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 2004-2006

With the participation of:

The four Israeli HMOs

Program Management Team

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April 2007

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Acknowledgements

The Quality Indicators for Community Health Care in Israel and the 2006 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
The Ministry of Health and the Health Council
The Israel Medical Association and the National Association of Nurses in Israel
The professional medical associations
Experts from universities, 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 Third 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.

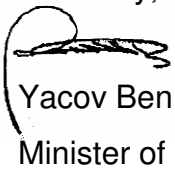
This year, the medical fields selected for evaluation are some of the most important in community health care: Diabetes, cardiovascular disease (some of the most common diseases to afflict the adult population), juvenile asthma, flu vaccination as preventive drugs, screening to identify breast and colorectal cancer.

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 (2004-2006), 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 spearheaded 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. Among other issues, we plan on examining the availability and accessibility of provision of health care services. I am certain that we can continue to look forward to the unprecedented cooperation of the four HMOs, academic experts, 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

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1. Foreword

Quality Indicators for Community Health Care in Israel is an annual report (now in its fourth 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 2007 presents data for 2004-2006. This is the first time the data is being published in April, only four months after the end of the measurement year and without delay through December.

The report presents national data in five 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:

- The current report indicates continued improvement in most of the indicators examined. It is important to note that because the report is national in scope, even a small change in performance in any of the areas covered has a far-reaching impact on the general public. For most of the indicators, national performance was rated as high by subject experts, even when compared to standards around the world.
- It is particularly important to note the continued improvement in the control of adult diabetes. The rate of "well-controlled" patients reaches close to 50%, while the rate of uncontrolled patients dropped to a low of 14%. Part of this improvement is attributable to stronger community health care, based on current guidelines.
- The report facilitates a critical examination of general medical activity in community health care in Israel. It therefore completes the picture derived from study of economic performance and from surveys on the satisfaction of insured parties. This comprehensive view enables managers and decision-makers to make better and more informed decisions.
- The improvement seen in the indicators year after year is the result of the ongoing efforts made by the four HMOs in the different fields. We believe that the Quality Indicators Program provides strong incentive for the efforts made to improve quality.

The less-good news:

- Following public fear with respect to the safety of the flu vaccine, the number of people who received the vaccine in 2006 declined. This decline was found in the entire population, as well as among asthma and diabetes patients. The absolute decline in the rate of vaccinations was approximately 3.5% in the general population [approximately 28,500 fewer people than expected], approximately 5.5% among diabetes patients and approximately 8.0% among asthma patients.

This decline halted the improvement trend we had seen for many years in the rate of people receiving flu vaccines.

- Most of the indicators show that health services are provided equally to insured individuals who have received exemptions from National Health Insurance Institute (NII) payments and the general population. Nonetheless, some indicators show discrepancies to the detriment of insured parties eligible for a discount/exemption from payment for health services.
- With respect to several of the new indicators, such as the obesity indicators, at this stage the report refers only to documentation, as the documentation level is still too low to enable conclusions to be drawn about the values of the indicator at a national level. The rapid improvement in the documentation of these indicators is encouraging, and within the next several years we may be able to publish the values of the indicators themselves.

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 82%.
- This year the rate of flu vaccinations fell to 23%, in contrast to the trend recorded in previous years [see the above report on flu vaccination].
- No difference was found with respect to preventive drugs relative to exemption from NII payments. In terms of flu vaccine, the 14% gap in favor of those who are exempt from NII payments remained.

Cancer prevention

Breast cancer screening – mammography:

- During the reporting period, the rate of mammograms performed improved each year, and in 2006, the average rate was 59%.
- In this area, a striking detrimental difference of 7% [absolute] was found among those with an exemption from National Insurance Institute payments: The mammogram rate among women with an exemption reached 54%, compared to 60.9% among other insured women. This difference is somewhat lower than in the previous report.

Screening for colorectal cancer:

- This indicator of fecal occult blood tests shows a low rate of screening for colorectal cancer: Only 15.7% of the population between the ages of 50-74 underwent this annual exam in 2006. According to the data for 2006, another approximately 14% 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.
- No sex-linked difference was found in performance of the test.
- 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 vaccination

- The improvement in vaccination came to a halt in the years monitored, evidently due to public fears regarding the safety of the vaccine. Only approximately 46.3% of the population over the age of 65 was vaccinated in 2006.
- No significant sex-related difference was found in the rates of vaccination.
- People exempt from NII payments had a significantly lower rate of vaccination, 40% compared to 50.2% among the rest of the population.

Diabetes

- The prevalence of diabetes treated by medication continued to rise during the reporting period and reached 4.0% of the general population and 5.8% of adults aged 18 and older.
- The rate of those examined for HbA1c at least once a year continues to rise, reaching and average of 90%.
- The rate of patients who attained good control of their blood sugar level is 48%, while the rate of uncontrolled patients fell to 14% during the reported period (the rest achieved mid-level control).
- Approximately 19% 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 43% during the reporting period.
- The rate of testing for LDL cholesterol in diabetes patients continued to rise, reaching 89% 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 55% during the reporting period.
- The rate of patients who underwent annual testing for urine microalbumin showed continued improvement, reaching 63%, and the rate of eye exams reached 61%.
- The rate of diabetes patients who received flu vaccinations dropped to 41% this year, a somewhat higher decline than among the general population.

- **Blood pressure control in diabetes patients:**
  - In 2006, documentation of blood pressure measurements at least once a year reached 82%, while the control target of a systolic value lower than 130 mmHg and a diastolic value lower tan 80 mmHg was attained in 62% 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.
- **Documentation of weight gain 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 55% of diabetes patients, a value reflecting a marked improvement over previous years.
- However, the level of BMI documentation remains low, and therefore the current report does not discuss the actual values of the indicators themselves.

Cardiovascular diseases

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

- **Cholesterol level**
  - Over 70% 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 Health Institute payments underwent more screening than the rest of the population.
  - The age-adjusted target cholesterol level was reached in close to 64% of the target population.
  - Differences were found in attaining the target cholesterol level 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 cholesterol level, some as a reflection of biological difference in young adults.
  - No significant differences were found in achieving targets with respect to NII exemption status.
- **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 60% of younger age group and for 68% of the older age group in the target population. This marks a significant improvement over previous years.

- The level of blood pressure documentation is approaching the threshold levels we defined and will enable in the near future presentation of data on the rate of the population with high blood pressure.
- Documentation of blood pressure measurements in women and people exempt from NII payments was found to be higher.

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**
  - Approximately 82% 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 64% 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 that target cholesterol level is slightly lower than other patients.
- **Protection of heart function**
  - Approximately 61% 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 69% of the patients purchased beta blocker 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 permanent, institutionalized national program. This activity is guided by a steering committee of all the organizations involved. The activity is supported 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. 4 are being distributed: a report for policymakers and a report to the general public (this version). Furthermore, we launched a website that permits user-defined reports to be generated. 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 2004-2006. The data presented in the report relate to the five areas of community health care – flu vaccination, screening for detection of colorectal caner and mammography for detection of breast cancer, treatment of asthma, treatment of diabetes 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 2006 Indicators Program to the findings of the American HEDIS system in 2006 [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 2006 Indicators Program relate to the entire population, HEDIS relates mainly 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 medical quality indicator quantitatively defines a particular aspect of health (such as morbidity, prevention, quality of treatment, outcome of treatment) for a specified 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 2006, approximately 692,547 people. A partial or full exemption from NII payments was granted in the reporting period of the current report on the basis of 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 2004-2206 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 socioeconomic 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, and treatment for cardiovascular disease.

