | 369,440 | 711,809 | 722,389 | 725,115 |
| 55-64 | 25.78 % | 40.70 % | 62.67 % | 129,126 | 216,586 | 353,181 | 500,875 | 532,110 | 563,536 |
| **Total** | **14.92 %** | **25.41 %** | **41.19 %** | **460,148** | **803,417** | **1,329,587** | **3,083,426** | **3,162,169** | **3,227,727** |

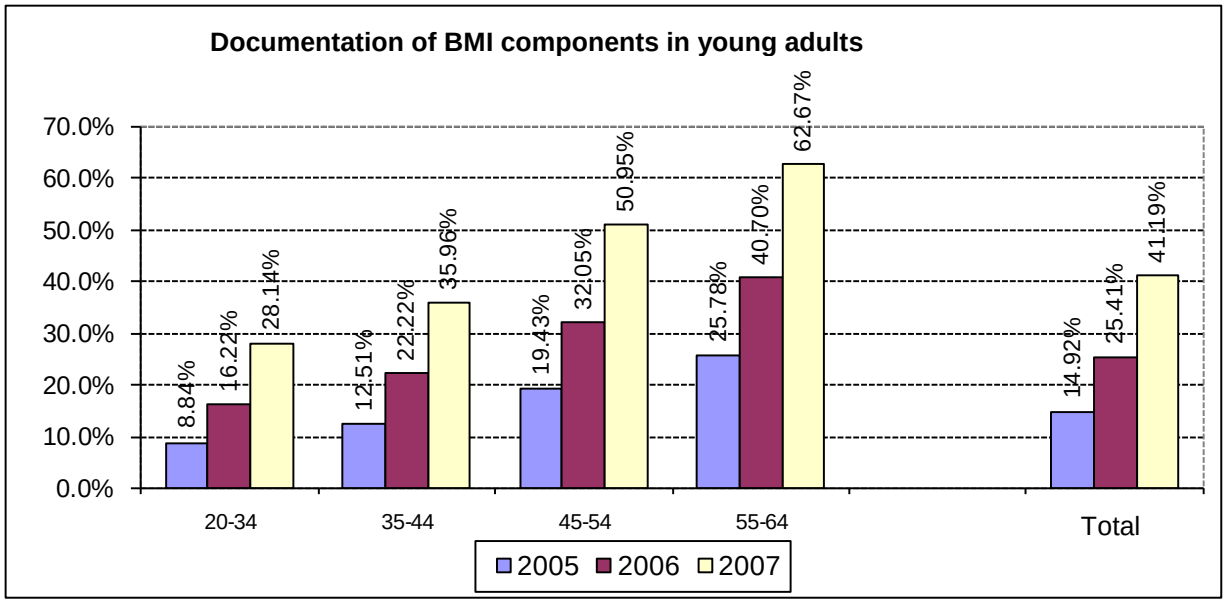



Figure 97: Rate of individuals aged 20-64 with documentation of BMI components, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 20-34 | 24.34 % | 31.39 % | 28.14 % | 129,617 | 195,592 | 325,209 | 532,485 | 623,157 | 1,155,642 |
| 35-44 | 33.87 % | 37.93 % | 35.96 % | 128,277 | 153,480 | 281,757 | 378,785 | 404,649 | 783,434 |
| 45-54 | 48.58 % | 53.14 % | 50.95 % | 168,959 | 200,481 | 369,440 | 347,830 | 377,285 | 725,115 |
| 55-64 | 60.51 % | 64.65 % | 62.67 % | 162,879 | 190,302 | 353,181 | 269,178 | 294,358 | 563,536 |
| **Total** | **38.59 %** | **43.53 %** | **41.19 %** | **589,732** | **739,855** | **1,329,587** | **1,528,278** | **1,699,449** | **3,227,727** |

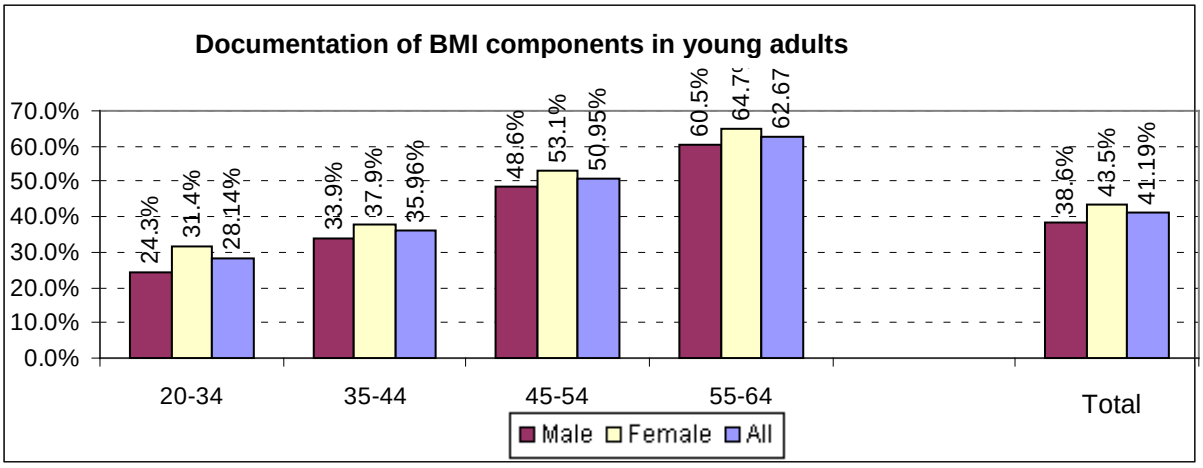
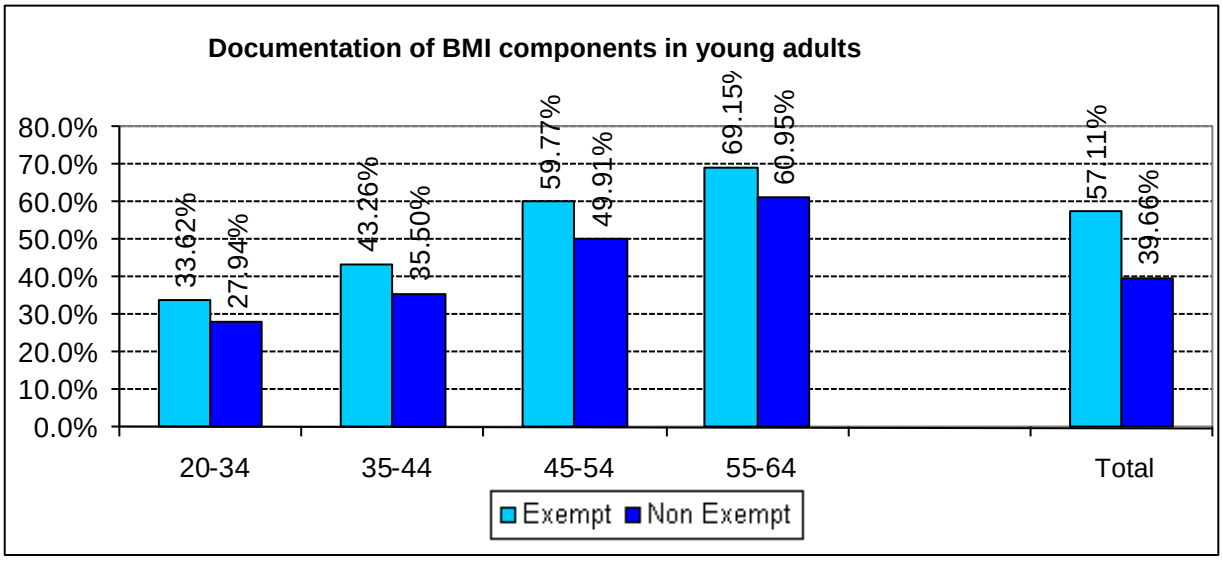



Figure 98: Rate of insured individuals aged 20-64 with documentation of BMI components, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 20-34 | 33.62 % | 27.94 % | 28.14 % | 14,066 | 311,143 | 325,209 | 41,837 | 1,113,805 | 1,155,642 |
| 35-44 | 43.26 % | 35.50 % | 35.96 % | 20,251 | 261,506 | 281,757 | 46,809 | 736,625 | 783,434 |
| 45-54 | 59.77 % | 49.91 % | 50.95 % | 45,800 | 323,640 | 369,440 | 76,631 | 648,484 | 725,115 |
| 55-64 | 69.15 % | 60.95 % | 62.67 % | 81,998 | 271,183 | 353,181 | 118,578 | 444,958 | 563,536 |
| **Total** | **57.11 %** | **39.66 %** | **41.19 %** | **162,115** | **1,167,472** | **1,329,587** | **283,855** | **2,943,872** | **3,227,727** |




## C.5 Documentation of components for calculation of BMI in older adults

Definition of the indicator:

The percentage of insured individuals aged 65-74 with documentation of BMI components (weight at least once a year and height at least once in the last five years) in their medical file.

Main Findings:

- BMI documentation was only found for 59.7% of the population. Impressive improvement of approximately 39% [absolute] in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 99).
- Among women, BMI documentation was slightly better than for men, 60.7% compared to 58.5% (Figure 100).
- Documentation was slightly lower for individuals exempt from NII payments than for the rest of the population, 58.7% compared to 60.4%, respectively (Figure 101).
- The level of BMI documentation is too low to enable the report to relate to the BMI value of the population. This indicator will be evaluated again next year.

Figure 99: Rate of insured individuals aged 65-74 with documentation of BMI components, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 65-74 | 20.82 % | 36.86 % | 59.76 % | 74,034 | 133,046 | 218,121 | 355,620 | 360,953 | 364,989 |
| **Total** | **20.82 %** | **36.86 %** | **59.76 %** | **74,034** | **133,046** | **218,121** | **355,620** | **360,953** | **364,989** |

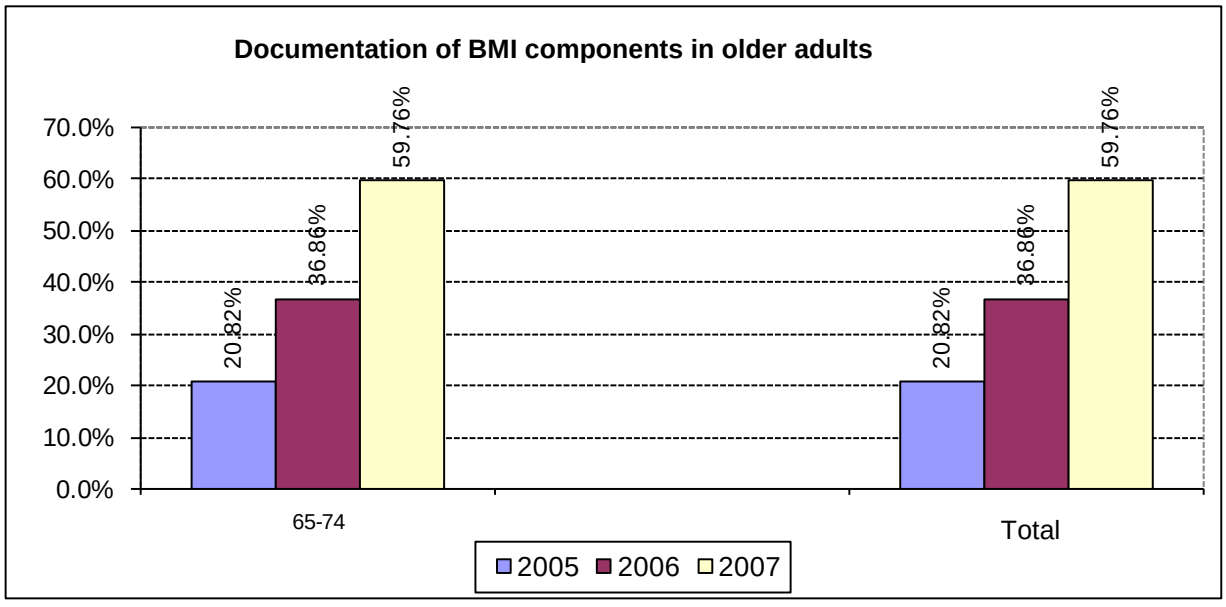



Figure 100: Rate of individuals aged 65-74, with documentation of BMI components, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 65-74 | 58.56 % | 60.74 % | 59.76 % | 96,200 | 121,921 | 218,121 | 164,262 | 200,727 | 364,989 |
| **Total** | **58.56 %** | **60.74 %** | **59.76 %** | **96,200** | **121,921** | **218,121** | **164,262** | **200,727** | **364,989** |

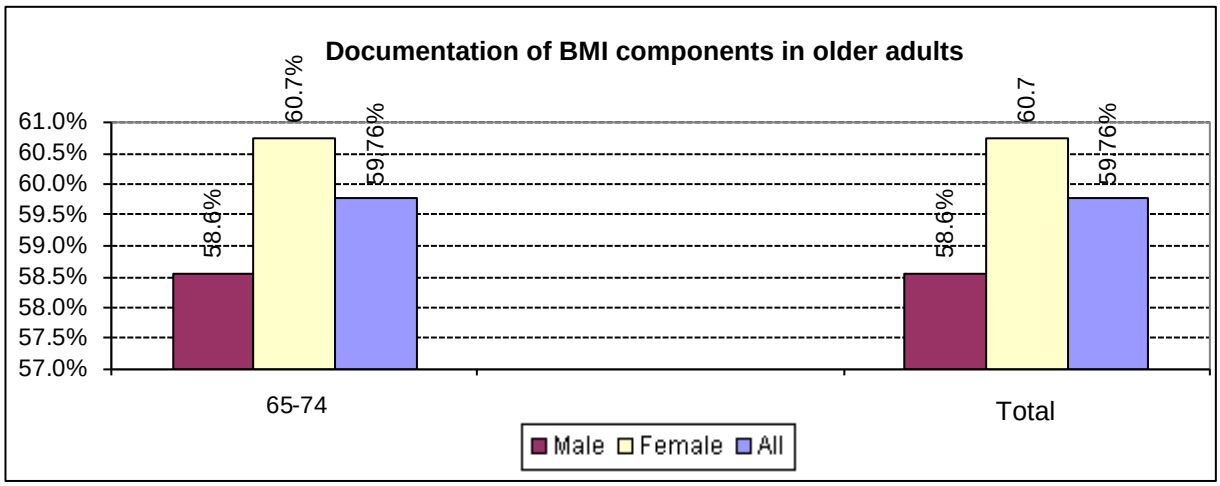
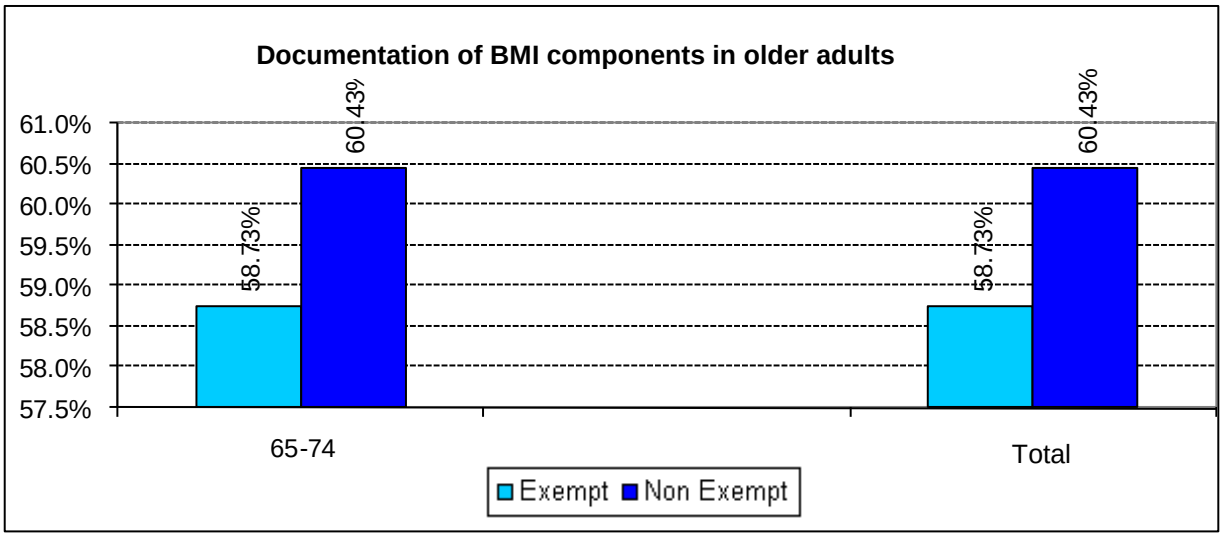



Figure 101: Rate of insured individuals aged 65-74 with documentation of BMI components, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 65-74 | 58.73 % | 60.43 % | 59.76 % | 84,345 | 133,776 | 218,121 | 143,625 | 221,364 | 364,989 |
| **Total** | **58.73 %** | **60.43 %** | **59.76 %** | **84,345** | **133,776** | **218,121** | **143,625** | **221,364** | **364,989** |



## D. Documentation of blood pressure

### Background

High blood pressure is a common risk factor for cardiovascular disease. Stroke, heart failure, heart attack and impaired kidney function are all complications of high blood pressure. Blood pressure control is one of the most common reasons for referring patients to community health care clinics.

The United States Preventive Services Task Force (USPSTF) recommends that adults over the age of 20 have their blood pressure checked at every visit to the clinic [22]. This is an A-level recommendation.

### D.1 Documentation of blood pressure –young adults

Definition of the indicator:

The percentage of insured individuals aged 20-54 whose blood pressure readings were documented at least once in the last five years.