References for Introduction:

I. Turk A. Overview of HEDIS 2000 asthma measurement. Am J Manag Care 2000; 6(suppl): S342-S346.

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. The Quality Indicators

Preventive drug treatment of asthma patients

Background

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.

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 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 asthma patients 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 two kinds of asthma: 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: most of the time in cases of intermittent asthma it is possible to limit treatment to relief of symptoms by expanding the airways. In cases of chronic persistent asthma, it is recommended that patients also take medication to prevent attacks throughout most 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 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 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 morbidity rate for chronic persistent asthma in the population was 1.0% in 2006: approximately 49,503 patients, of which about 13,500 were children and adolescents. A similar rate was measured in 2004 and 2005 (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 2006 was as follows: 1.16% for the 5-9 age group, 0.7% for the 10-17 age group, 0.8% for the 18-44 age group and 1.75% of 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. In adults it is more prevalent among women.
- Among insured individuals who are exempt from NII payments, 2006 showed a chronic persistent asthma rate of 2.23%, compared to only 0.92% among the rest of insured individuals. In other words, the disease is far more common among insured individuals with a lower socioeconomic status (Figure 2).

Figure 1: Morbidity rate for chronic persistent asthma among insured individuals by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
5-9	1.13%	1.11%	1.16%	7,074	7,018	7,529	623,269	633,114	648,885
10-17	0.71%	0.67%	0.70%	6,449	6,130	6,439	914,461	918,520	925,764
18-44	0.81%	0.80%	0.81%	19,359	19,278	19,832	2,392,829	2,408,031	2,452,289
45-56	1.76%	1.74%	1.75%	15,536	15,344	15,703	881,096	883,669	899,667
Total	1.01%	0.99%	1.00%	48,418	47,770	49,503	4,811,655	4,843,334	4,926,605

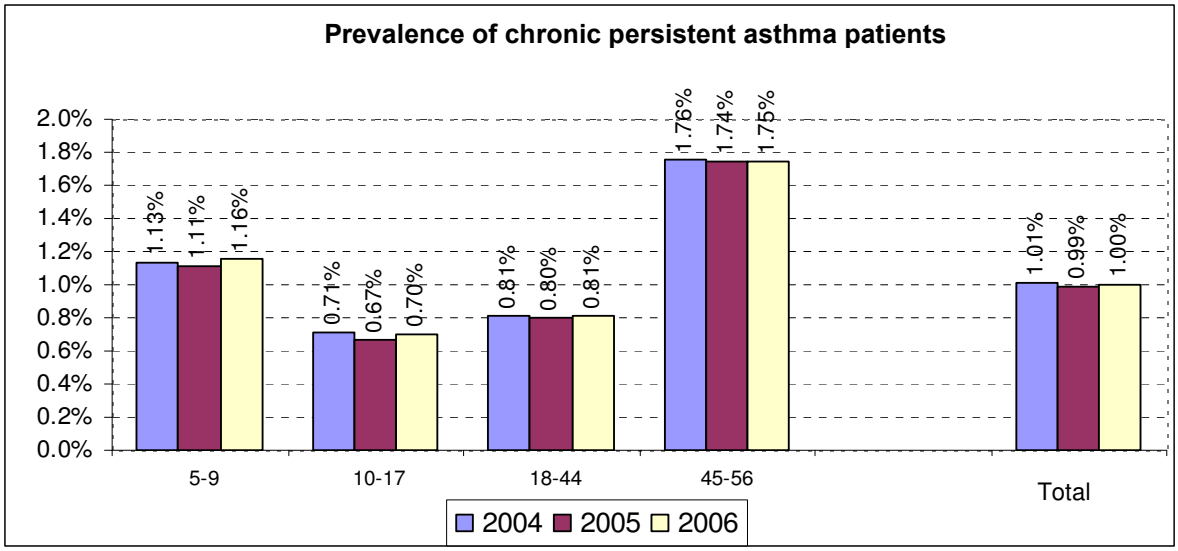
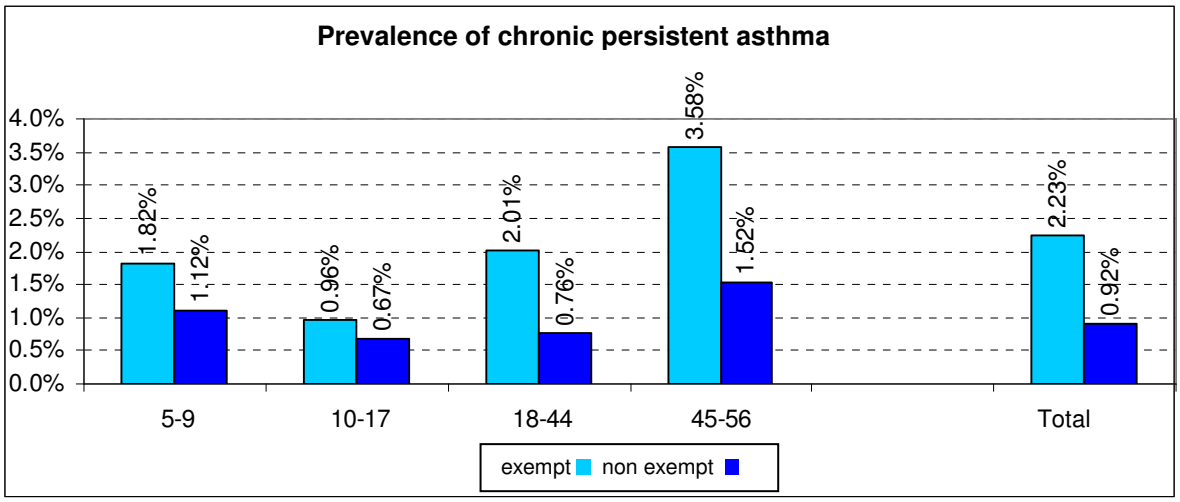


Figure 2: Morbidity rate for chronic persistent asthma among insured individuals in 2006 by socioeconomic status and age

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
5-9	1.82%	1.12%	1.16%	645	6,884	7,529	35,467	613,418	648,885
10-17	0.96%	0.67%	0.70%	741	5,698	6,439	76,976	848,788	925,764
18-44	2.01%	0.76%	0.81%	1,960	17,872	19,832	97,730	2,354,559	2,452,289
45-56	3.58%	1.52%	1.75%	3,567	12,136	15,703	99,505	800,162	899,667
Total	2.23%	0.92%	1.00%	6,913	42,590	49,503	309,678	4,616,927	4,926,605



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

The following findings are based on data of 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):

- According to the data provided by the HMOs, preventive drugs were purchased by 78.43% of patients in 2006. This rate is similar to those measured in 2004 and 2005 (Figure 3). Experts view this as a high and impressive rate. According to the 2006 NCQA report, in which the target population was defined as had at least one emergency room visit or hospital discharge related to an asthma attack, four or more outpatient visits related to asthma or four or more asthma medications dispensed during the measurement year; the rate of performance of the indicator was between 85.7% and 89.9%, depending on the type of insurance [1].
- Among young adults, the highest results were found in the 5-9 age group: Approximately 84% of them purchased preventive drugs in 2006. Among adults aged 45-56, the rate for purchase of preventive drugs in 2006 was 79.2% (Figure 3).
- No sex-related differences were found in the rate of preventive drug purchases (not shown on the graph).
- In 2006, 75.65% of people exempt from NII payments purchased preventive drugs as opposed to 78.88% of other insured individuals (Figure 4).

Figure 3: Rate of chronic persistent asthma patients treated with preventive drugs, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
5-9	83.81%	84.77%	84.02%	5,929	5,949	6,326	7,074	7,018	7,529
10-17	83.89%	83.74%	83.18%	5,410	5,133	5,356	6,449	6,130	6,439
18-44	72.62%	73.12%	74.17%	14,058	14,097	14,709	19,359	19,278	19,832
45-56	77.66%	78.61%	79.20%	12,066	12,062	12,436	15,536	15,344	15,703
Total	77.37%	77.96%	78.43%	37,463	37,241	38,827	48,418	47,770	49,503

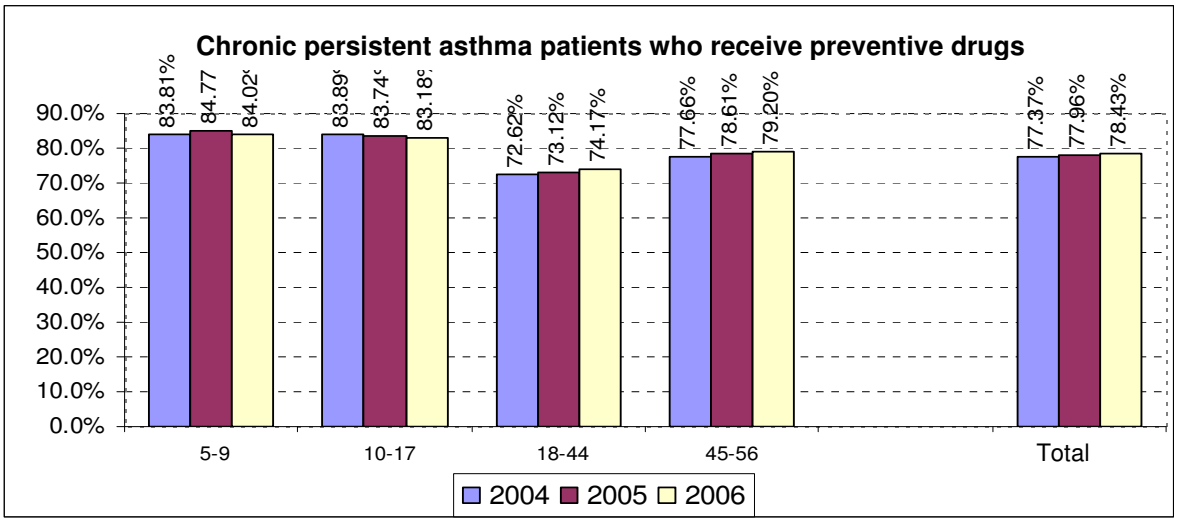
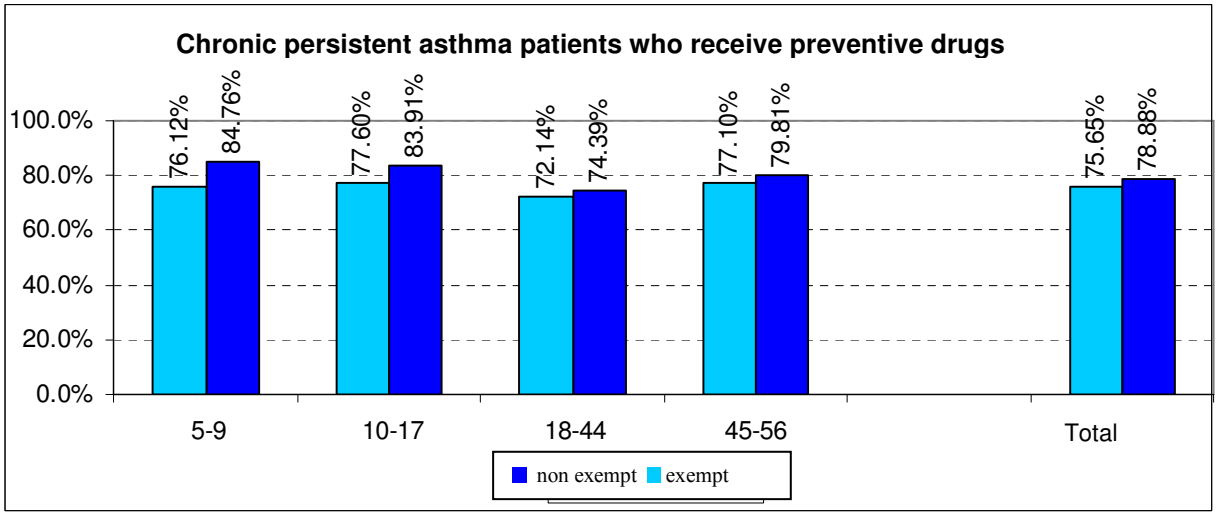


Figure 4: Rate of patients with chronic persistent asthma treated with preventive drugs in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
5-9	76.12%	84.76%	84.02%	491	5,835	6,326	645	6,884	7,529
10-17	77.60%	83.91%	83.18%	575	4,781	5,356	741	5,698	6,439
18-44	72.14%	74.39%	74.17%	1,414	13,295	14,709	1,960	17,872	19,832
45-56	77.10%	79.81%	79.20%	2,750	9,686	12,436	3,567	12,136	15,703
Total	75.65%	78.88%	78.43%	5,230	33,597	38,827	6,913	42,590	49,503



Flu vaccinations for asthma patients

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). Asthma patients 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

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

- According to the HMO data, 23% of chronic persistent asthma patients were vaccinated against the flu in 2006. The rate in the 45-56 age group reached 31.11% compared to 17.7% among the younger patients. A decline (absolute) of 8% was recorded in the rate of flu vaccine recipients compared to the previous year [relative decline of 26%; among teens the relative decline reached 43%] (Figure 5)
- No sex-related differences were found in the rate of flu vaccination (not shown on the graph).
- In 2006, patients exempt from NII payments were vaccinated against the flu at a rate significantly higher than who were not exempt - 34.57% compared to 20.89% (Figure 6). A similar difference in favor of those exempt from NII payments was also recorded in previous years.