Main Findings:

- In 2007, blood pressure was documented for 1,881,488 individuals aged 20-54, meaning for 70.6% of the population. An impressive improvement of approximately 21% [absolute] in documentation was found during the reporting period, as characteristic of a new reportable measure (Figure 102).
- Documentation was higher in the 45-54 age group, where it reached over 80% (Figure 102).
- Documentation was higher for women (75.8%) than for men (64.8%) in all age groups (Figure 103).
- Documentation was better among individuals exempt from NII payments: 76.3% compared to 70.2% for the rest of the population (Figure 104).

Figure 102: Rate of insured individuals aged 20-54 whose blood pressure was documented in the past five years, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 20-34 | 42.03 % | 52.31 % | 62.26 % | 472,087 | 598,320 | 719,466 | 1,123,176 | 1,143,711 | 1,155,642 |
| 35-44 | 51.60 % | 62.53 % | 72.46 % | 385,748 | 477,709 | 567,659 | 747,566 | 763,959 | 783,434 |
| 45-54 | 61.20 % | 71.99 % | 81.97 % | 435,640 | 520,022 | 594,363 | 711,809 | 722,389 | 725,115 |
| **Total** | **50.09 %** | **60.68 %** | **70.62 %** | **1,293,475** | **1,596,051** | **1,881,488** | **2,582,551** | **2,630,059** | **2,664,191** |

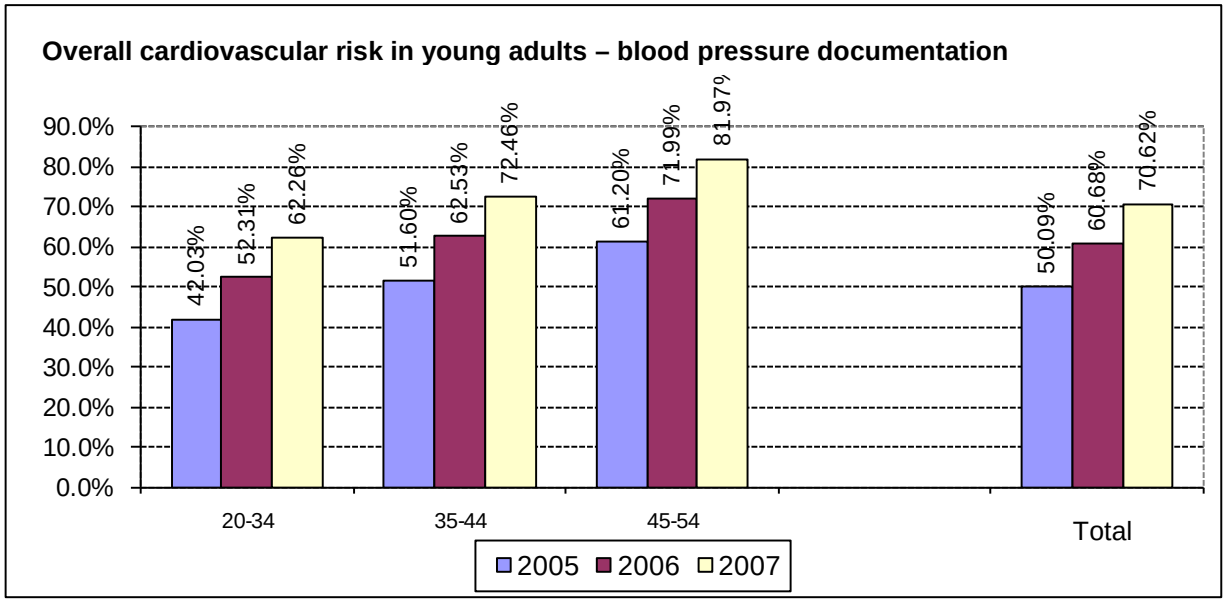



Figure 103: Rate of insured individuals aged 20-54 whose blood pressure was documented in the past five years, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 20-34 | 52.55 % | 70.55 % | 62.26 % | 279,822 | 439,644 | 719,466 | 532,485 | 623,157 | 1,155,642 |
| 35-44 | 68.27 % | 76.37 % | 72.46 % | 258,609 | 309,050 | 567,659 | 378,785 | 404,649 | 783,434 |
| 45-54 | 79.97 % | 83.81 % | 81.97 % | 278,152 | 316,211 | 594,363 | 347,830 | 377,285 | 725,115 |
| **Total** | **64.85 %** | **75.79 %** | **70.62 %** | **816,583** | **1,064,905** | **1,881,488** | **1,259,100** | **1,405,091** | **2,664,191** |

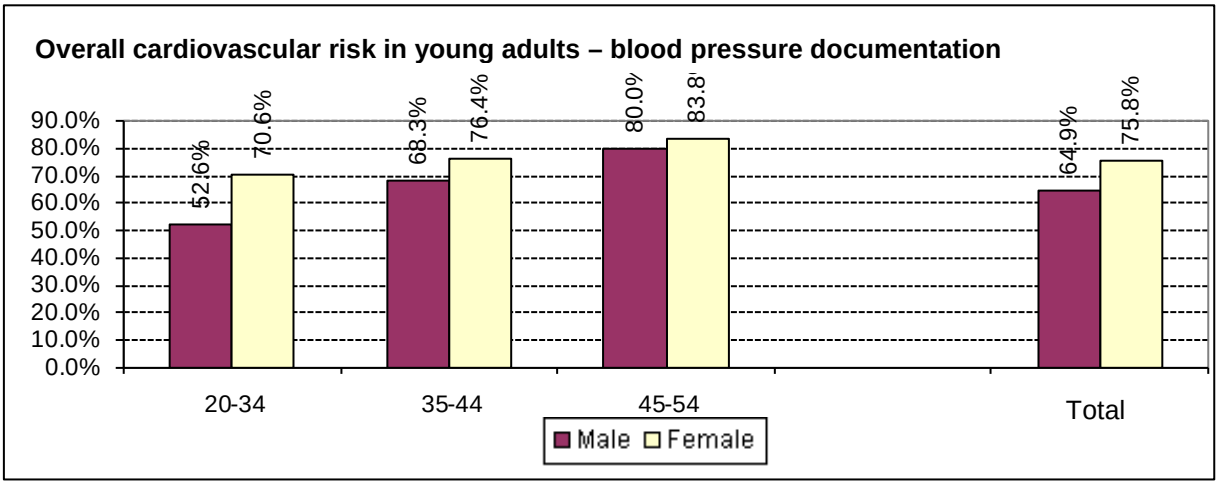
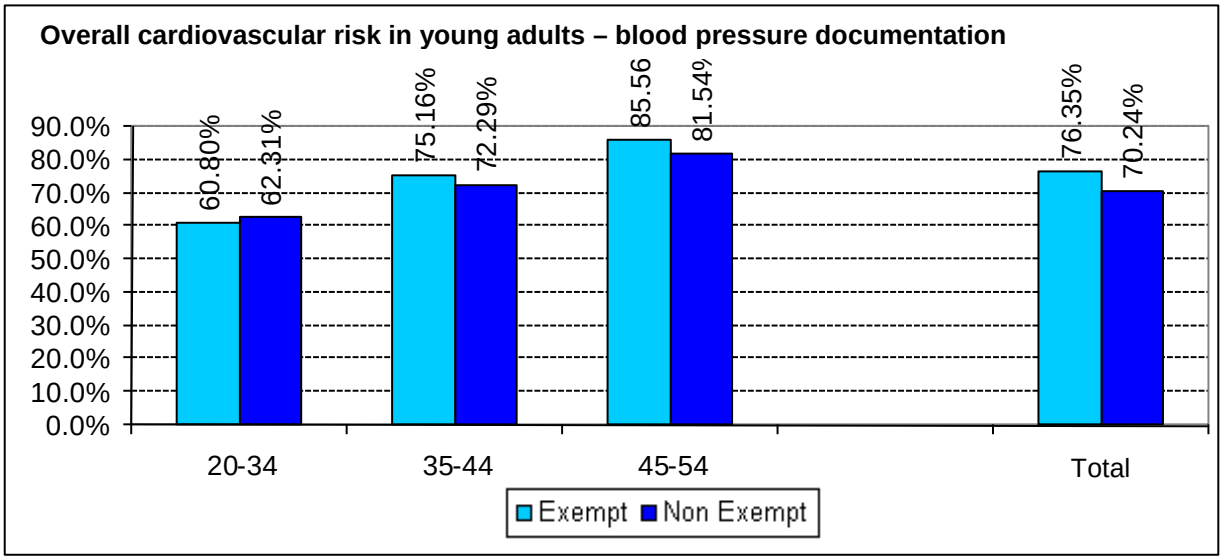


Figure 104: Rate of insured individuals aged 20-54 whose blood pressure was documented in the past five years, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 20-34 | 60.80 % | 62.31 % | 62.26 % | 25,437 | 694,029 | 719,466 | 41,837 | 1,113,805 | 1,155,642 |
| 35-44 | 75.16 % | 72.29 % | 72.46 % | 35,180 | 532,479 | 567,659 | 46,809 | 736,625 | 783,434 |
| 45-54 | 85.56 % | 81.54 % | 81.97 % | 65,565 | 528,798 | 594,363 | 76,631 | 648,484 | 725,115 |
| **Total** | **76.35 %** | **70.24 %** | **70.62 %** | **126,182** | **1,755,306** | **1,881,488** | **165,277** | **2,498,914** | **2,664,191** |




## D.2 Documentation of blood pressure –older adults

Definition of the indicator:

The percentage of insured individuals aged 55-74 whose blood pressure readings were documented in their medical file at least once in the past year.

Main Findings:

- In 2007, blood pressure was documented for 738,909 individuals aged 55-74, meaning for 76.8% of the population. An impressive improvement of approximately 14.9% [absolute] in documentation was found during the reporting period, as characteristic of a new reportable measure (Figure 105).
- Documentation was better in the 65-74 age group than for the younger individuals.
- Documentation was slightly better for women, 78.8%, compared to 74.6% for men, in all age groups (Figure 106).

- Documentation was better among individuals exempt from NII payments: 82.5% compared to 74.6% for the rest of the population (Figure 107).
- Figure 105: Rate of insured individuals aged 55-74 whose blood pressure was documented at least once a year, by age and measurement year (2005-2007)

| Population | | | Numerator | | | Ratio | | | |
|---|---|---|---|---|---|---|---|---|---|
| **2007** | **2006** | **2005** | **2007** | **2006** | **2005** | **2007** | **2006** | **2005** | **Age** |
| 583,714 | 552,735 | 522,930 | 424,001 | 355,704 | 298,601 | 72.64 % | 64.35 % | 57.10 % | 55-64 |
| 377,667 | 374,363 | 370,780 | 314,908 | 284,479 | 254,685 | 83.38 % | 75.99 % | 68.69 % | 65-74 |
| **961,381** | **927,098** | **893,710** | **738,909** | **640,183** | **553,286** | **76.86 %** | **69.05 %** | **61.91 %** | **Total** |

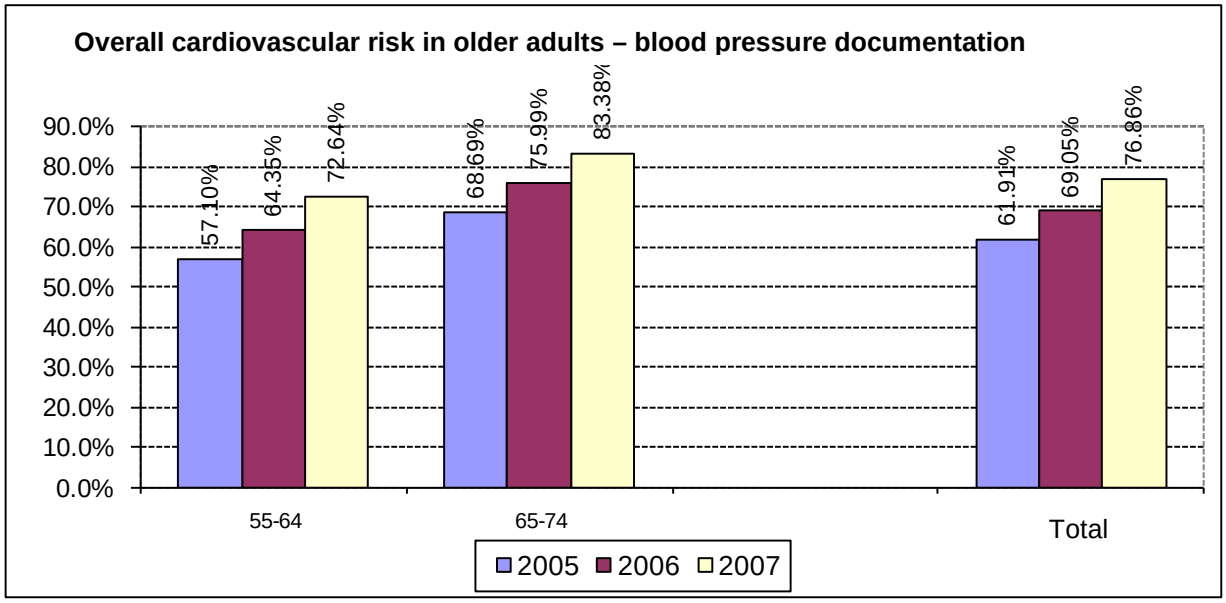



Figure 106: Rate of insured individuals aged 55-74 whose blood pressure was documented at least once a year, in 2007, by age and sex

| Population | | | Numerator | | | Ratio | | | |
|---|---|---|---|---|---|---|---|---|---|
| **All** | **Female** | **Male** | **All** | **Female** | **Male** | **All** | **Female** | **Male** | **Age** |
| 583,714 | 305,234 | 278,480 | 424,001 | 228,711 | 195,290 | 72.64 % | 74.93 % | 70.13 % | 55-64 |
| 377,667 | 207,608 | 170,059 | 314,908 | 175,530 | 139,378 | 83.38 % | 84.55 % | 81.96 % | 65-74 |
| **961,381** | **512,842** | **448,539** | **738,909** | **404,241** | **334,668** | **76.86 %** | **78.82 %** | **74.61 %** | **Total** |

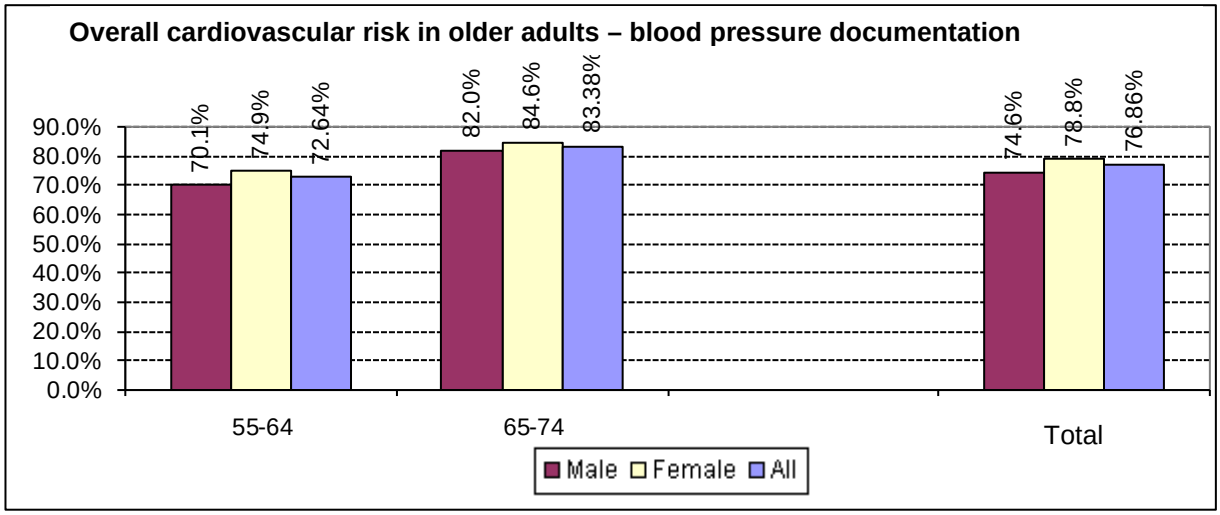
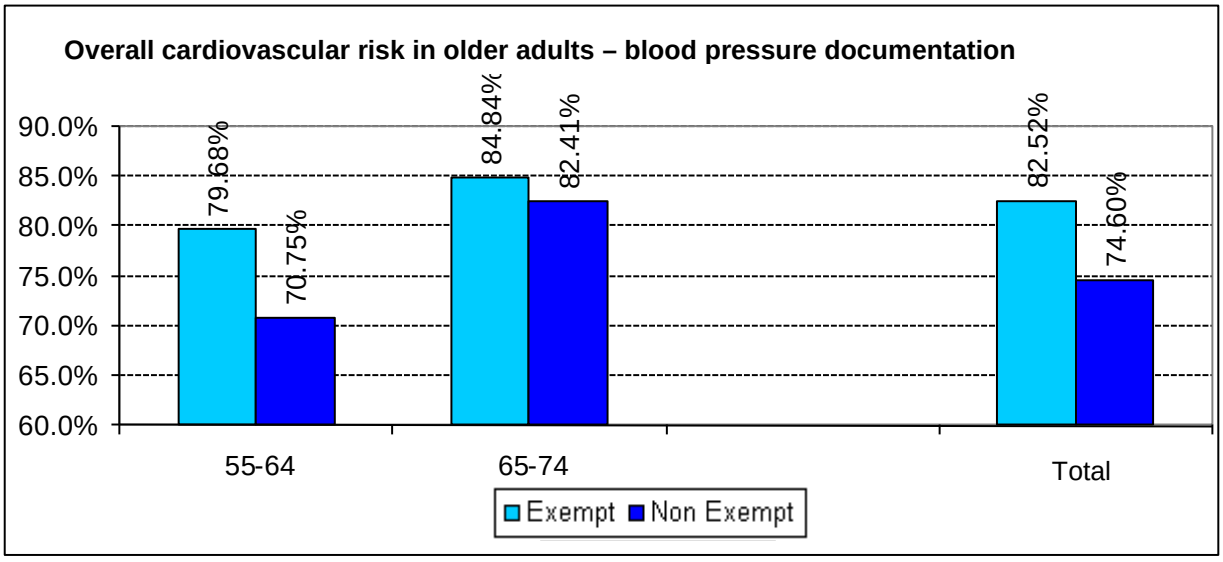



Figure 107: Rate of insured individuals aged 55-74 whose blood pressure was documented at least once a year, in 2007, by age and socioeconomic status

| Population | | | Numerator | | | Ratio | | | |
|---|---|---|---|---|---|---|---|---|---|
| All | Non-exempt | Exempt | All | Non-exempt | Exempt | All | Non-exempt | Exempt | Age |
| 583,714 | 460,125 | 123,589 | 424,001 | 325,523 | 98,478 | 72.64 % | 70.75 % | 79.68 % | 55-64 |
| 377,667 | 226,762 | 150,905 | 314,908 | 186,879 | 128,029 | 83.38 % | 82.41 % | 84.84 % | 65-74 |
| **961,381** | **686,887** | **274,494** | **738,909** | **512,402** | **226,507** | **76.86 %** | **74.60 %** | **82.52 %** | **Total** |



## E. Blood pressure control

### Background

One out of every four of us suffers from high blood pressure, a disease whose prevalence increases with age. Approximately half of the population over the age of 45 suffers from high blood pressure. High blood pressure is one of the causes of cardiovascular diseases and can double the risk of cerebrovascular accidents, for example. Despite the existence of effective and available treatment, many people do not realize that they have high blood pressure, although it can be diagnosed through simple, routine tests at any primary care clinic in the community. Among the general population blood pressure measurements above 140/90 mmHg are considered high. Diabetes patients and those suffering from kidney disease require especially strict blood pressure control, and values of over 130/80 mmHg are already considered high. Today, many of those diagnosed as having high blood pressure monitor their blood pressure readings themselves with home monitors. It is important to note that the indicator relates to the general public and is not limited to patients with high blood pressure.