Figure 5: Rate of flu vaccination among chronic persistent asthma patients by age and measurement year (2006-2004)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
10-17	21.91%	28.10%	15.99%	750	884	509	3,423	3,146	3,184
18-44	20.70%	25.40%	17.70%	4,007	4,897	3,511	19,359	19,278	19,832
45-56	32.87%	39.32%	31.11%	5,106	6,033	4,885	15,536	15,344	15,703
Total	25.74%	31.28%	23.00%	9,863	11,814	8,905	38,318	37,768	38,719

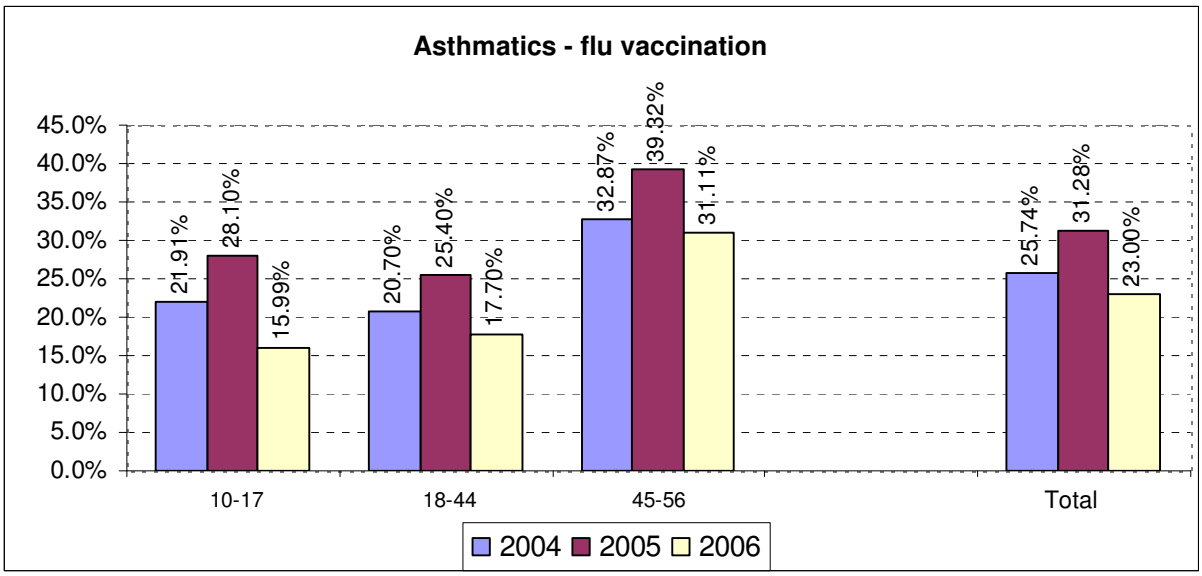
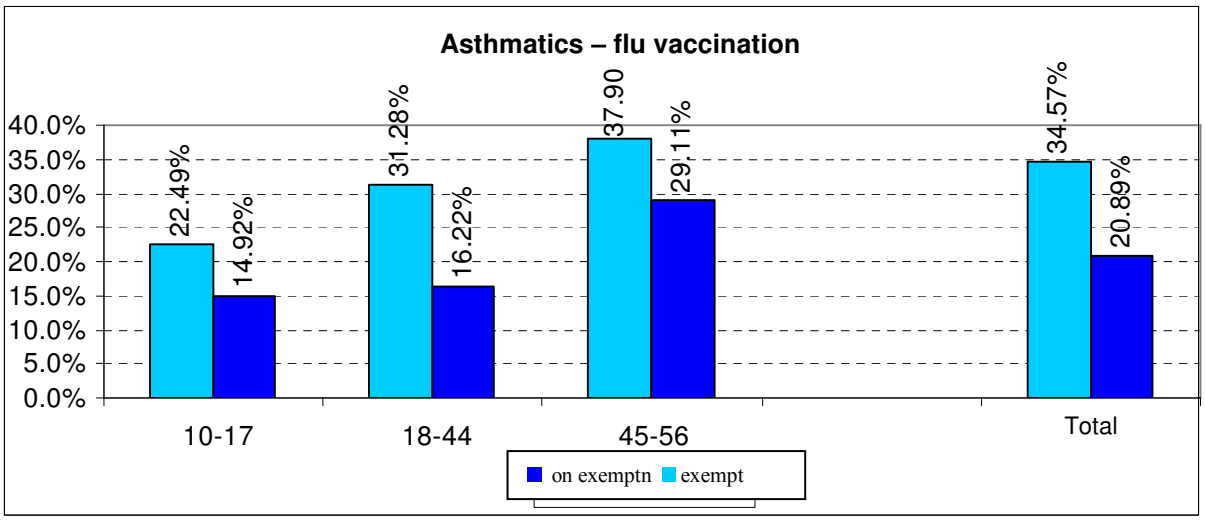


Figure 6: Rate of patients with chronic persistent asthma who received flu vaccinations in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
10-17	22.49%	14.92%	15.99%	101	408	509	449	2,735	3,184
18-44	31.28%	16.22%	17.70%	613	2,898	3,511	1,960	17,872	19,832
45-56	37.90%	29.11%	31.11%	1,352	3,533	4,885	3,567	12,136	15,703
Total	34.57%	20.89%	23.00%	2,066	6,839	8,905	5,976	32,743	38,719



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 for me just happened to be while I was on vacation, so I planned on skipping it… At that time I didn't pay much attention to my health and took it for granted. However, because of urgent issues at my husband's job, we were forced to come home early, so I went to the exam after all... I fought the disease for two years, and in the end I won. My doctors told me that early detection of the disease is what 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.

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

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):

- According to the HMO data, mammographic screening was performed for 59% of the target population in 2006: A total of approximately 380,104 women were examined (Figure 7). According to the 2006 NCQA report, the screening rate ranges from 53.9% to 72.0%, depending on the type of insurance [1].
- An increase (absolute) of approximately 6.5% in performance of the exam was found in 2004-2006 (Figure 7) 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 7).

A marked difference was found between patients exempt from NII payments and the rest of the insured women: In 2006, only 54.09% of insured women exempt from NII payments underwent mammographic screening compared to 60.89% of the remaining insured women (Figure 8).

Figure 7: Compliance rate of women with the indicator, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
51-60	54.21%	57.31%	60.18%	174,487	193,968	212,634	321,879	338,474	353,318
61-68	53.37%	57.09%	60.48%	93,670	99,534	105,656	175,514	174,342	174,700
69-74	46.47%	49.93%	53.30%	53,063	56,877	61,814	114,199	113,921	115,976
Total	52.52%	55.91%	59.02%	321,220	350,379	380,104	611,592	626,737	643,994

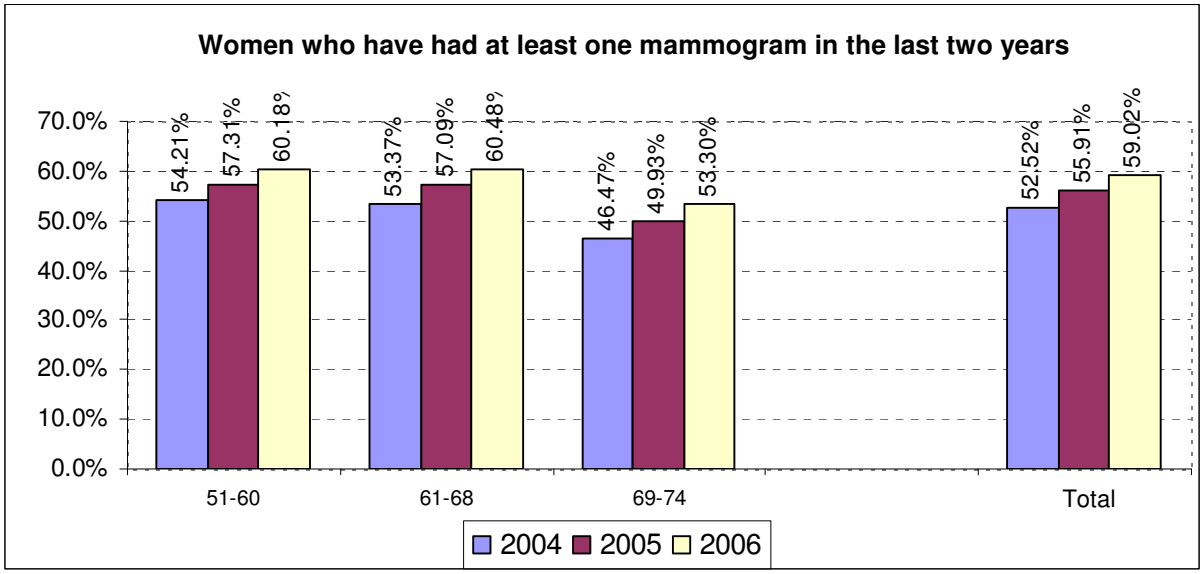
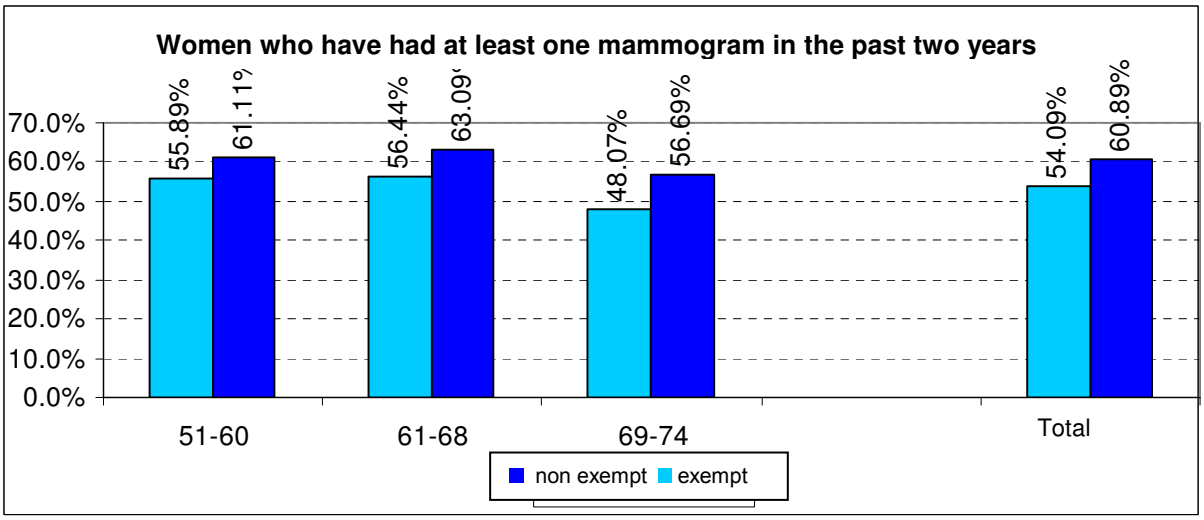


Figure 8: Compliance rate of women with the indicator in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
51-60	55.89%	61.11%	60.18%	35,158	177,476	212,634	62,902	290,416	353,318
61-68	56.44%	63.09%	60.48%	38,700	66,956	105,656	68,565	106,135	174,700
69-74	48.07%	56.69%	53.30%	21,940	39,874	61,814	45,640	70,336	115,976
Total	54.09%	60.89%	59.02%	95,798	284,306	380,104	177,107	466,887	643,994



Screening for 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]. Most of the guidelines recommend sigmoidoscopy (an optical examination of part of the large intestine) once every five years [7, 8], or colonoscopy once every 10 years. Recommendations are different for high-risk individuals or those with a family history of malignancies, complaints or diseases of the digestive track, or previous incidence of any lesion or finding.

Avi Cohen, 54, from Petach Tikva, said: I wonder about whether I should have an 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 sent 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 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.

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].

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 2006 was 1,081,539 individuals between the ages of 50-74.
- Approximately 15.7% of the target population underwent fecal occult blood testing in 2006. The rate of performance varies between 13.1% among individuals between the ages of 50-59 and 18.8% between the ages of 70-74 (Figure 9).
- 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.
- No sex-related difference was found in the performance rate for fecal occult blood testing.
- Furthermore, approximately 14.3% 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 11).
- 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 10, Figure 12).

Figure 9: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
50-59	5.14%	7.62%	13.05%	29,933	45,529	79,270	582,194	597,176	607,268
60-69	7.96%	11.60%	19.16%	26,883	39,155	65,384	337,630	337,517	341,240
70-74	8.33%	11.87%	18.83%	11,474	15,933	25,053	137,775	134,178	133,031
Total	6.46%	9.41%	15.69%	68,290	100,617	169,707	1,057,599	1,068,871	1,081,539

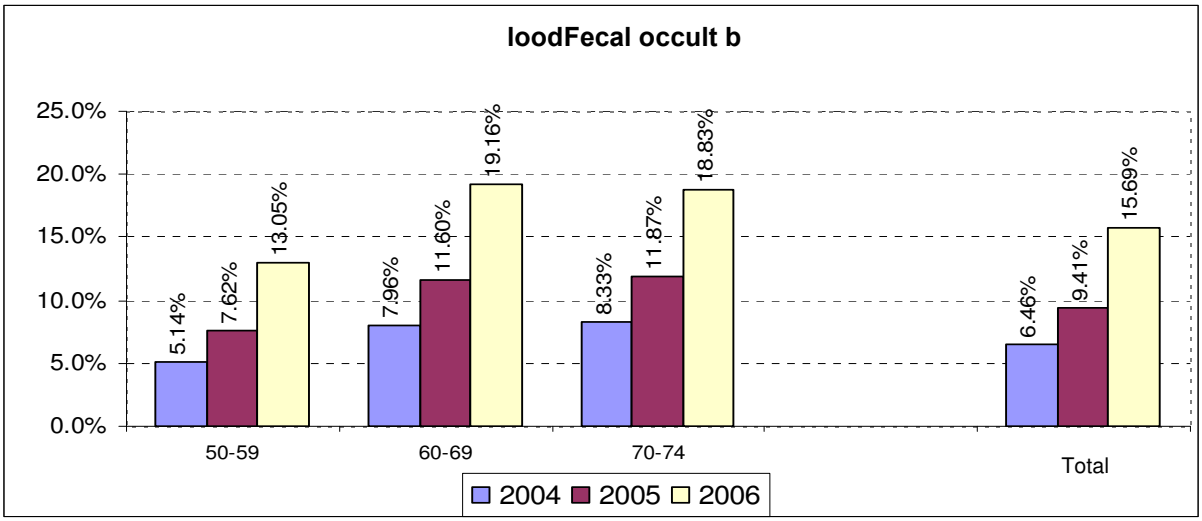


Figure 10: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
50-59	12.87%	13.08%	13.05%	11,165	68,105	79,270	86,781	520,487	607,268
60-69	17.28%	20.16%	19.16%	20,524	44,860	65,384	118,748	222,492	341,240
70-74	15.19%	21.15%	18.83%	7,868	17,185	25,053	51,784	81,247	133,031
Total	15.37%	15.79%	15.69%	39,557	130,150	169,707	257,313	824,226	1,081,539