### E.1. Blood pressure control in young adults

Definition of the indicator:

Insured individuals aged 20-54 whose last blood pressure reading was 140 or lower (systolic) along with 90 or lower (diastolic) over the last five years among insured individuals aged 20-54 with documentation of their systolic/diastolic blood pressure over the past five years in their computerized medical file.

Main Findings:

- The most recent blood pressure value documented during the five years from 2003-2007 was lower than 90/140 for 95.6% of the population examined. The indicator relates to approximately 1.8 million insured individuals (Figure 108). A sensitivity test found that approximately 4% of the cases appear in round values of 90 and 140.
- A slight increase in blood pressure control was found in 2005-2007 (Figure 108). A sensitivity test found that approximately 4% of the cases appear in round values of 90 and 140.

- No sex-related difference (Figure 109) or difference according to exemption from NII payments was found in blood pressure control levels (Figure 110).

Figure 108: Blood pressure control among young adults, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 20-34 | 97.57 % | 97.81 % | 98.07 % | 460,622 | 585,226 | 705,570 | 472,087 | 598,320 | 719,466 |
| 35-44 | 94.57 % | 95.23 % | 95.79 % | 364,784 | 454,924 | 543,787 | 385,748 | 477,709 | 567,659 |
| 45-54 | 89.65 % | 91.26 % | 92.57 % | 390,540 | 474,553 | 550,192 | 435,640 | 520,022 | 594,363 |
| **Total** | **94.01 %** | **94.90 %** | **95.64 %** | **1,215,946** | **1,514,703** | **1,799,549** | **1,293,475** | **1,596,051** | **1,881,488** |

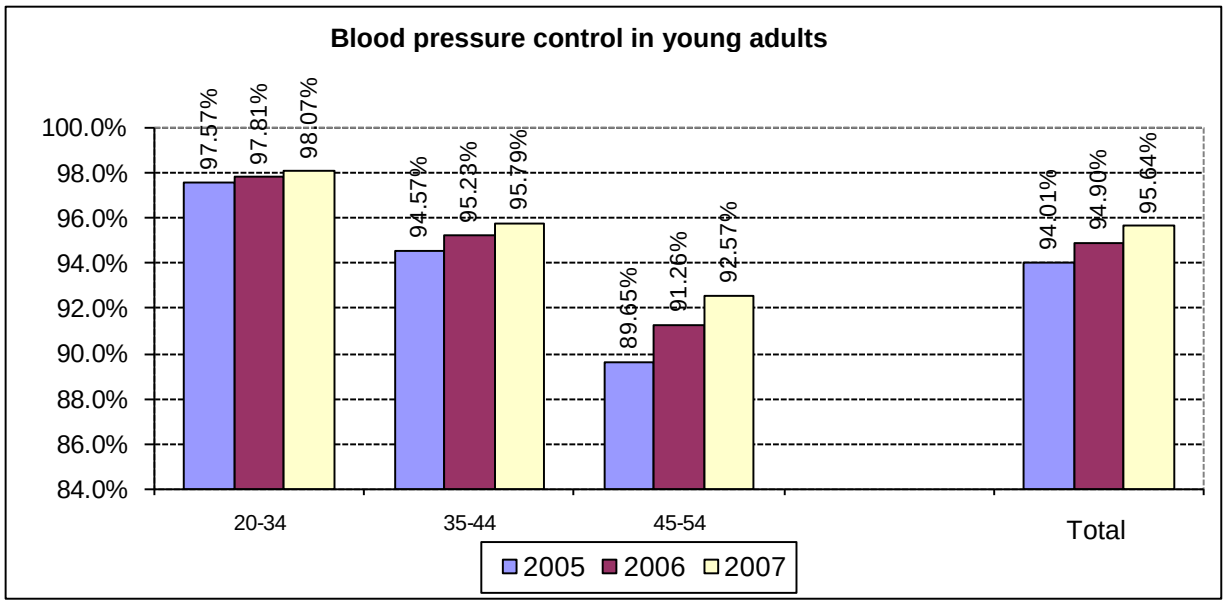



Figure 109: Blood pressure control among young adults, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 20-34 | 96.78 % | 98.89 % | 98.07 % | 270,802 | 434,768 | 705,570 | 279,822 | 439,644 | 719,466 |
| 35-44 | 94.23 % | 97.11 % | 95.79 % | 243,683 | 300,104 | 543,787 | 258,609 | 309,050 | 567,659 |
| 45-54 | 91.03 % | 93.92 % | 92.57 % | 253,207 | 296,985 | 550,192 | 278,152 | 316,211 | 594,363 |
| **Total** | **94.01 %** | **96.90 %** | **95.64 %** | **767,692** | **1,031,857** | **1,799,549** | **816,583** | **1,064,905** | **1,881,488** |

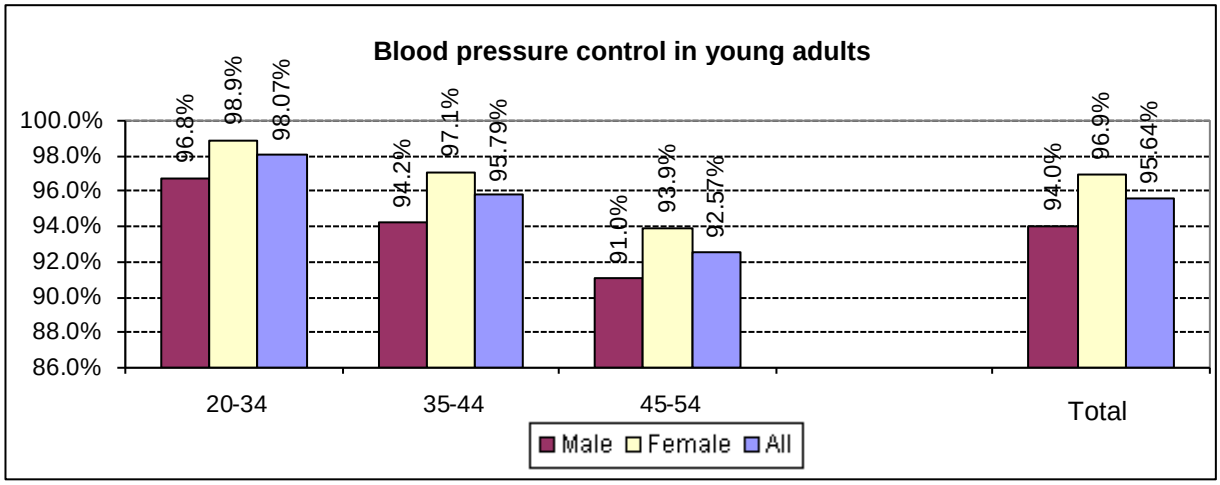
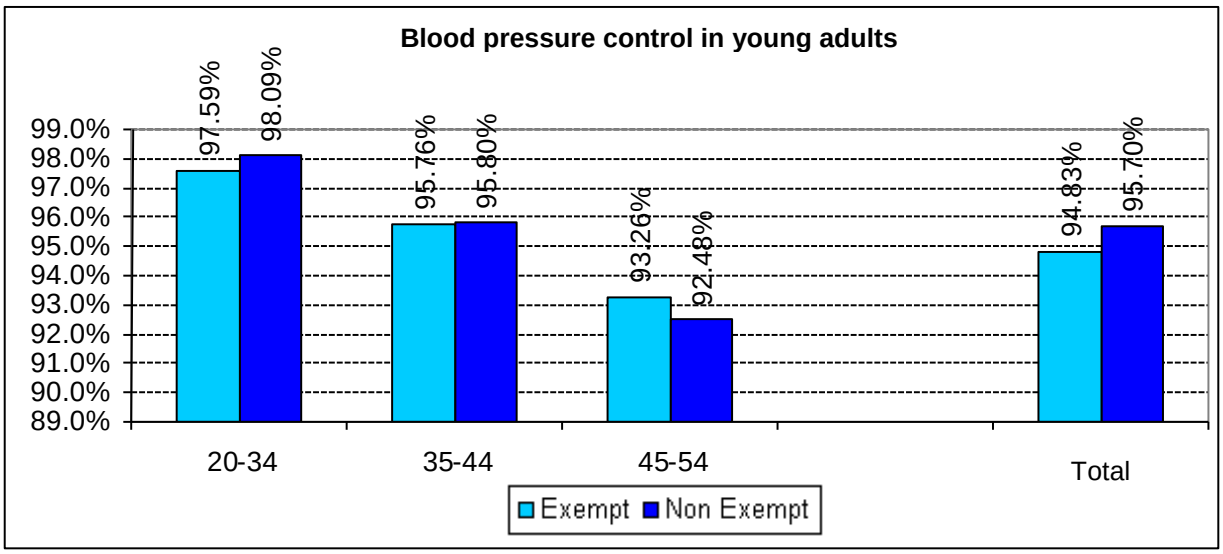



Figure 110: Blood pressure control among young adults, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 20-34 | 97.59 % | 98.09 % | 98.07 % | 24,825 | 680,745 | 705,570 | 25,437 | 694,029 | 719,466 |
| 35-44 | 95.76 % | 95.80 % | 95.79 % | 33,689 | 510,098 | 543,787 | 35,180 | 532,479 | 567,659 |
| 45-54 | 93.26 % | 92.48 % | 92.57 % | 61,148 | 489,044 | 550,192 | 65,565 | 528,798 | 594,363 |
| **Total** | **94.83 %** | **95.70 %** | **95.64 %** | **119,662** | **1,679,887** | **1,799,549** | **126,182** | **1,755,306** | **1,881,488** |




## E.2. Blood pressure control in older adults

Definition of the indicator:

Insured individuals aged 55-74 whose last blood pressure reading was 140 or lower (systolic) along with 90 or lower (diastolic) in the measurement year among insured

individuals aged 55-74 with documentation of their systolic/diastolic blood pressure in their computerized medical file in the measurement year.

Main Findings:

- In 2007, the most recent blood pressure value of lower than 90/140 was documented in 85.9% of the examined population. The indicator relates to approximately 634 thousand insured individuals (Figure 111). A sensitivity test found that approximately 4% of the cases are appear in round values of 90 and 140.
- A slight increase in blood pressure control was found in 2005-2007 (Figure 111).
- No sex-related difference (Figure 112) or difference according to exemption from NII payments was found in blood pressure control levels (Figure 113).

Figure 110: Blood pressure control among older adults, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 55-64 | 83.32 % | 84.74 % | 86.63 % | 248,789 | 301,441 | 367,293 | 298,601 | 355,704 | 424,001 |
| 65-74 | 80.91 % | 82.78 % | 84.80 % | 206,073 | 235,481 | 267,045 | 254,685 | 284,479 | 314,908 |
| **Total** | **82.21 %** | **83.87 %** | **85.85 %** | **454,862** | **536,922** | **634,338** | **553,286** | **640,183** | **738,909** |

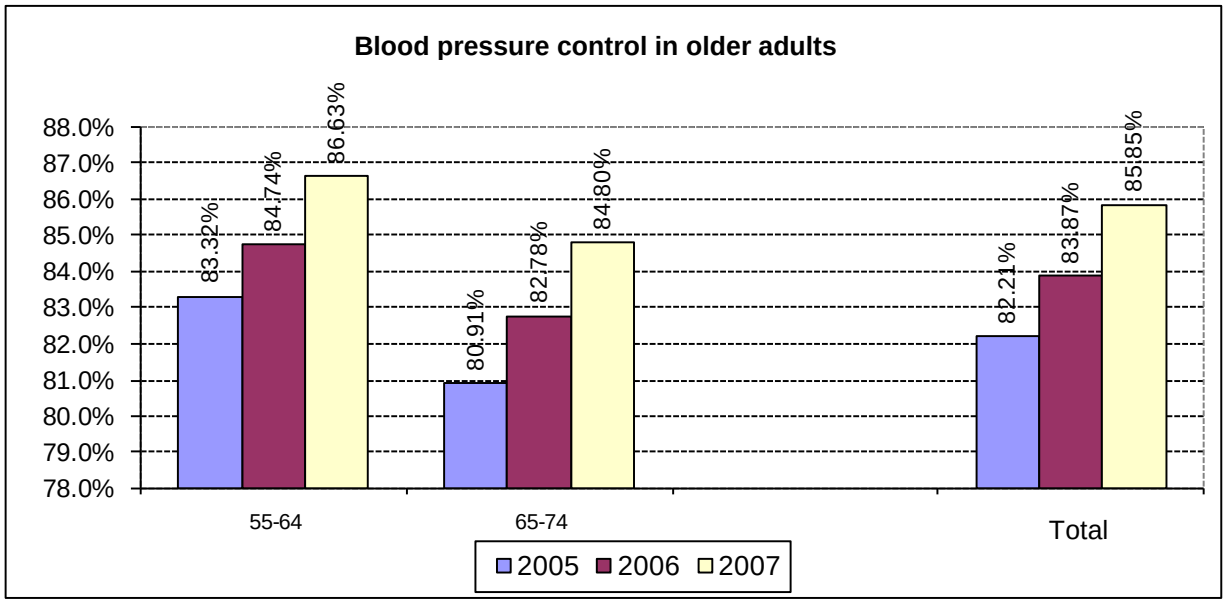


Figure 111: Blood pressure control among older adults, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 55-64 | 84.91 % | 88.09 % | 86.63 % | 165,812 | 201,481 | 367,293 | 195,290 | 228,711 | 424,001 |
| 65-74 | 84.37 % | 85.14 % | 84.80 % | 117,594 | 149,451 | 267,045 | 139,378 | 175,530 | 314,908 |
| **Total** | **84.68 %** | **86.81 %** | **85.85 %** | **283,406** | **350,932** | **634,338** | **334,668** | **404,241** | **738,909** |