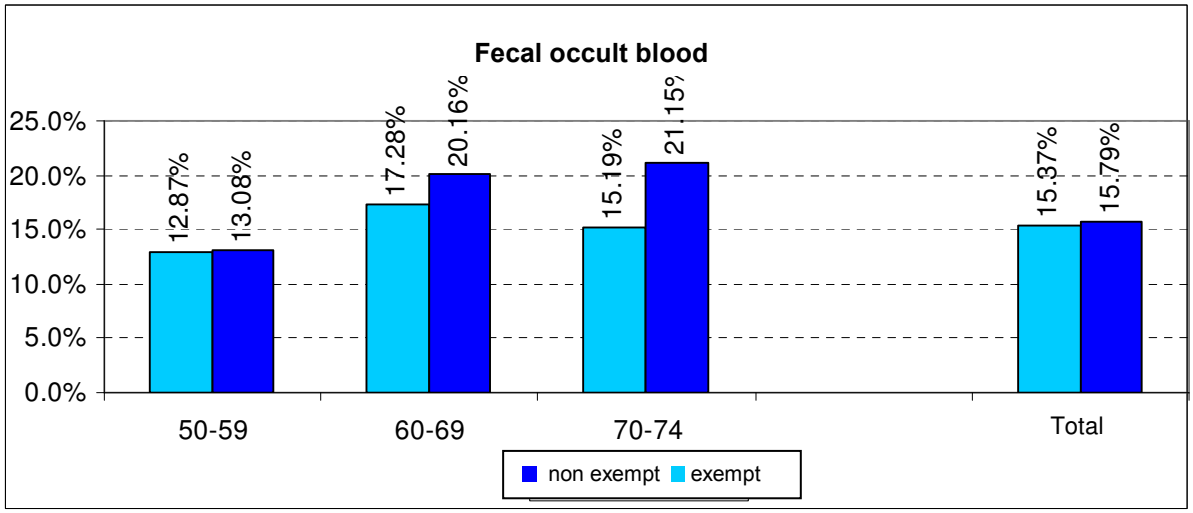


Figure 11: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
50-59	8.40%	10.24%	11.92%	53,403	68,093	82,164	635,597	665,269	689,432
60-69	11.61%	13.98%	16.17%	44,363	54,833	65,810	381,993	392,350	407,050
70-74	13.66%	16.09%	18.40%	21,791	25,732	30,003	159,566	159,910	163,034
Total	10.16%	12.21%	14.13%	119,557	148,658	177,977	1,177,156	1,217,529	1,259,516

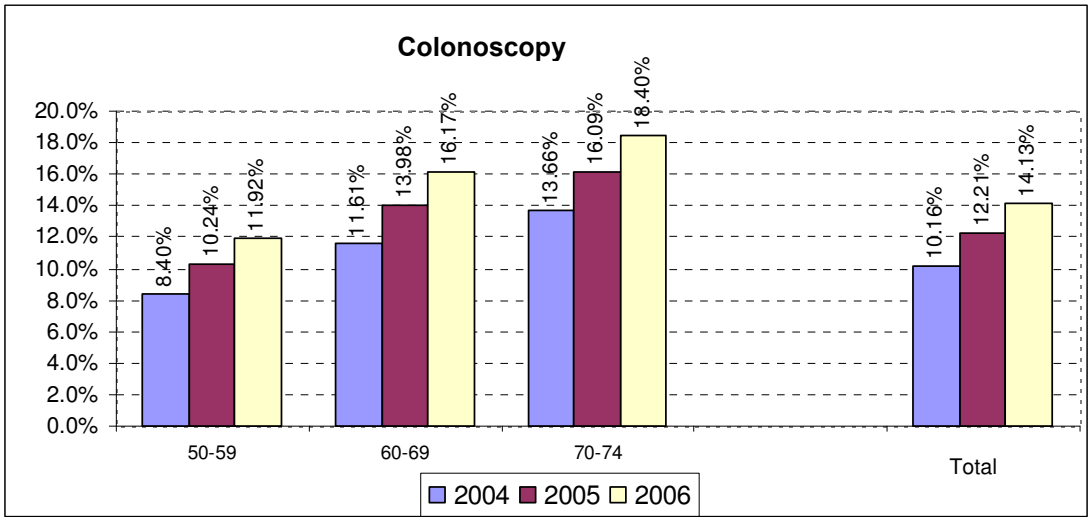
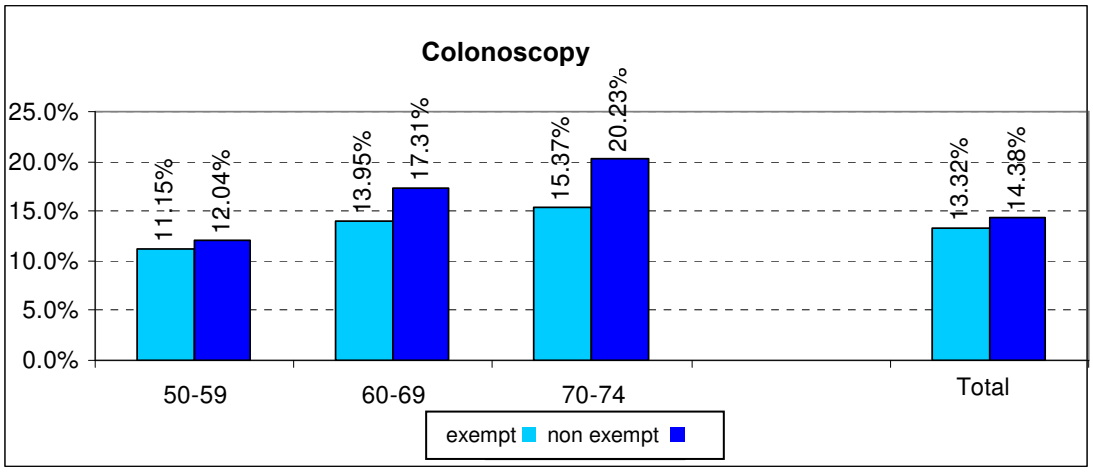


Figure 12: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
50-59	11.15%	12.04%	11.92%	10,890	71,274	82,164	97,671	591,761	689,432
60-69	13.95%	17.31%	16.17%	19,248	46,562	65,810	137,996	269,054	407,050
70-74	15.37%	20.23%	18.40%	9,402	20,601	30,003	61,186	101,848	163,034
Total	13.32%	14.38%	14.13%	39,540	138,437	177,977	296,853	962,663	1,259,516


Colonoscopy
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
11.15%
12.04%
13.95%
17.31%
15.37%
20.23%
13.32%
14.38%
50-59
60-69
70-74
Total
exempt
non exempt

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, ear infection or exacerbation of cardiopulmonary diseases may occur.

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.

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, at least it won't be as severe".

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

The following findings are based on data of the HMOs and are presented for the entire population of insured individuals by age group (65-73, 74 and older) and socioeconomic status (exempt/not exempt from NII payments):

- According to the data provided by the HMOs, in 2006, 46.3% of the insured individuals above the age of 65 were vaccinated, totaling 316,303 insured individuals. This rate rose at a rate of approximately 3% annually through 2004. In 2006, this rate declined by 3.5% (Figure 13). The decline in rate of vaccination this year is attributable to public fears regarding the safety of the vaccination.
- The rate of vaccination is higher for the elderly over the age of 74. In 2006, the percentage of vaccinations in this group reached 49.9%, compared to 42.8% in the 65-73 age group (Figure 13). According to the 2006 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, no sex-related difference was found in the rate of vaccination; in the 74+ age group, 55% of men were vaccinated and 47% of women.
- Insured individuals exempt from NII payments were vaccinated less than the other insured individuals – in 2006, the rate of vaccination in this group was 40% compared to 50% among individuals not exempt from NII payments (Figure 14).