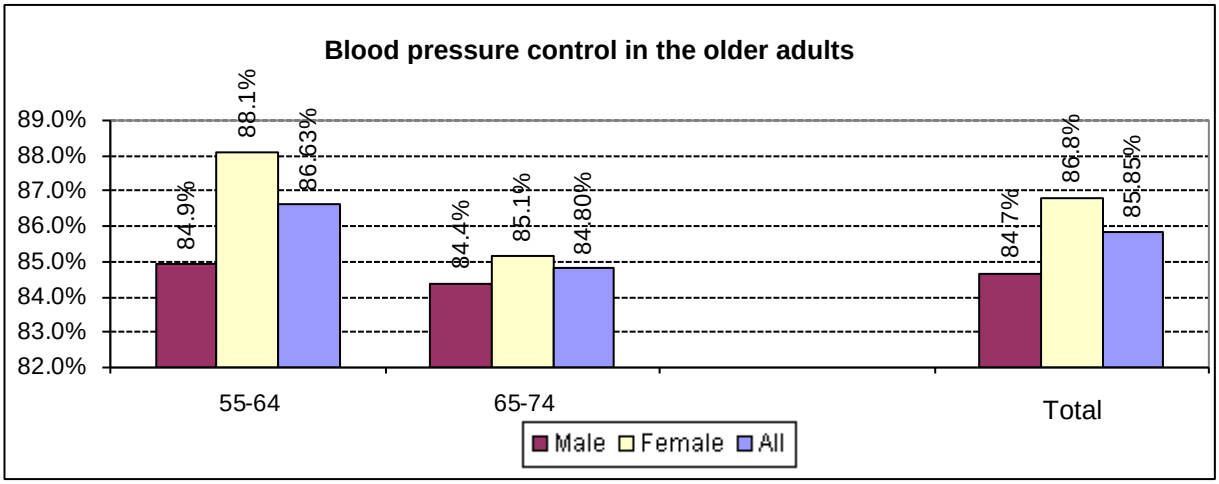
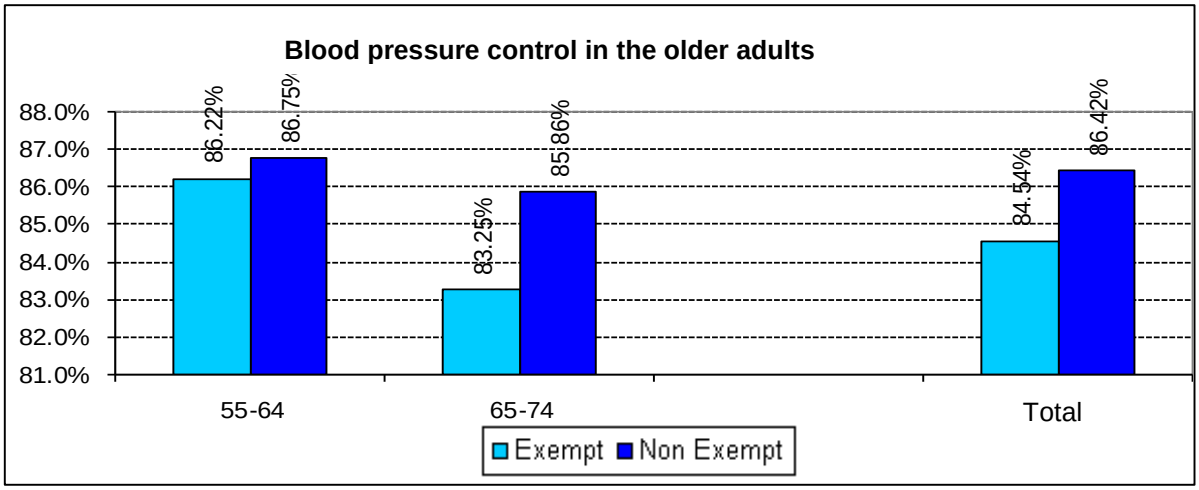



Figure 112: Blood pressure control among older adults, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 55-64 | 86.22 % | 86.75 % | 86.63 % | 84,911 | 282,382 | 367,293 | 98,478 | 325,523 | 424,001 |
| 65-74 | 83.25 % | 85.86 % | 84.80 % | 106,586 | 160,459 | 267,045 | 128,029 | 186,879 | 314,908 |
| **Total** | **84.54 %** | **86.42 %** | **85.85 %** | **191,497** | **442,841** | **634,338** | **226,507** | **512,402** | **738,909** |



# Secondary prevention of cardiovascular disease

The indicators for secondary prevention of cardiovascular disease are presented in two groups: Group 1 – patients receiving drug therapy for cardiovascular disease; Group 2 – controlled risk factors in the population of patients with cardiovascular disease. The indicators selected are based on diagnoses-related group (DRG). These indicators indicate a patient population with advanced coronary heart disease, who required invasive treatment of their illness – therapeutic angiography or coronary bypass surgery. The HMOs retain complete information, with lists of patients who have undergone such procedures, because payment for the procedures is fully documented.

The following findings are based on data of the HMOs and are presented for the entire population of insured individuals by age group (35-44, 45-54, 55-64, 65-74) and socioeconomic status (exempt/not exempt from NII payments).

Limitations of the indicator: the selected indicators present a relatively narrow view of the clinical conditions that can be affected by the health system through secondary prevention. We chose to report on those indicators whose completeness is relatively high. In the future, we hope to report on the level of secondary prevention for patients who have had myocardial infarction or stroke.

## A. Therapeutic care of cardiovascular patients

### Background

Most patients with proven atherosclerosis of the heart will require *four* groups of preventive drugs: aspirin, beta blockers, statins and drugs in the ACEI/ARB family.

Medical guidelines stipulate that patients with advanced coronary heart disease who have required invasive treatment, therapeutic coronary angiography or coronary bypass, require drug therapy for reduction of cholesterol [7], and most of them will also require treatment with the ACEI/ARB family to reduce the load on the heart and improve heart function as well as treatment with beta blockers to reduce the risk of additional damage to the myocardium. This year purchases of aspirin were not examined due to the not insignificant rate at which this medication is purchased privately and not through the HMOs.

## A.1 Drug therapy following coronary bypass surgery

### *A.1.1 Drug therapy following coronary bypass surgery - statins*

Definition of the indicator:

The rate of patients, men and women in the 35-74 age group, who have had *coronary bypass surgery* (Code 36.1) in the past five years and who have purchased at least three prescriptions for statins in the measurement year. The target population for this indicator in 2007 was 15,969 subjects, slightly lower than in previous years, as a reflection of the slow decrease in performance of this surgery in recent years.

Limitations of the indicator: It is assumed that a sizeable portion of this population requires treatment for the reduction of blood cholesterol levels, although the indicator itself is not restricted to patients with proven disturbance in the level of blood cholesterol.

Main Findings:

- In 2007, 83.1% of the patients who underwent surgery purchased statins. Only approximately 47.6% of the patients in the 35-44 age group who underwent surgery needed and purchased statins, while approximately 88.2% of those aged 65 and older who underwent surgery received this treatment. There is an annual increase in the purchase of statins by these patients (Figure 114).
- Men purchased more statins than women, 84.9% compared to 77.6%, respectively, until reaching the 65-74 age group, where the rate of purchase equalizes (Figure 115).
- Individuals exempt from NII payments purchased more statins than others who underwent surgery, 81.7% compared to 84.2%, respectively (Figure 116).

Figure 113: Rate of patients who underwent coronary bypass surgery and receive statins, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 47.34 % | 45.28 % | 46.31 % | 303 | 288 | 289 | 640 | 636 | 624 |
| 45-54 | 72.39 % | 74.32 % | 74.30 % | 2,069 | 2,081 | 1,980 | 2,858 | 2,800 | 2,665 |
| 55-64 | 81.18 % | 83.50 % | 84.56 % | 4,502 | 4,665 | 4,764 | 5,546 | 5,587 | 5,634 |
| 65-74 | 82.33 % | 85.69 % | 88.09 % | 6,261 | 6,176 | 6,207 | 7,605 | 7,207 | 7,046 |
| **Total** | **78.89 %** | **81.39 %** | **82.91 %** | **13,135** | **13,210** | **13,240** | **16,649** | **16,230** | **15,969** |

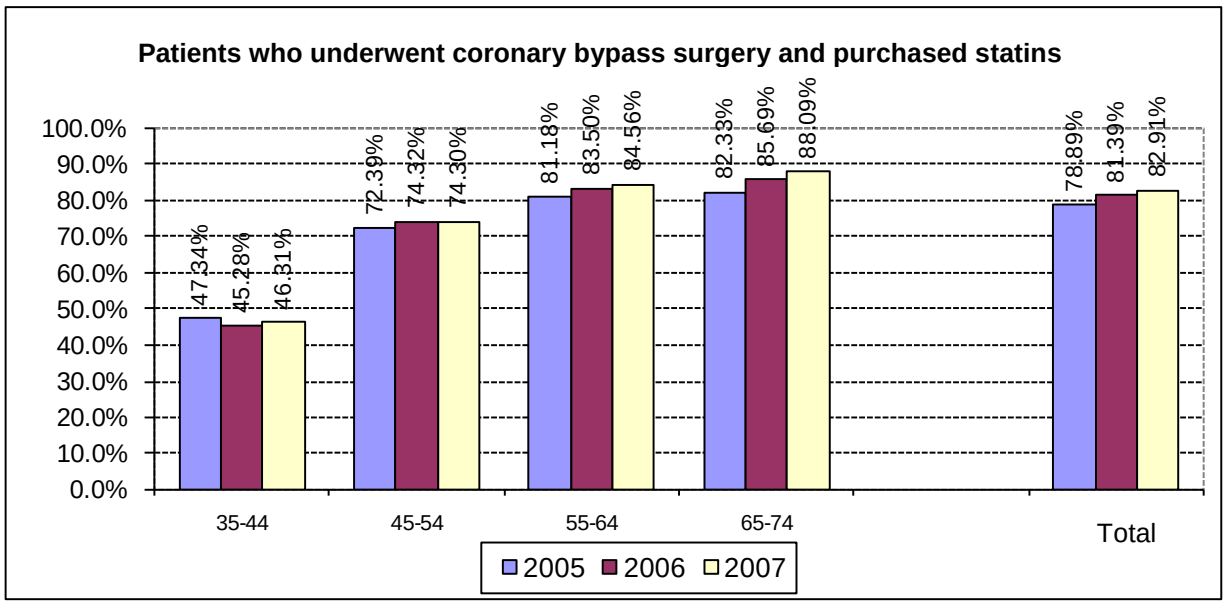



Figure 114: Rate of patients who underwent coronary bypass surgery and receive statins, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 55.73 % | 22.91 % | 46.31 % | 248 | 41 | 289 | 445 | 179 | 624 |
| 45-54 | 78.98 % | 53.83 % | 74.30 % | 1,713 | 267 | 1,980 | 2,169 | 496 | 2,665 |
| 55-64 | 86.20 % | 78.18 % | 84.56 % | 3,861 | 903 | 4,764 | 4,479 | 1,155 | 5,634 |
| 65-74 | 88.45 % | 87.17 % | 88.09 % | 4,481 | 1,726 | 6,207 | 5,066 | 1,980 | 7,046 |
| **Total** | **84.74 %** | **77.09 %** | **82.91 %** | **10,303** | **2,937** | **13,240** | **12,159** | **3,810** | **15,969** |

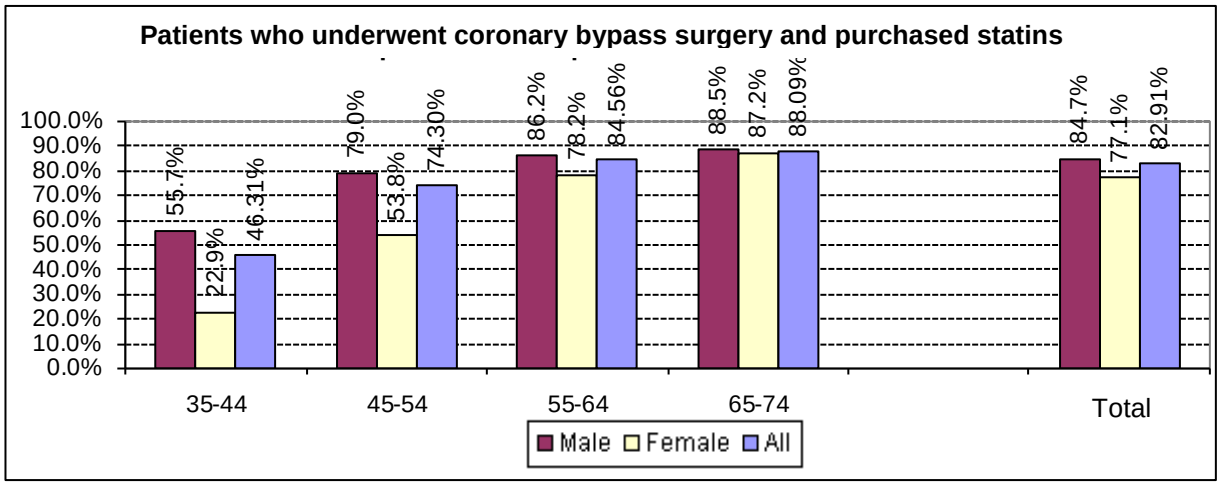
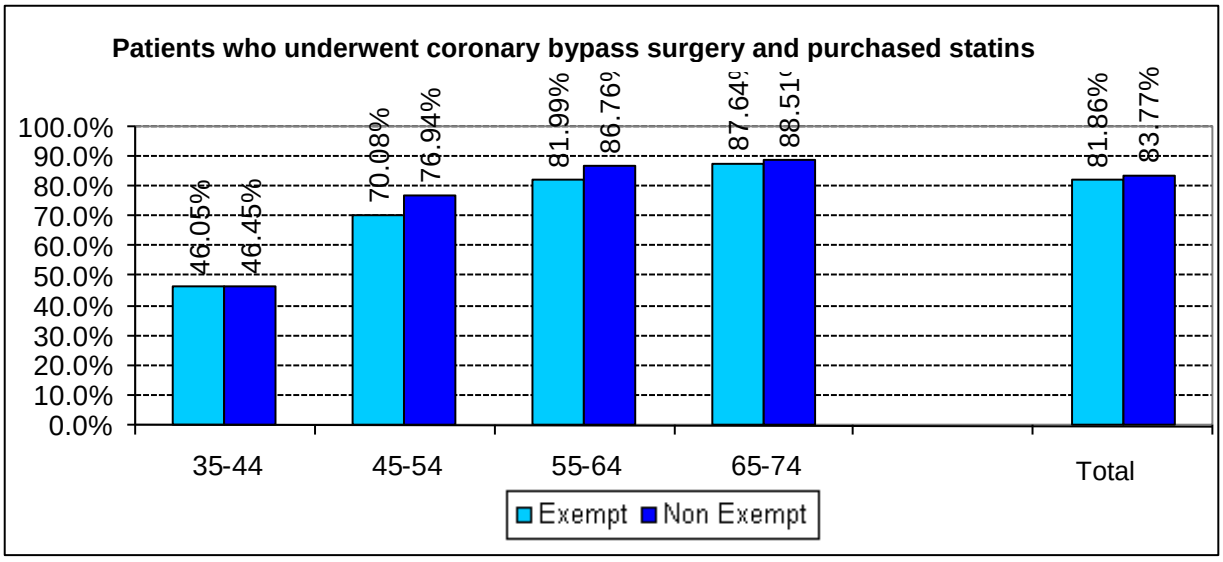


Figure 115: Rate of patients who underwent coronary bypass surgery and receive statins, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 35-44 | 46.05 % | 46.45 % | 46.31 % | 99 | 190 | 289 | 215 | 409 | 624 |
| 45-54 | 70.08 % | 76.94 % | 74.30 % | 719 | 1,261 | 1,980 | 1,026 | 1,639 | 2,665 |
| 55-64 | 81.99 % | 86.76 % | 84.56 % | 2,130 | 2,634 | 4,764 | 2,598 | 3,036 | 5,634 |
| 65-74 | 87.64 % | 88.51 % | 88.09 % | 2,950 | 3,257 | 6,207 | 3,366 | 3,680 | 7,046 |
| **Total** | **81.86 %** | **83.77 %** | **82.91 %** | **5,898** | **7,342** | **13,240** | **7,205** | **8,764** | **15,969** |




### A.1.2 Drug therapy following coronary bypass surgery – ACEI/ARB

Definition of the indicator:

The rate of patients, men and women in the 35-74 age group, who have had *coronary bypass surgery* (Code 36.1) in the past five years and who have purchased at least three prescriptions for ACEI/ARB in the measurement year.

Limitations of the indicator: It is assumed that a sizeable portion of this population requires treatment with ACEI/ARB, although the indicator itself is not restricted to patients with proven disturbance in heart function, and there are patients who should not receive these drugs due to contraindications.

Main Findings:

- In 2007, 62.3% of the patients who underwent surgery purchased ACEI/ARB. Only approximately 33.7% of the patients in the 35-44 age group who underwent surgery purchased these drugs, while approximately 68.6% of those aged 65 and

older who underwent surgery purchased this treatment. An annual increase in the purchase of ACEI/ARB was recorded during the reporting period (Figure 117).

- Women purchased slightly more ACEI/ARB than men, 63.0% compared to 62.0%, respectively (Figure 118).
- Patients exempt from NII payments purchased more ACEI/ARB that the rest of those who underwent surgery, 66.2% compared to 58.3%, respectively – a difference found in all age groups (Figure 119).