Figure 13: Rate of individuals aged 65 and above who received flu vaccinations, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
65-73	45.33%	47.61%	42.75%	152,241	162,170	147,188	335,838	340,626	344,275
74 and older	50.86%	53.45%	49.93%	165,445	178,211	169,115	325,274	333,430	338,733
Total	48.05%	50.50%	46.31%	317,686	340,381	316,303	661,112	674,056	683,008

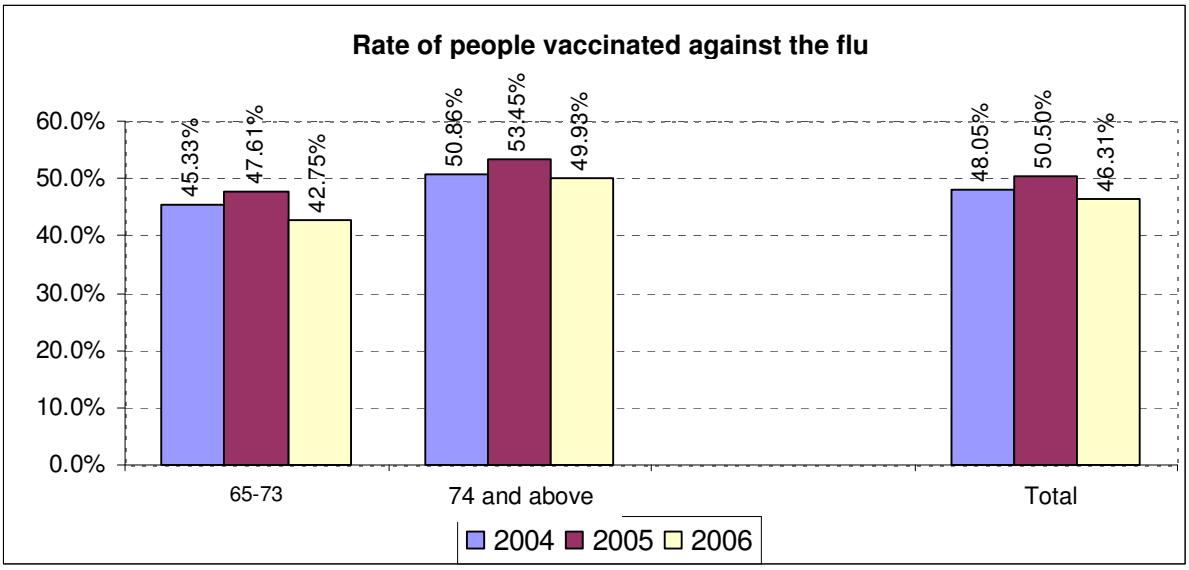
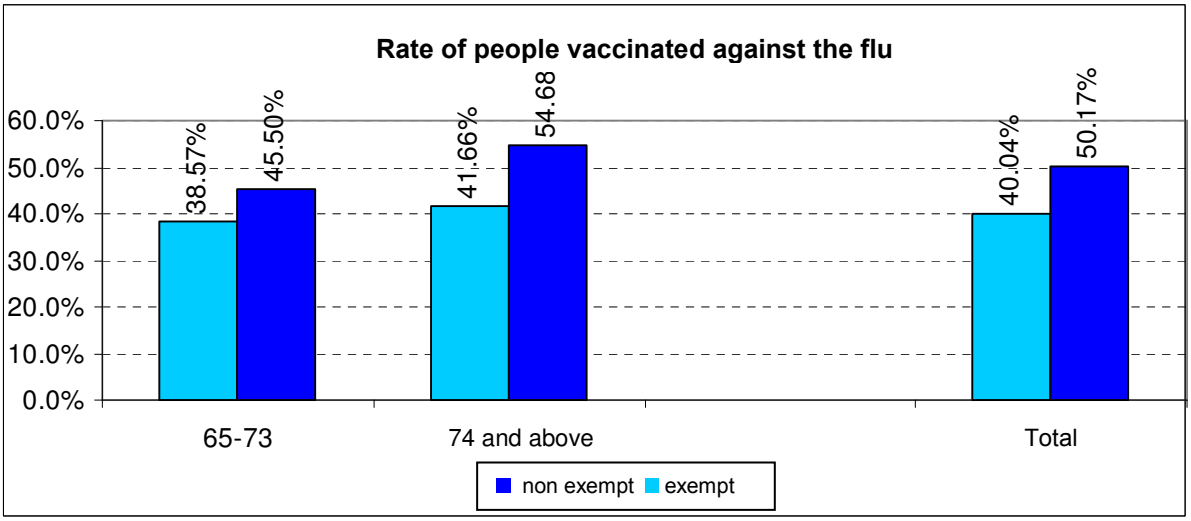


Figure 14: Rate of individuals aged 65 and above who received flu vaccinations in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
65-73	38.57%	45.50%	42.75%	52,596	94,592	147,188	136,379	207,896	344,275
74 and older	41.66%	54.68%	49.93%	51,517	117,598	169,115	123,662	215,071	338,733
Total	40.04%	50.17%	46.31%	104,113	212,190	316,303	260,041	422,967	683,008



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.

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.

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 diabetes patients state that “diabetes is part 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.”

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.

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

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):

- In 2006 there were 271,320 diabetes patients on medication in Israel, constituting 4.0% of the total population or 5.8% of the population over 18. 122,400 of diabetes patients are male, in other words approximately 48%.

- The rate of diabetes patients increases with age, reaching close to 20.2% of the population aged 65-74 (Figure 15).
- 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 15).
- No marked difference was found in the prevalence of diabetes between women and men in any age group.
- In 2006, 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 16). Similar differences were found in 2005 and 2004.
- 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 15: Prevalence of diabetes by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	0.01%	0.02%	0.02%	94	111	132	679,005	686,914	695,740
5-17	0.11%	0.11%	0.12%	1,656	1,770	1,894	1,537,729	1,551,634	1,574,648
18-24	0.28%	0.29%	0.30%	1,621	1,695	1,783	584,624	582,069	592,166
25-34	0.42%	0.43%	0.45%	4,236	4,388	4,670	1,010,796	1,020,650	1,038,369
35-44	1.55%	1.61%	1.68%	12,366	12,952	13,814	797,407	805,310	821,750
45-54	5.40%	5.65%	5.90%	40,195	42,528	44,944	744,679	752,716	761,382
55-64	12.04%	12.42%	12.99%	60,644	65,178	72,105	503,754	524,588	554,869
65-74	18.69%	19.40%	20.20%	68,807	72,109	75,802	368,154	371,746	375,313
75-84	17.32%	18.30%	19.48%	40,478	43,773	47,543	233,645	239,170	244,120
85+	10.63%	11.60%	12.54%	6,688	7,543	8,633	62,896	65,053	68,850
Total	3.63%	3.82%	4.03%	236,785	252,047	271,320	6,522,689	6,599,850	6,727,207