Figure 116: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 28.91 % | 30.66 % | 33.33 % | 185 | 195 | 208 | 640 | 636 | 624 |
| 45-54 | 46.05 % | 46.64 % | 51.14 % | 1,316 | 1,306 | 1,363 | 2,858 | 2,800 | 2,665 |
| 55-64 | 58.55 % | 59.60 % | 61.66 % | 3,247 | 3,330 | 3,474 | 5,546 | 5,587 | 5,634 |
| 65-74 | 64.26 % | 66.02 % | 68.34 % | 4,887 | 4,758 | 4,815 | 7,605 | 7,207 | 7,046 |
| **Total** | **57.87 %** | **59.08 %** | **61.74 %** | **9,635** | **9,589** | **9,860** | **16,649** | **16,230** | **15,969** |

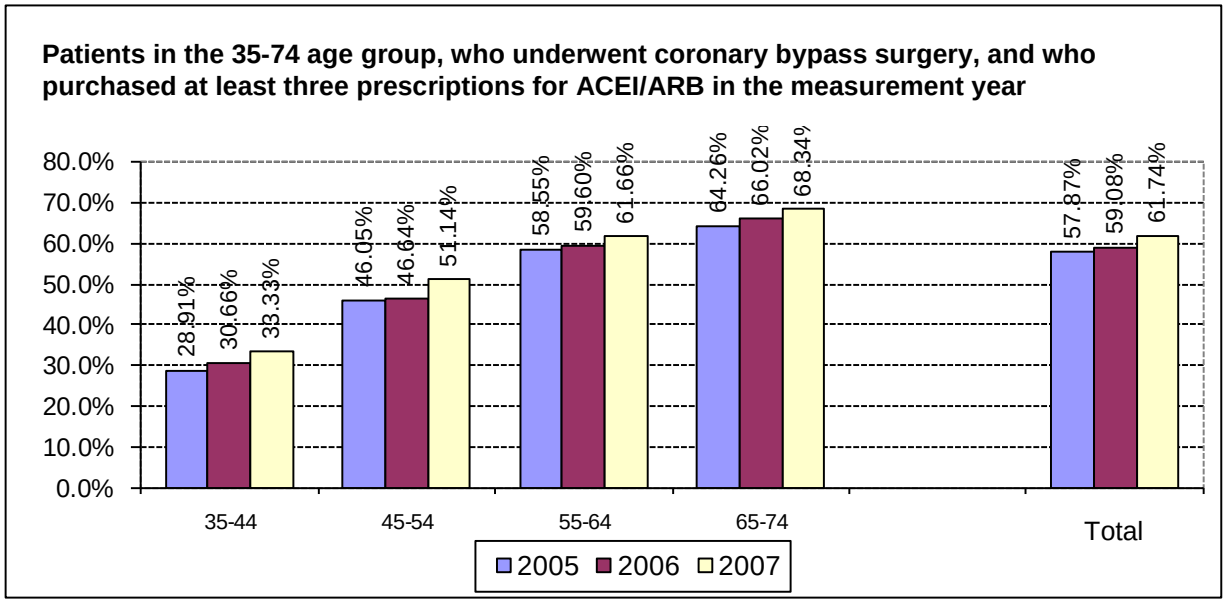


Figure 117: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 38.65 % | 20.11 % | 33.33 % | 172 | 36 | 208 | 445 | 179 | 624 |
| 45-54 | 53.11 % | 42.54 % | 51.14 % | 1,152 | 211 | 1,363 | 2,169 | 496 | 2,665 |
| 55-64 | 61.93 % | 60.61 % | 61.66 % | 2,774 | 700 | 3,474 | 4,479 | 1,155 | 5,634 |
| 65-74 | 66.76 % | 72.37 % | 68.34 % | 3,382 | 1,433 | 4,815 | 5,066 | 1,980 | 7,046 |
| **Total** | **61.52 %** | **62.47 %** | **61.74 %** | **7,480** | **2,380** | **9,860** | **12,159** | **3,810** | **15,969** |

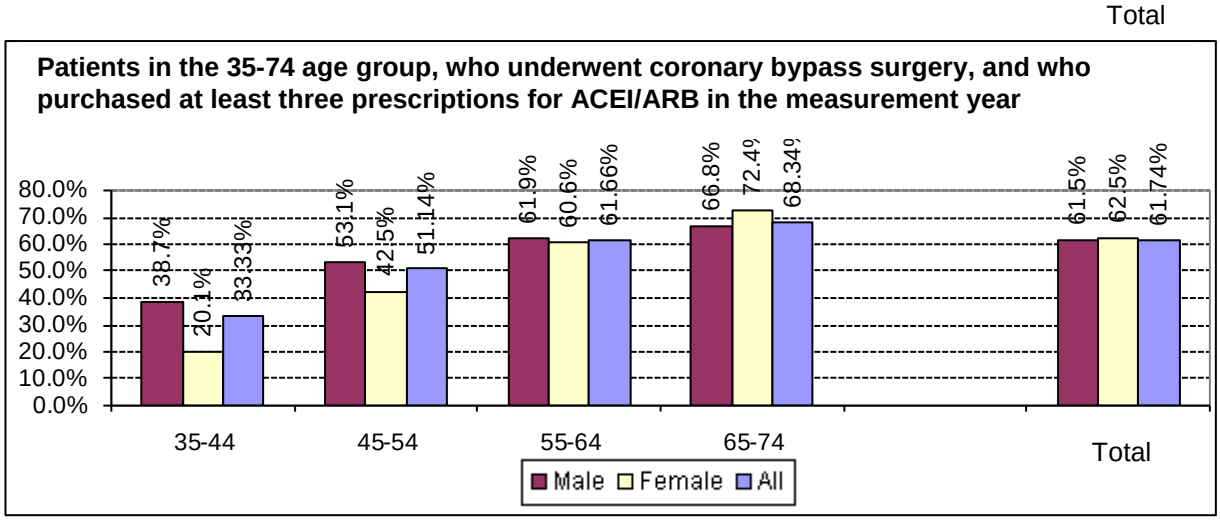
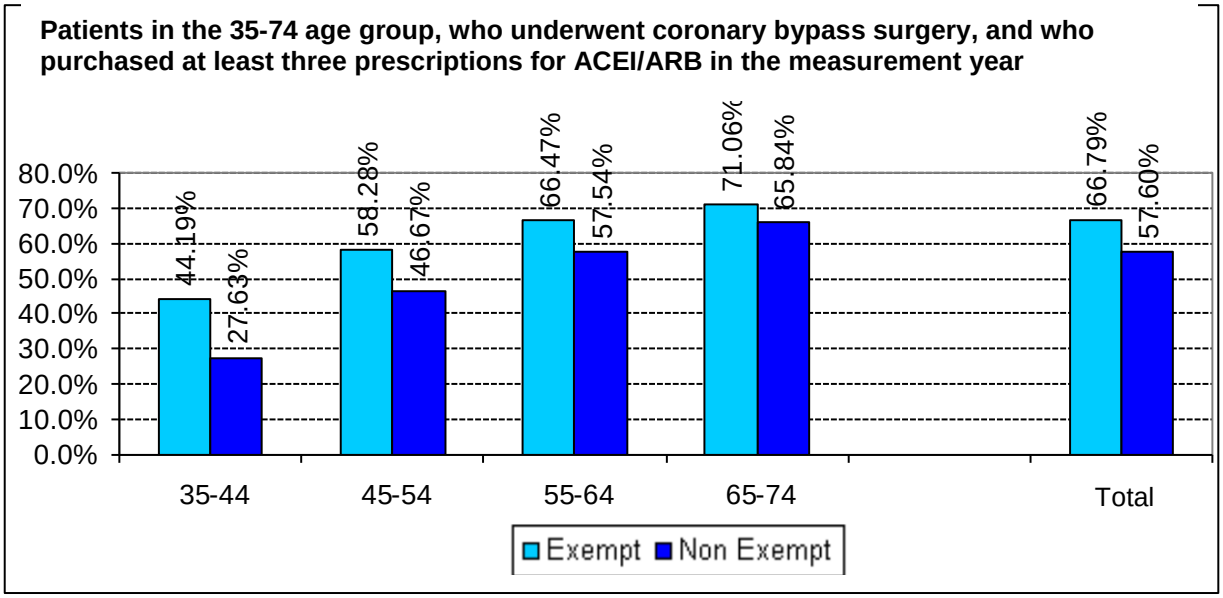



Figure 118: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 44.19 % | 27.63 % | 33.33 % | 95 | 113 | 208 | 215 | 409 | 624 |
| 45-54 | 58.28 % | 46.67 % | 51.14 % | 598 | 765 | 1,363 | 1,026 | 1,639 | 2,665 |
| 55-64 | 66.47 % | 57.54 % | 61.66 % | 1,727 | 1,747 | 3,474 | 2,598 | 3,036 | 5,634 |
| 65-74 | 71.06 % | 65.84 % | 68.34 % | 2,392 | 2,423 | 4,815 | 3,366 | 3,680 | 7,046 |
| **Total** | **66.79 %** | **57.60 %** | **61.74 %** | **4,812** | **5,048** | **9,860** | **7,205** | **8,764** | **15,969** |




### A.1.3 Drug therapy following coronary bypass surgery – beta blockers

Definition of the indicator:

The rate of patients, men and women in the 35-74 age group, who have had *coronary bypass surgery* (Code 36.1) in the past five years and who have purchased at least three prescriptions for beta blockers in the measurement year.

Limitations of the indicator: It is assumed that a sizeable portion of this population requires treatment with beta blockers, although it is reasonable to assume that some of the patients could not receive these drugs due to contraindications.

Main Findings:

- In 2007, 70.4% of the patients who underwent surgery purchased beta blockers. Only approximately 54.2% of the patients in the 35-44 age group who underwent surgery purchased these drugs, while approximately 73.4% of those aged 65 and older who underwent surgery purchased this treatment. An annual increase in the purchase of beta blockers was recorded during the reporting period (Figure 120).
- No significant differences were found in the purchase of beta blockers by men and women, with the exception of in the young group (35-44), where men purchased more of these drugs (58.7% compared to 43.3%, respectively) (Figure 121).
- Patients exempt from NII payments purchased slightly more beta blockers than the rest of those who underwent surgery, 72.4% compared to 68.8%, respectively – a difference found in all age groups (Figure 122).

Figure 119: Rate of patients who underwent coronary bypass surgery and receive beta blockers, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 51.25 % | 51.26 % | 53.85 % | 328 | 326 | 336 | 640 | 636 | 624 |
| 45-54 | 65.05 % | 64.46 % | 65.48 % | 1,859 | 1,805 | 1,745 | 2,858 | 2,800 | 2,665 |
| 55-64 | 70.41 % | 70.31 % | 71.09 % | 3,905 | 3,928 | 4,005 | 5,546 | 5,587 | 5,634 |
| 65-74 | 70.74 % | 71.90 % | 72.76 % | 5,380 | 5,182 | 5,127 | 7,605 | 7,207 | 7,046 |
| **Total** | **68.91 %** | **69.26 %** | **70.22 %** | **11,472** | **11,241** | **11,213** | **16,649** | **16,230** | **15,969** |

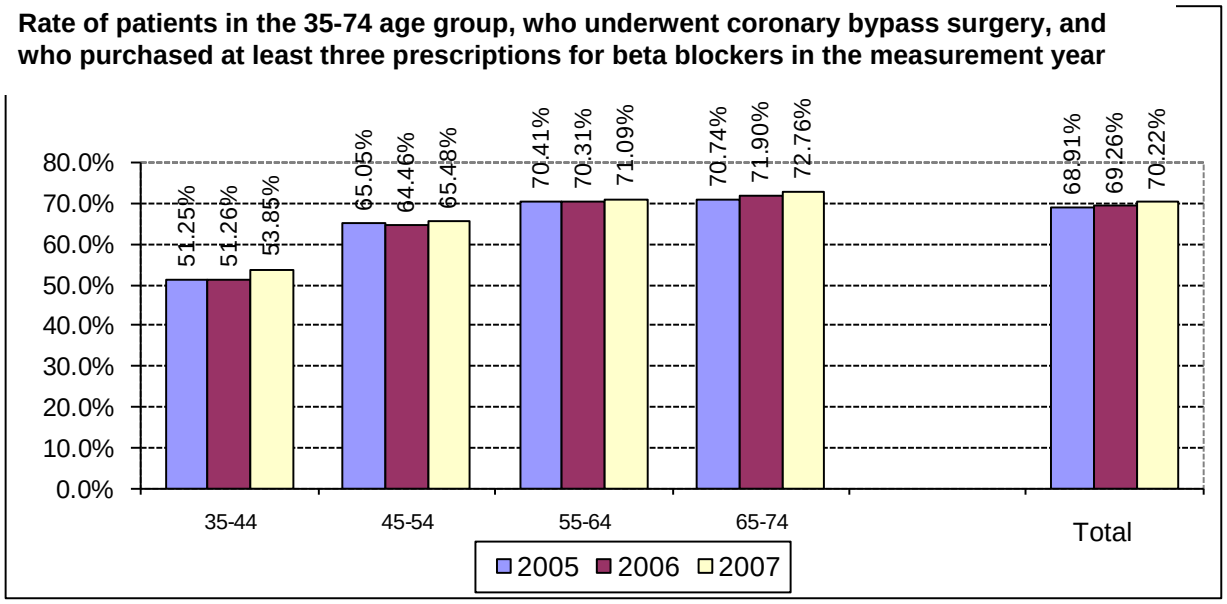



Figure 120: Rate of patients who underwent coronary bypass surgery and receive beta blockers, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 57.98 % | 43.58 % | 53.85 % | 258 | 78 | 336 | 445 | 179 | 624 |
| 45-54 | 66.34 % | 61.69 % | 65.48 % | 1,439 | 306 | 1,745 | 2,169 | 496 | 2,665 |
| 55-64 | 71.22 % | 70.56 % | 71.09 % | 3,190 | 815 | 4,005 | 4,479 | 1,155 | 5,634 |
| 65-74 | 71.87 % | 75.05 % | 72.76 % | 3,641 | 1,486 | 5,127 | 5,066 | 1,980 | 7,046 |
| **Total** | **70.14 %** | **70.47 %** | **70.22 %** | **8,528** | **2,685** | **11,213** | **12,159** | **3,810** | **15,969** |

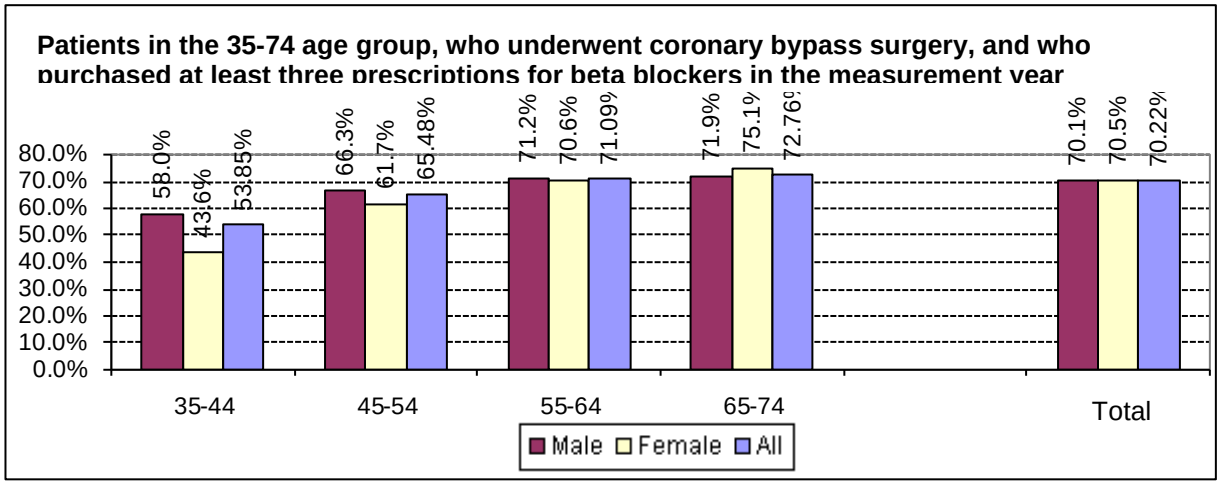
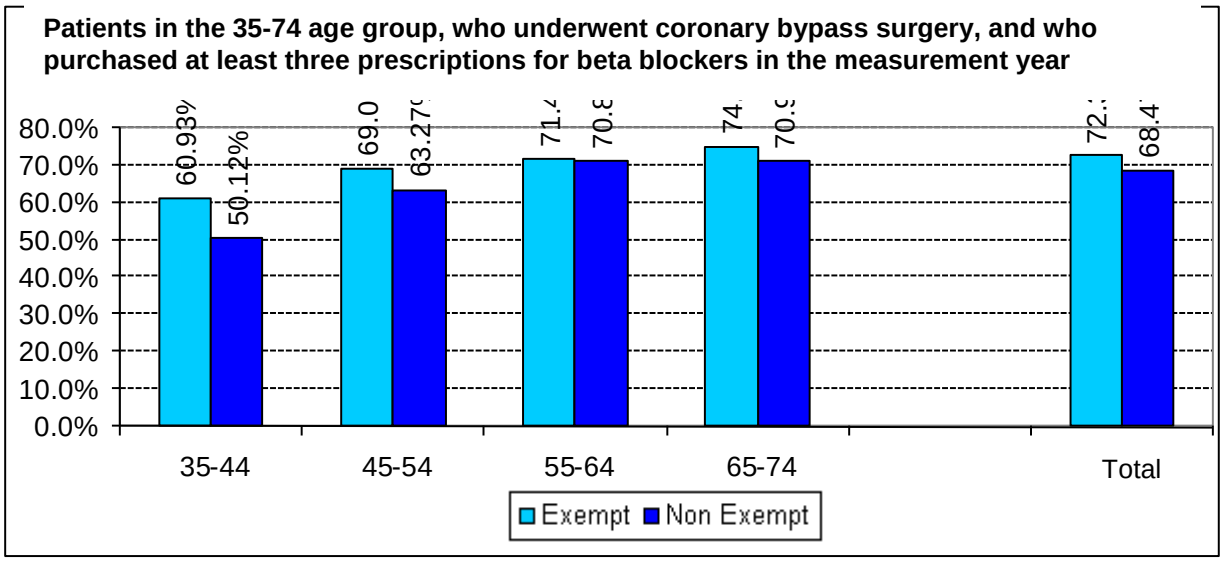



Figure 121: Rate of patients who underwent coronary bypass surgery and receive beta blockers, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 60.93 % | 50.12 % | 53.85 % | 131 | 205 | 336 | 215 | 409 | 624 |
| 45-54 | 69.01 % | 63.27 % | 65.48 % | 708 | 1,037 | 1,745 | 1,026 | 1,639 | 2,665 |
| 55-64 | 71.40 % | 70.82 % | 71.09 % | 1,855 | 2,150 | 4,005 | 2,598 | 3,036 | 5,634 |
| 65-74 | 74.81 % | 70.90 % | 72.76 % | 2,518 | 2,609 | 5,127 | 3,366 | 3,680 | 7,046 |
| **Total** | **72.34 %** | **68.47 %** | **70.22 %** | **5,212** | **6,001** | **11,213** | **7,205** | **8,764** | **15,969** |



## A.2 Drug therapy following therapeutic coronary angiography

### A.2.1 Drug therapy following therapeutic coronary angiography - statins

Definition of the indicator:

The rate of patients, men and women in the 35-74 age group, who have had *therapeutic coronary angiography* (Code 37.20) in the past five years and who have purchased at least three prescriptions for statins in the measurement year. The target population for this indicator in 2007 was 50,215 subjects, slightly higher than in previous years, as a reflection of the continued increase in performance of these actions in recent years.

Limitations of the indicator: It is assumed that a sizeable portion of this population requires treatment for the reduction of blood cholesterol level.

Main Findings:

- In 2007, 84.4% of the patients who underwent therapeutic coronary angiography purchased statins. In the 35-44 age group, only approximately 66.5% of patients who underwent therapeutic coronary angiography purchased statins, while among patients aged 65 and older, over 88.5% of those who underwent therapeutic coronary angiography received this treatment. An annual increase was recorded in the performance of this indicator (Figure 123).
- Young men purchased [or required] more statins than did young women (73.0% compared to 31.0%, respectively), but from the age of 55, differences by sex were equalized (Figure 124).
- No differences were found in the purchase of statins based on status of exemption from NII payments (Figure 125).

Figure 122: Rate of patients who underwent therapeutic coronary angiography and receive statins, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 64.56 % | 65.78 % | 66.55 % | 1,492 | 1,632 | 1,697 | 2,311 | 2,481 | 2,550 |
| 45-54 | 77.18 % | 78.73 % | 79.40 % | 7,726 | 8,533 | 8,987 | 10,011 | 10,838 | 11,319 |
| 55-64 | 82.68 % | 84.99 % | 85.85 % | 12,091 | 14,199 | 15,856 | 14,623 | 16,707 | 18,469 |
| 65-74 | 84.72 % | 87.58 % | 88.58 % | 13,051 | 14,725 | 15,836 | 15,405 | 16,814 | 17,877 |
| **Total** | **81.13 %** | **83.45 %** | **84.39 %** | **34,360** | **39,089** | **42,376** | **42,350** | **46,840** | **50,215** |

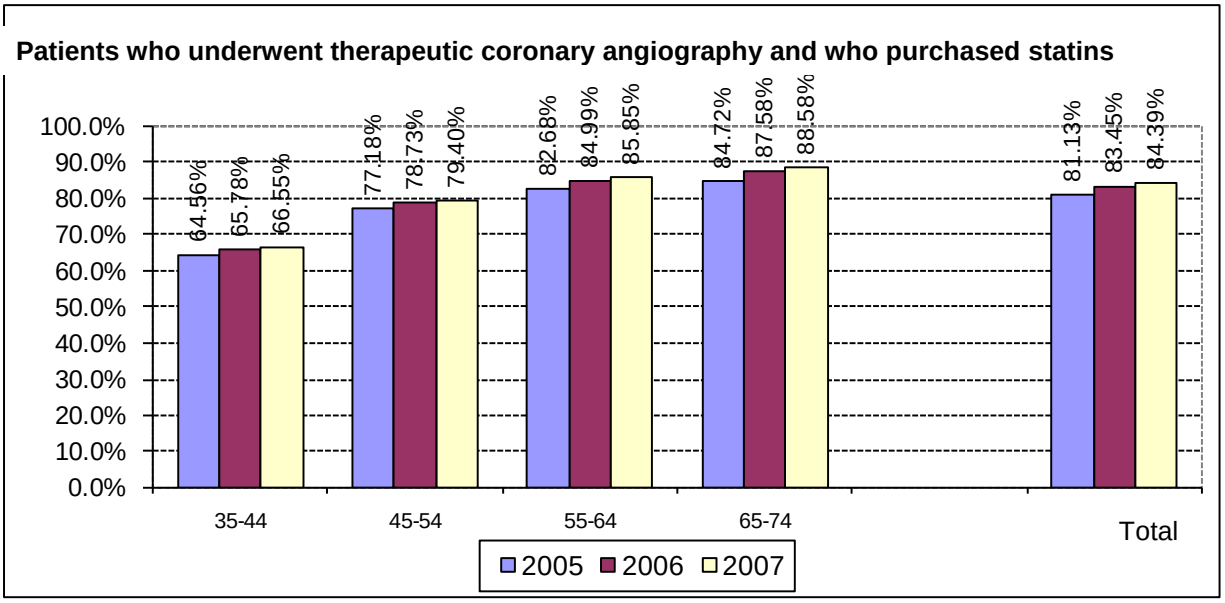



Figure 123: Rate of patients who underwent therapeutic coronary angiography and receive statins, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 73.07 % | 31.06 % | 66.55 % | 1,574 | 123 | 1,697 | 2,154 | 396 | 2,550 |
| 45-54 | 80.80 % | 69.74 % | 79.40 % | 7,987 | 1,000 | 8,987 | 9,885 | 1,434 | 11,319 |
| 55-64 | 86.02 % | 85.04 % | 85.85 % | 13,219 | 2,637 | 15,856 | 15,368 | 3,101 | 18,469 |
| 65-74 | 88.25 % | 89.47 % | 88.58 % | 11,452 | 4,384 | 15,836 | 12,977 | 4,900 | 17,877 |
| **Total** | **84.77 %** | **82.84 %** | **84.39 %** | **34,232** | **8,144** | **42,376** | **40,384** | **9,831** | **50,215** |

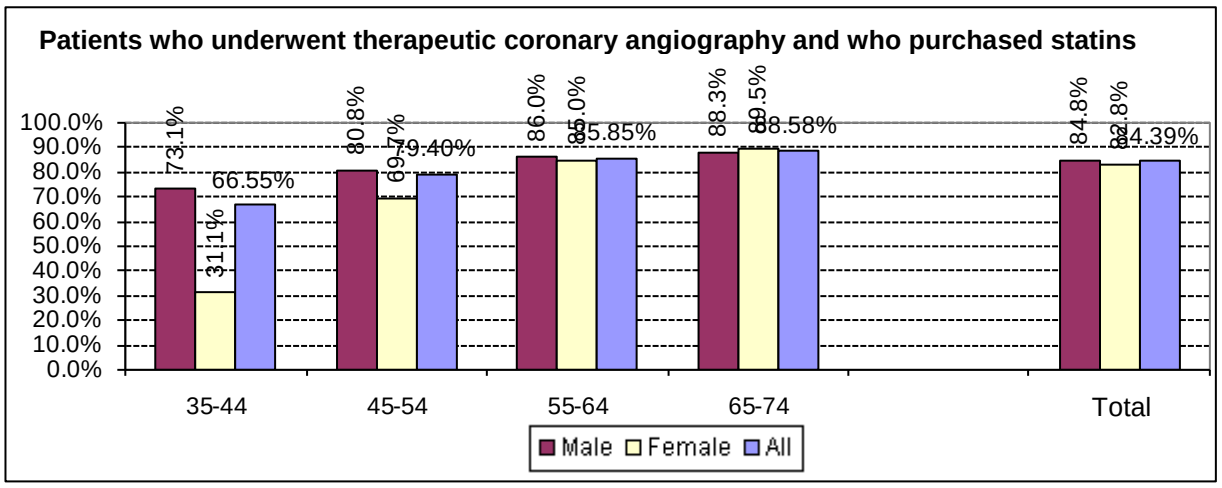
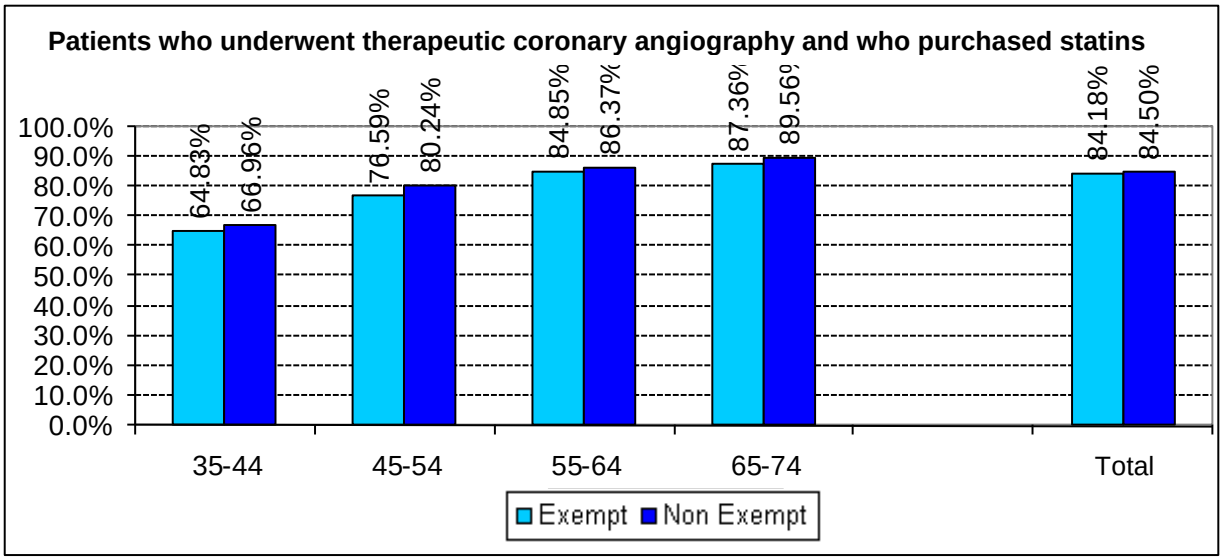


Figure 124: Rate of patients who underwent therapeutic coronary angiography and receive statins, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Exempt | Non-exempt | All | Exempt | Non-exempt | All | Exempt | Non-exempt | All |
| 35-44 | 64.83 % | 66.96 % | 66.55 % | 317 | 1,380 | 1,697 | 489 | 2,061 | 2,550 |
| 45-54 | 76.59 % | 80.24 % | 79.40 % | 2,009 | 6,978 | 8,987 | 2,623 | 8,696 | 11,319 |
| 55-64 | 84.85 % | 86.37 % | 85.85 % | 5,330 | 10,526 | 15,856 | 6,282 | 12,187 | 18,469 |
| 65-74 | 87.36 % | 89.56 % | 88.58 % | 6,924 | 8,912 | 15,836 | 7,926 | 9,951 | 17,877 |
| **Total** | **84.18 %** | **84.50 %** | **84.39 %** | **14,580** | **27,796** | **42,376** | **17,320** | **32,895** | **50,215** |




### A.2.2 Drug therapy following therapeutic coronary angiography – ACEI/ARB

Definition of the indicator:

The rate of patients, men and women in the 35-74 age group, who have had *therapeutic coronary angiography* (Code 37.20) in the past five years and who have purchased at least three prescriptions for ACEI/ARB in the measurement year.

Limitations of the indicator: It is assumed that a sizeable portion of this population requires treatment with ACEI/ARB, although the indicator itself is not restricted to patients with proven disturbance in heart function, and there are patients who should not receive these drugs due to contraindications.

Main Findings:

- In 2007, 63.7% of the patients who underwent therapeutic coronary angiography purchased ACEI/ARB. Only approximately 42.6% of the patients in the 35-44 age group who underwent therapeutic coronary angiography purchased these drugs, while approximately 70.9% of those aged 65 and older who underwent therapeutic

coronary angiography purchased this treatment. An annual increase was recorded in the rate of patients who purchase ACEI/ARB (Figure 126).

- Women purchased more ACEI/ARB than men, 65.8% compared to 63.2%, respectively. The most significant difference was found in the young 35-44 age group (Figure 127).
- Patients exempt from NII payments purchased more ACEI/ARB than the rest of those who underwent therapeutic coronary angiography, 69.6% compared to 60.6%, respectively – a difference found in all age groups (Figure 128).

Figure 125: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 40.46 % | 41.96 % | 42.63 % | 935 | 1,041 | 1,087 | 2,311 | 2,481 | 2,550 |
| 45-54 | 51.60 % | 53.27 % | 55.57 % | 5,166 | 5,773 | 6,290 | 10,011 | 10,838 | 11,319 |
| 55-64 | 61.08 % | 62.81 % | 64.72 % | 8,932 | 10,494 | 11,954 | 14,623 | 16,707 | 18,469 |
| 65-74 | 67.26 % | 69.34 % | 70.91 % | 10,361 | 11,659 | 12,676 | 15,405 | 16,814 | 17,877 |
| **Total** | **59.96 %** | **61.84 %** | **63.74 %** | **25,394** | **28,967** | **32,007** | **42,350** | **46,840** | **50,215** |

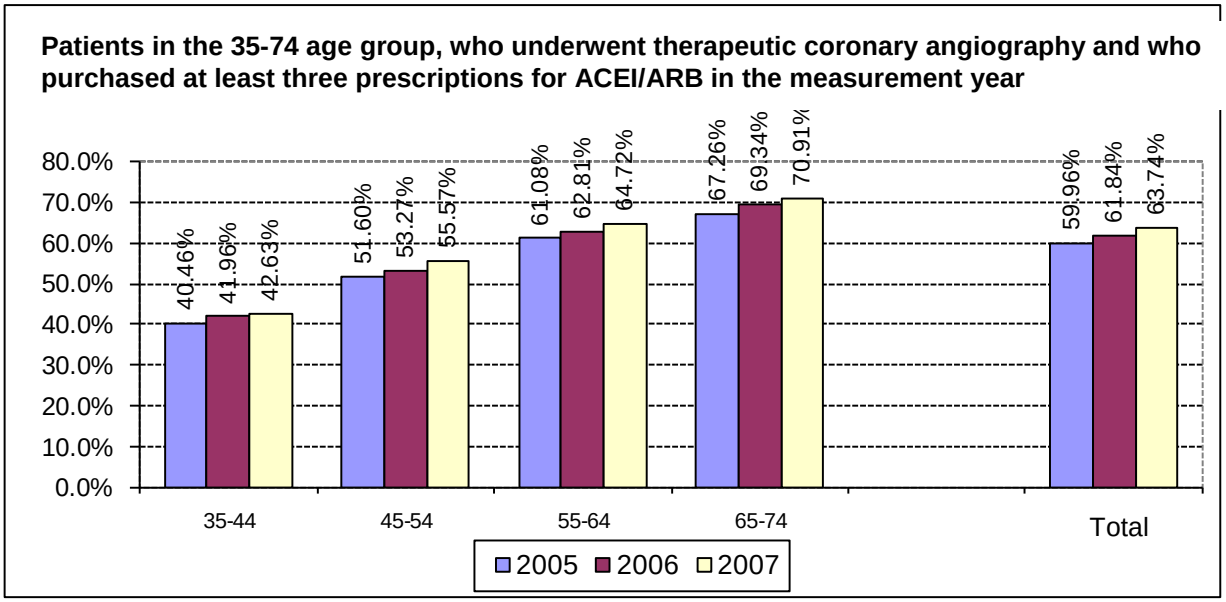


Figure 126: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 45.73 % | 25.76 % | 42.63 % | 985 | 102 | 1,087 | 2,154 | 396 | 2,550 |
| 45-54 | 56.04 % | 52.30 % | 55.57 % | 5,540 | 750 | 6,290 | 9,885 | 1,434 | 11,319 |
| 55-64 | 64.61 % | 65.27 % | 64.72 % | 9,930 | 2,024 | 11,954 | 15,368 | 3,101 | 18,469 |
| 65-74 | 70.00 % | 73.31 % | 70.91 % | 9,084 | 3,592 | 12,676 | 12,977 | 4,900 | 17,877 |
| **Total** | **63.24 %** | **65.79 %** | **63.74 %** | **25,539** | **6,468** | **32,007** | **40,384** | **9,831** | **50,215** |

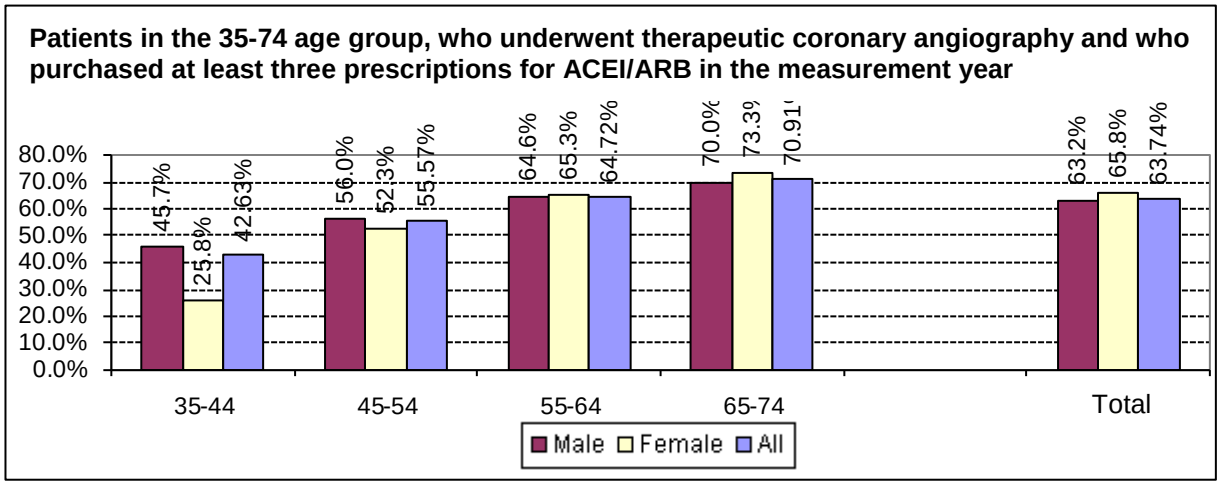
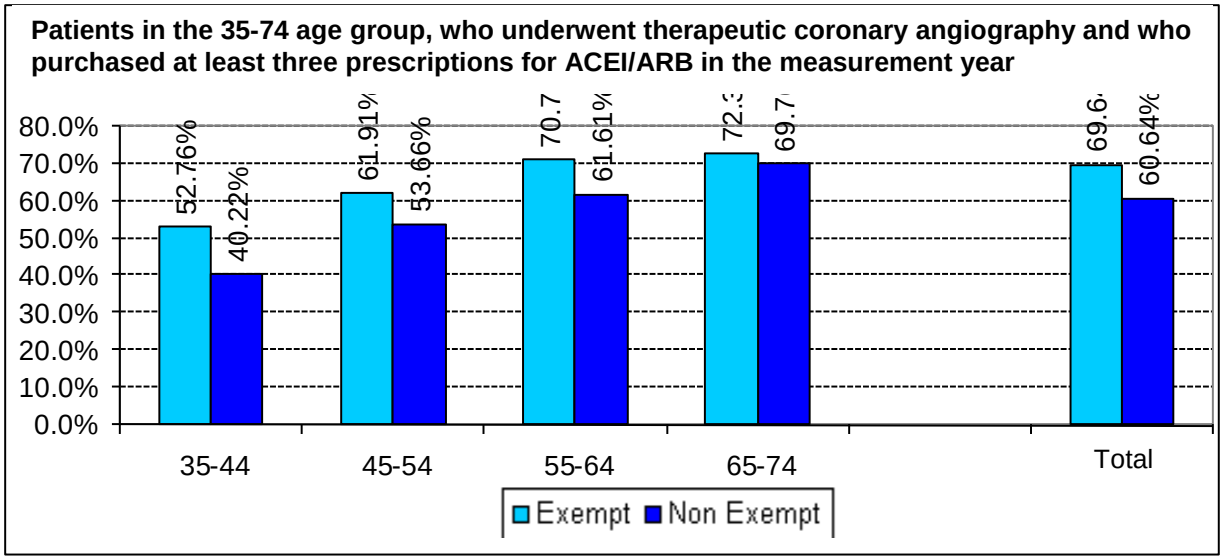



Figure 127: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 52.76 % | 40.22 % | 42.63 % | 258 | 829 | 1,087 | 489 | 2,061 | 2,550 |
| 45-54 | 61.91 % | 53.66 % | 55.57 % | 1,624 | 4,666 | 6,290 | 2,623 | 8,696 | 11,319 |
| 55-64 | 70.76 % | 61.61 % | 64.72 % | 4,445 | 7,509 | 11,954 | 6,282 | 12,187 | 18,469 |
| 65-74 | 72.34 % | 69.76 % | 70.91 % | 5,734 | 6,942 | 12,676 | 7,926 | 9,951 | 17,877 |
| **Total** | **69.64 %** | **60.64 %** | **63.74 %** | **12,061** | **19,946** | **32,007** | **17,320** | **32,895** | **50,215** |




### A.2.3 Drug therapy following therapeutic coronary angiography – beta blockers

Definition of the indicator:

The rate of patients, men and women in the 35-74 age group, who have had *therapeutic coronary angiography* (Code 37.20) in the past five years and who have purchased at least three prescriptions for beta blockers in the measurement year.

Limitations of the indicator: It is assumed that a sizeable portion of this population requires treatment with beta blockers, although it is reasonable to assume that some of the patients could not receive these drugs due to contraindications.

Main Findings:

- In 2007, 67.9% of the patients who underwent therapeutic coronary angiography purchased beta blockers, similar to previous years. Only approximately 55.4% of the patients in the 35-44 age group who underwent therapeutic coronary angiography purchased these drugs, while approximately 71.3% of those aged 65 and older who underwent therapeutic coronary angiography purchased this treatment (Figure 129).
- Women purchased more beta blockers than men, 70.4% compared to 67.3%, respectively, with the exception of the 35-44 age group, where men purchased more beta blockers than women, 58.9% compared to 36.3%, respectively (Figure 130).
- Patients exempt from NII payments purchased slightly more beta blockers than the rest of those who underwent therapeutic coronary angiography, 71.1% compared to 66.2%, respectively – a difference found in all age groups (Figure 131).

Figure 128: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 55.95 % | 54.82 % | 55.41 % | 1,293 | 1,360 | 1,413 | 2,311 | 2,481 | 2,550 |
| 45-54 | 65.58 % | 64.19 % | 63.62 % | 6,565 | 6,957 | 7,201 | 10,011 | 10,838 | 11,319 |
| 55-64 | 70.12 % | 69.08 % | 68.97 % | 10,254 | 11,542 | 12,738 | 14,623 | 16,707 | 18,469 |
| 65-74 | 72.09 % | 71.55 % | 71.38 % | 11,105 | 12,031 | 12,761 | 15,405 | 16,814 | 17,877 |
| **Total** | **68.99 %** | **68.08 %** | **67.93 %** | **29,217** | **31,890** | **34,113** | **42,350** | **46,840** | **50,215** |

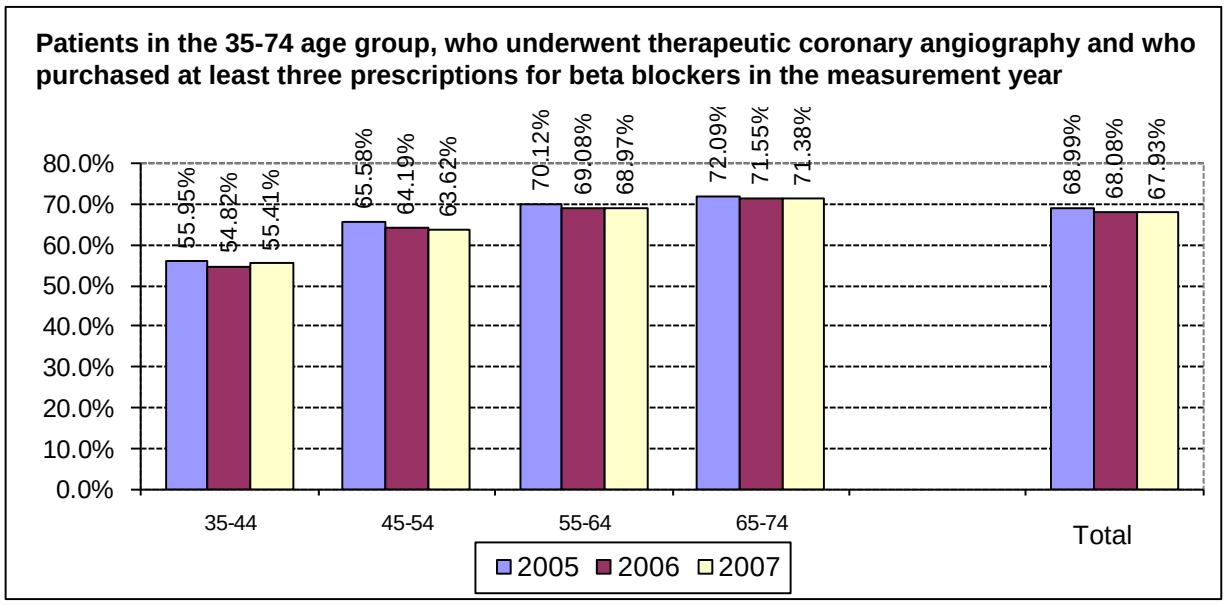



Figure 129: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 58.91 % | 36.36 % | 55.41 % | 1,269 | 144 | 1,413 | 2,154 | 396 | 2,550 |
| 45-54 | 63.99 % | 61.09 % | 63.62 % | 6,325 | 876 | 7,201 | 9,885 | 1,434 | 11,319 |
| 55-64 | 68.58 % | 70.91 % | 68.97 % | 10,539 | 2,199 | 12,738 | 15,368 | 3,101 | 18,469 |
| 65-74 | 69.81 % | 75.55 % | 71.38 % | 9,059 | 3,702 | 12,761 | 12,977 | 4,900 | 17,877 |
| **Total** | **67.33 %** | **70.40 %** | **67.93 %** | **27,192** | **6,921** | **34,113** | **40,384** | **9,831** | **50,215** |

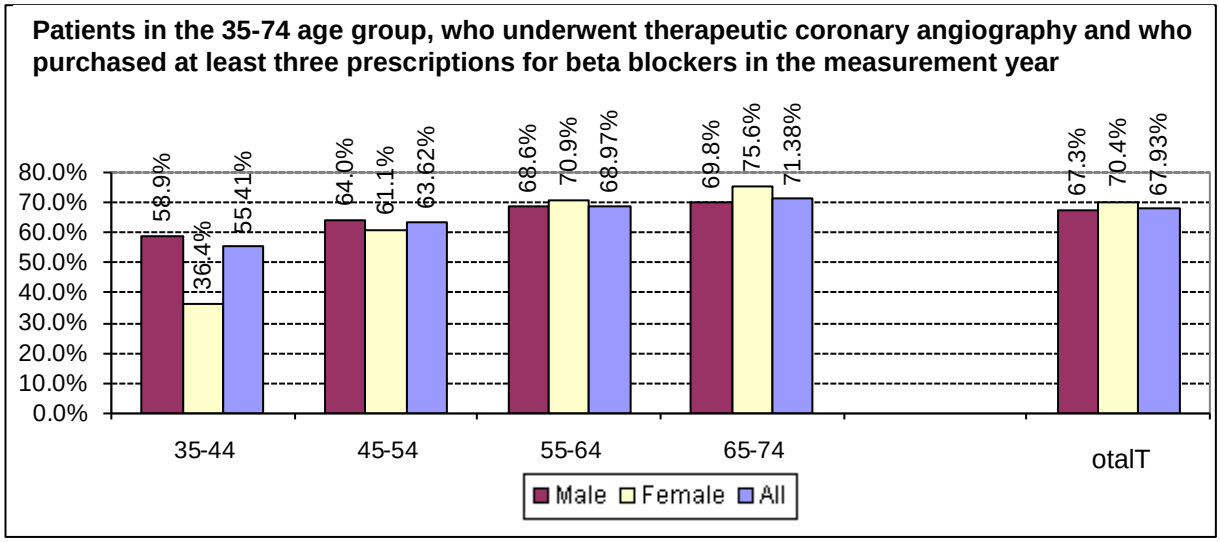
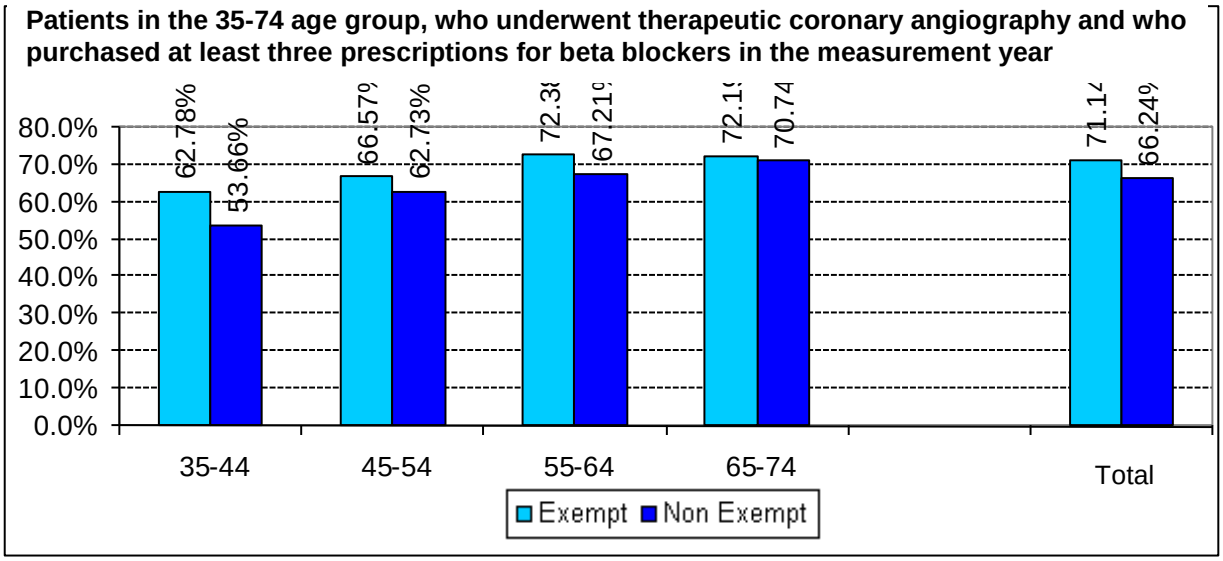



Figure 130: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 62.78 % | 53.66 % | 55.41 % | 307 | 1,106 | 1,413 | 489 | 2,061 | 2,550 |
| 45-54 | 66.57 % | 62.73 % | 63.62 % | 1,746 | 5,455 | 7,201 | 2,623 | 8,696 | 11,319 |
| 55-64 | 72.38 % | 67.21 % | 68.97 % | 4,547 | 8,191 | 12,738 | 6,282 | 12,187 | 18,469 |
| 65-74 | 72.19 % | 70.74 % | 71.38 % | 5,722 | 7,039 | 12,761 | 7,926 | 9,951 | 17,877 |
| **Total** | **71.14 %** | **66.24 %** | **67.93 %** | **12,322** | **21,791** | **34,113** | **17,320** | **32,895** | **50,215** |



## B. Control of risk factors in cardiovascular patients

### Background

Medical guidelines specify an LDL control target level of lower than 100 mg/dl for patients with advanced coronary heart disease who required invasive treatment, whether therapeutic coronary angiography or coronary bypass, and who are receiving treatment to lower cholesterol [16]. As described in the chapter about cholesterol control in diabetes patients, the American Heart Association 2006 guidelines recommend considering lowering LDL cholesterol values to 70 mg/dl, although the initial target remains below 100 mg/dl [6].

### B.1 LDL cholesterol level following coronary bypass surgery

Definition of the indicator:

The percentage of patients aged 35+ who have undergone coronary bypass surgery in the past five years and whose most recent test of blood fat levels in the measurement year shows an LDL cholesterol level below 100 mg/dl. In 2007, the target population for this indicator was 14,196 individuals, or 88.9% of those who underwent surgery (with documentation of LDL cholesterol level).

Limitations of the indicator: It is assumed that controlled cholesterol will prevent new cardiovascular events [surrogate measure].

Main Findings:

- In 2007, 68.3% of patients following coronary bypass surgery attained the LDL cholesterol control target of less than 100 mg/dl. The target was achieved more often in patients in the 65-74 age group than among younger patients, 72.6% and 54.4%, respectively (Figure 132).
- A 12% increase (absolute) was recorded in performance of the indicator during the reporting period (Figure 132).
- The rate for achieving the control target was higher for men than women, 70.2% compared to 62.4%, respectively. This difference was maintained in all age groups (Figure 133).
- A slightly lower rate of patients exempt from NII payments achieved the control target compared to the other patients, 65.4% compared to 70.7%, respectively (Figure 134).

Figure 131: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 42.75 % | 46.77 % | 51.59 % | 177 | 203 | 244 | 414 | 434 | 473 |
| 45-54 | 48.46 % | 53.91 % | 57.23 % | 1,102 | 1,235 | 1,258 | 2,274 | 2,291 | 2,198 |
| 55-64 | 55.68 % | 61.87 % | 67.80 % | 2,667 | 3,043 | 3,400 | 4,790 | 4,918 | 5,015 |
| 65-74 | 59.12 % | 67.16 % | 72.07 % | 4,003 | 4,397 | 4,692 | 6,771 | 6,547 | 6,510 |
| **Total** | **55.79 %** | **62.57 %** | **67.58 %** | **7,949** | **8,878** | **9,594** | **14,249** | **14,190** | **14,196** |

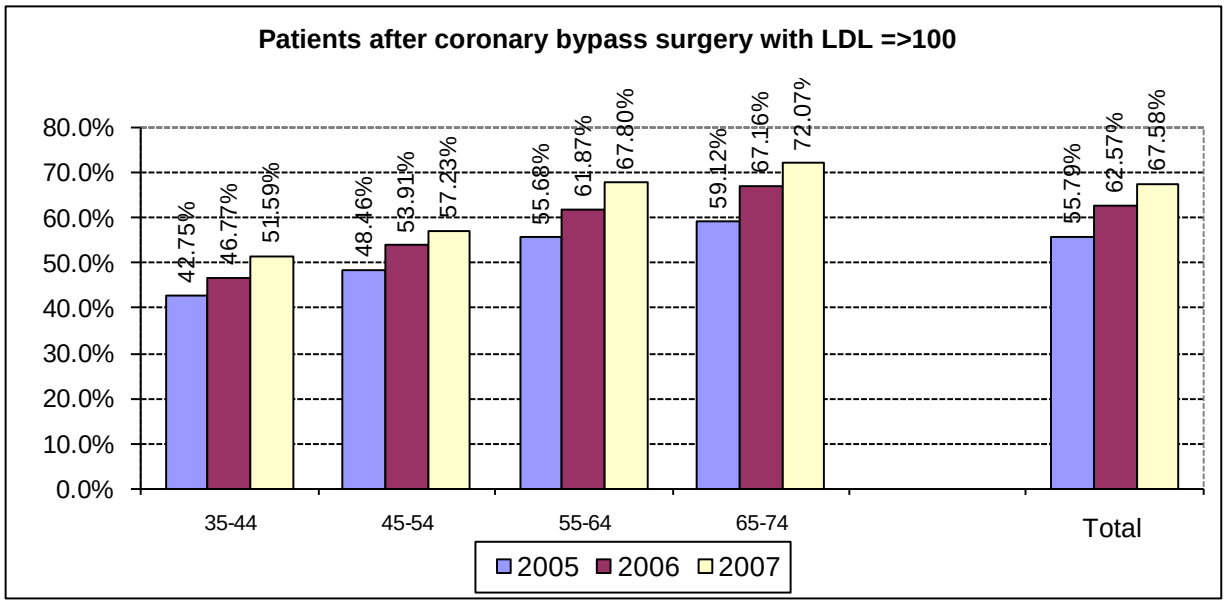



Figure 132: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **All** | **Male** | **Female** | **All** | **Male** | **Female** | **All** |
| 35-44 | 54.33 % | 44.93 % | 51.59 % | 182 | 62 | 244 | 335 | 138 | 473 |
| 45-54 | 58.91 % | 50.00 % | 57.23 % | 1,051 | 207 | 1,258 | 1,784 | 414 | 2,198 |
| 55-64 | 69.72 % | 60.55 % | 67.80 % | 2,763 | 637 | 3,400 | 3,963 | 1,052 | 5,015 |
| 65-74 | 74.51 % | 65.93 % | 72.07 % | 3,475 | 1,217 | 4,692 | 4,664 | 1,846 | 6,510 |
| **Total** | **69.52 %** | **61.54 %** | **67.58 %** | **7,471** | **2,123** | **9,594** | **10,746** | **3,450** | **14,196** |

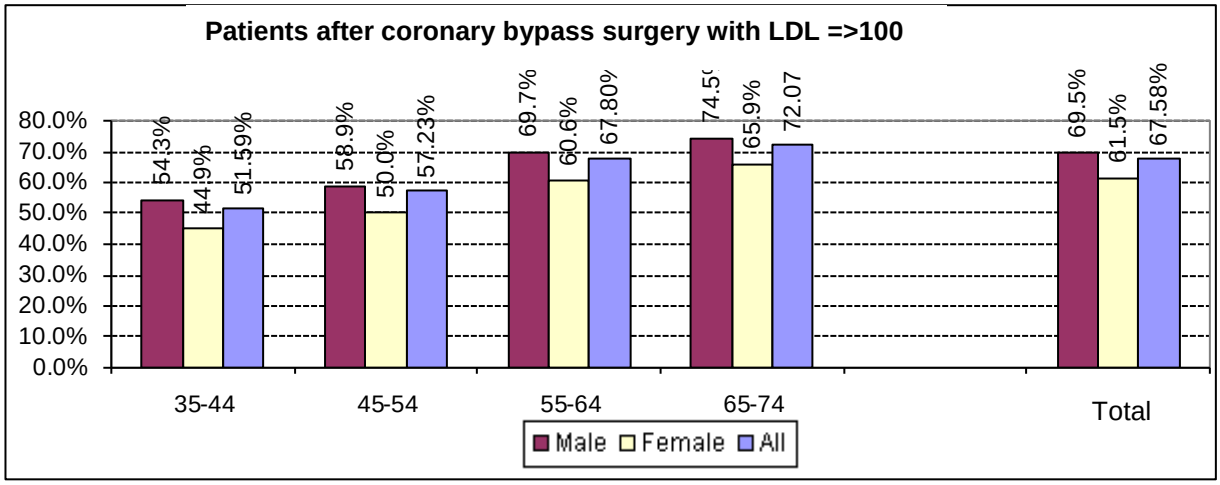
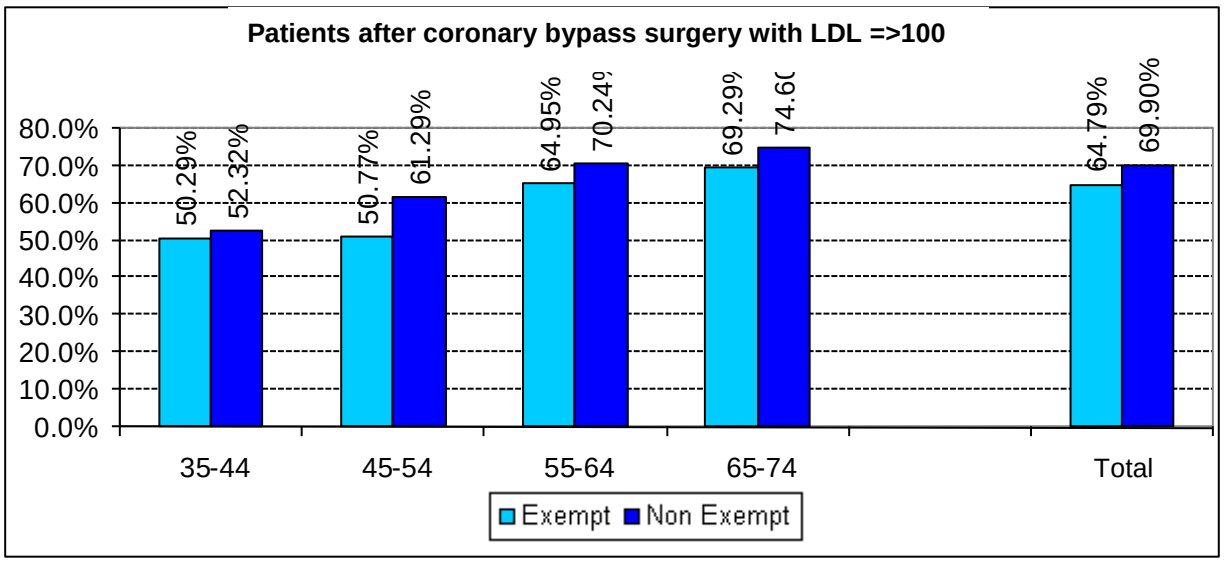



Figure 133: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 50.29 % | 52.32 % | 51.59 % | 86 | 158 | 244 | 171 | 302 | 473 |
| 45-54 | 50.77 % | 61.29 % | 57.23 % | 430 | 828 | 1,258 | 847 | 1,351 | 2,198 |
| 55-64 | 64.95 % | 70.24 % | 67.80 % | 1,505 | 1,895 | 3,400 | 2,317 | 2,698 | 5,015 |
| 65-74 | 69.29 % | 74.60 % | 72.07 % | 2,148 | 2,544 | 4,692 | 3,100 | 3,410 | 6,510 |
| **Total** | **64.79 %** | **69.90 %** | **67.58 %** | **4,169** | **5,425** | **9,594** | **6,435** | **7,761** | **14,196** |



### B.2 LDL cholesterol level following therapeutic coronary angiography

Definition of the indicator:

The percentage of patients aged 35+ who have undergone therapeutic coronary angiography in the past five years and whose most recent test of blood fat levels shows an LDL cholesterol level below 100 mg/dl. In 2007, the target population for this indicator was 43,481 individuals, or 86.6% of those who underwent therapeutic coronary angiography (with documentation of LDL cholesterol level). Limitations of the indicator: It is assumed that controlled cholesterol will prevent new cardiovascular events [surrogate measure].

Main Findings:

- In 2007, 69.1% of patients following therapeutic coronary angiography attained the LDL cholesterol control target of less than 100 mg/dl. The target was achieve more often in patients in the 65-74 age group than among younger patients, 73.9% and 56.8%, respectively (Figure 135).
- A 11.3% increase (absolute) was recorded in performance of the indicator during the reporting period (Figure 135).
- The rate for achieving the control target was higher for men than women, 70.3% compared to 64.6%, respectively. This difference was maintained in all age groups (Figure 136).
- Fewer patients exempt from NII payments achieved the control target compared to the other patients, 66.9% compared to 70.4%, respectively (Figure 137).

Figure 134: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, by age and measurement year (2005-2007)

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** | **2005** | **2006** | **2007** |
| 35-44 | 50.65 % | 51.78 % | 56.88 % | 776 | 904 | 1,037 | 1,532 | 1,746 | 1,823 |
| 45-54 | 52.40 % | 58.09 % | 62.62 % | 4,101 | 4,992 | 5,720 | 7,826 | 8,593 | 9,135 |
| 55-64 | 57.27 % | 64.56 % | 69.40 % | 7,043 | 9,296 | 11,166 | 12,298 | 14,398 | 16,089 |
| 65-74 | 62.30 % | 69.38 % | 73.97 % | 8,492 | 10,552 | 12,157 | 13,630 | 15,209 | 16,434 |
| **Total** | **57.85 %** | **64.45 %** | **69.18 %** | **20,412** | **25,744** | **30,080** | **35,286** | **39,946** | **43,481** |

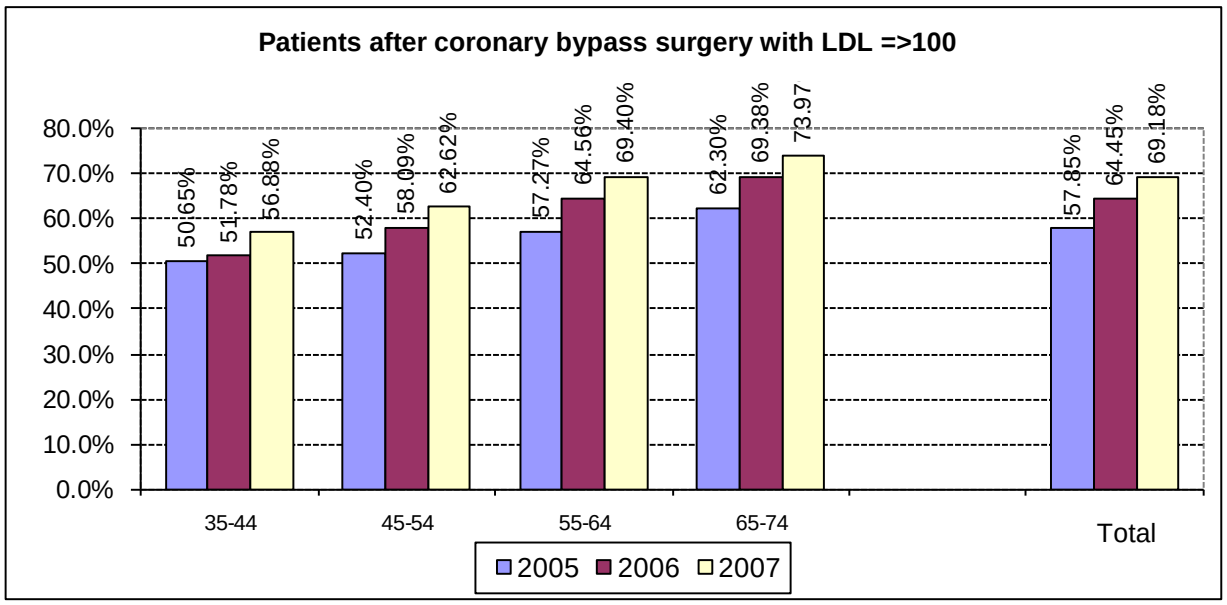



Figure 135: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, in 2007, by age and sex

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | All | Male | Female | All | Male | Female | All |
| 35-44 | 57.85 % | 51.30 % | 56.88 % | 899 | 138 | 1,037 | 1,554 | 269 | 1,823 |
| 45-54 | 63.74 % | 55.31 % | 62.62 % | 5,048 | 672 | 5,720 | 7,920 | 1,215 | 9,135 |
| 55-64 | 70.54 % | 63.95 % | 69.40 % | 9,387 | 1,779 | 11,166 | 13,307 | 2,782 | 16,089 |
| 65-74 | 76.18 % | 68.26 % | 73.97 % | 9,039 | 3,118 | 12,157 | 11,866 | 4,568 | 16,434 |
| **Total** | **70.35 %** | **64.60 %** | **69.18 %** | **24,373** | **5,707** | **30,080** | **34,647** | **8,834** | **43,481** |

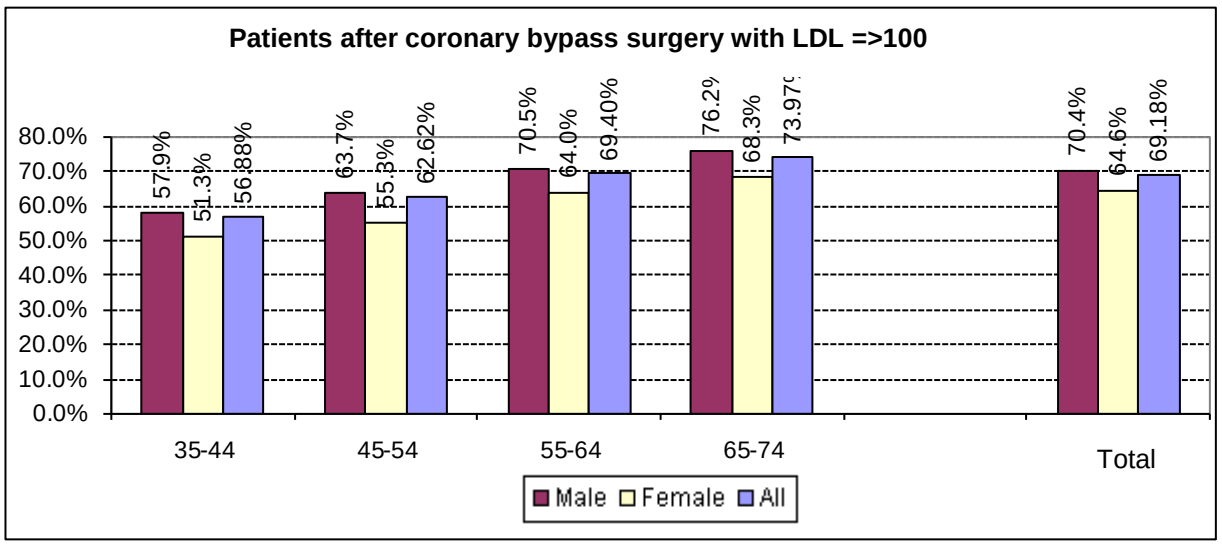
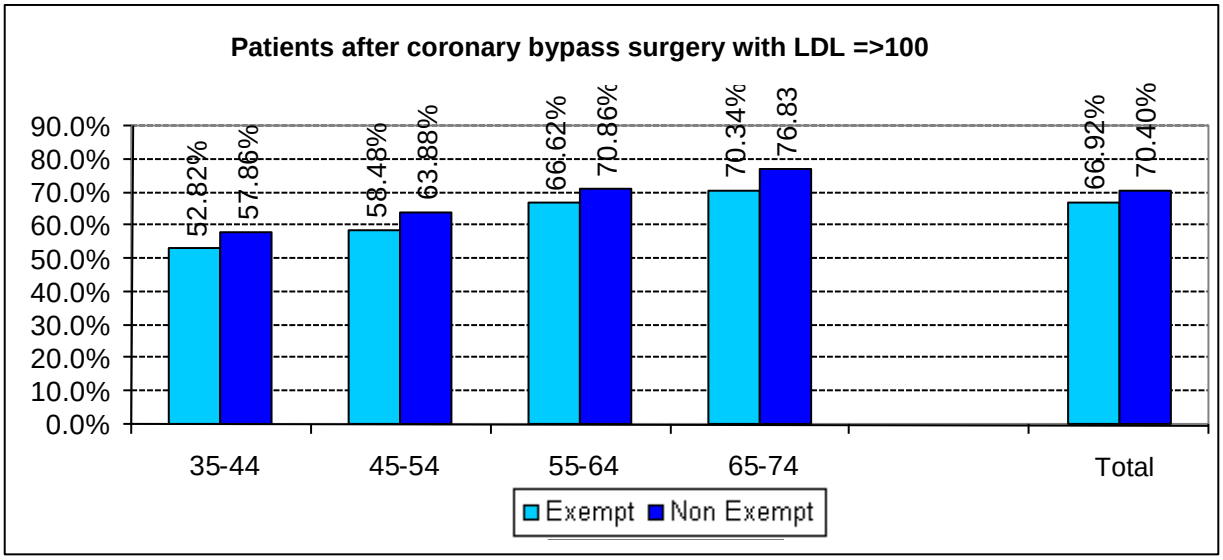


Figure 136: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, in 2007, by age and socioeconomic status

| | Ratio | | | Numerator | | | Population | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** | **Exempt** | **Non-exempt** | **All** |
| 35-44 | 52.82 % | 57.86 % | 56.88 % | 187 | 850 | 1,037 | 354 | 1,469 | 1,823 |
| 45-54 | 58.48 % | 63.88 % | 62.62 % | 1,252 | 4,468 | 5,720 | 2,141 | 6,994 | 9,135 |
| 55-64 | 66.62 % | 70.86 % | 69.40 % | 3,697 | 7,469 | 11,166 | 5,549 | 10,540 | 16,089 |
| 65-74 | 70.34 % | 76.83 % | 73.97 % | 5,082 | 7,075 | 12,157 | 7,225 | 9,209 | 16,434 |
| **Total** | **66.92 %** | **70.40 %** | **69.18 %** | **10,218** | **19,862** | **30,080** | **15,269** | **28,212** | **43,481** |



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