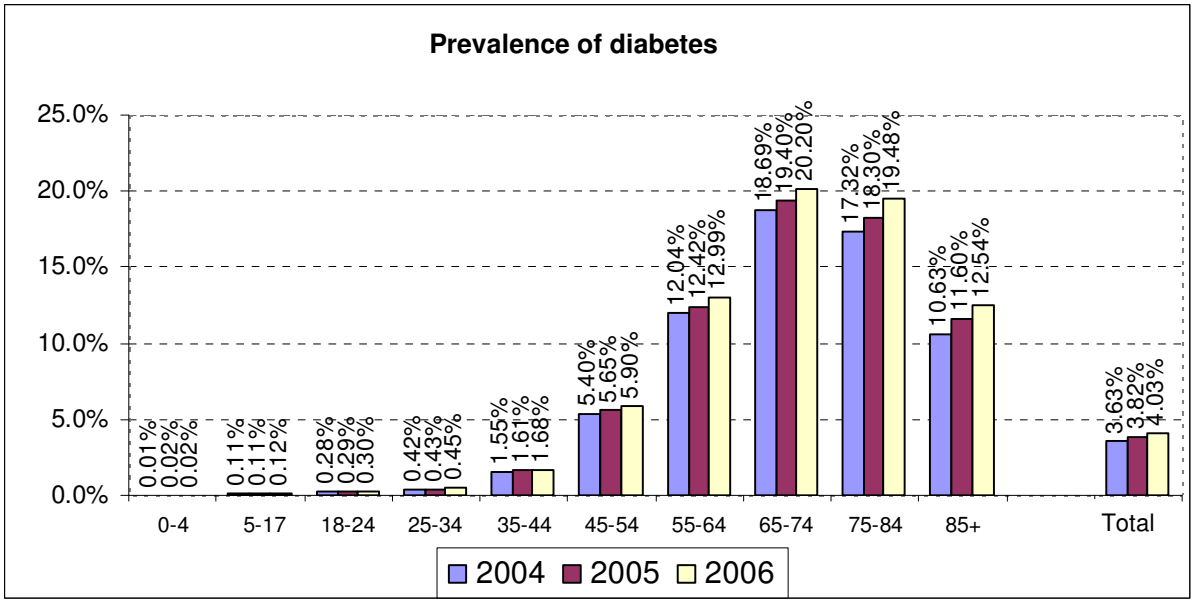
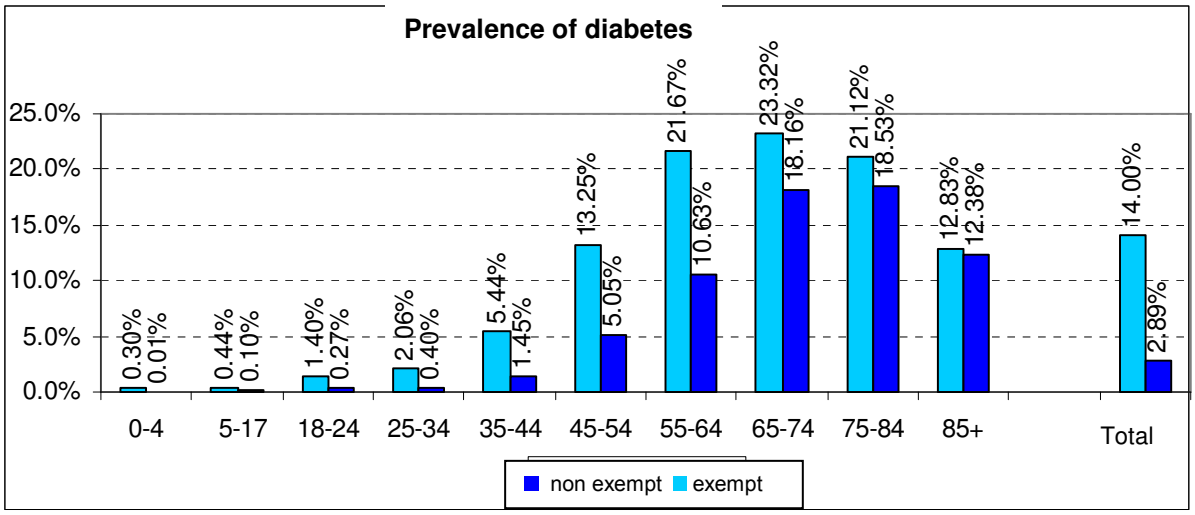


Figure 16: Prevalence of diabetes among all insured individuals, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	0.30%	0.01%	0.02%	66	66	132	22,214	673,526	695,740
5-17	0.44%	0.10%	0.12%	499	1,395	1,894	112,443	1,462,205	1,574,648
18-24	1.40%	0.27%	0.30%	224	1,559	1,783	15,959	576,207	592,166
25-34	2.06%	0.40%	0.45%	684	3,986	4,670	33,260	1,005,109	1,038,369
35-44	5.44%	1.45%	1.68%	2,639	11,175	13,814	48,511	773,239	821,750
45-54	13.25%	5.05%	5.90%	10,500	34,444	44,944	79,230	682,152	761,382
55-64	21.67%	10.63%	12.99%	25,722	46,383	72,105	118,679	436,190	554,869
65-74	23.32%	18.16%	20.20%	34,600	41,202	75,802	148,385	226,928	375,313
75-84	21.12%	18.53%	19.48%	18,815	28,728	47,543	89,087	155,033	244,120
85+	12.83%	12.38%	12.54%	3,179	5,454	8,633	24,779	44,071	68,850
Total	14.00%	2.89%	4.03%	96,928	174,392	271,320	692,547	6,034,660	6,727,207



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, 90.4% of the patients were tested at least once in 2006. This rate reflects continued significant improvement of 2% annually. The improvement applies to most of the age groups (Figure 17). 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 approximately 70% in toddlers to over 90% in the 65-74 age group (Figure 17), and in both sexes, with no significant difference.

- In 2006, there was a 90% rate of compliance with the indicator, regardless of exemption or non-exemption from NII payments (Figure 18).

Figure 17: Performance rate of HbA1c test at least once a year, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
0-4	67.02%	66.67%	69.70%	63	74	92	94	111	132
5-17	77.23%	78.19%	81.94%	1,279	1,384	1,552	1,656	1,770	1,894
18-24	77.91%	77.17%	78.91%	1,263	1,308	1,407	1,621	1,695	1,783
25-34	80.71%	79.74%	81.61%	3,419	3,499	3,811	4,236	4,388	4,670
35-44	83.92%	85.14%	86.65%	10,377	11,027	11,970	12,366	12,952	13,814
45-54	86.18%	87.13%	89.19%	34,642	37,054	40,086	40,195	42,528	44,944
55-64	88.22%	89.60%	91.54%	53,499	58,398	66,008	60,644	65,178	72,105
65-74	89.24%	90.75%	92.91%	61,400	65,438	70,424	68,807	72,109	75,802
75-84	84.99%	87.53%	90.14%	34,403	38,313	42,854	40,478	43,773	47,543
85+	74.25%	78.66%	83.02%	4,966	5,933	7,167	6,688	7,543	8,633
Total	86.71%	88.25%	90.44%	205,311	222,428	245,371	236,785	252,047	271,320

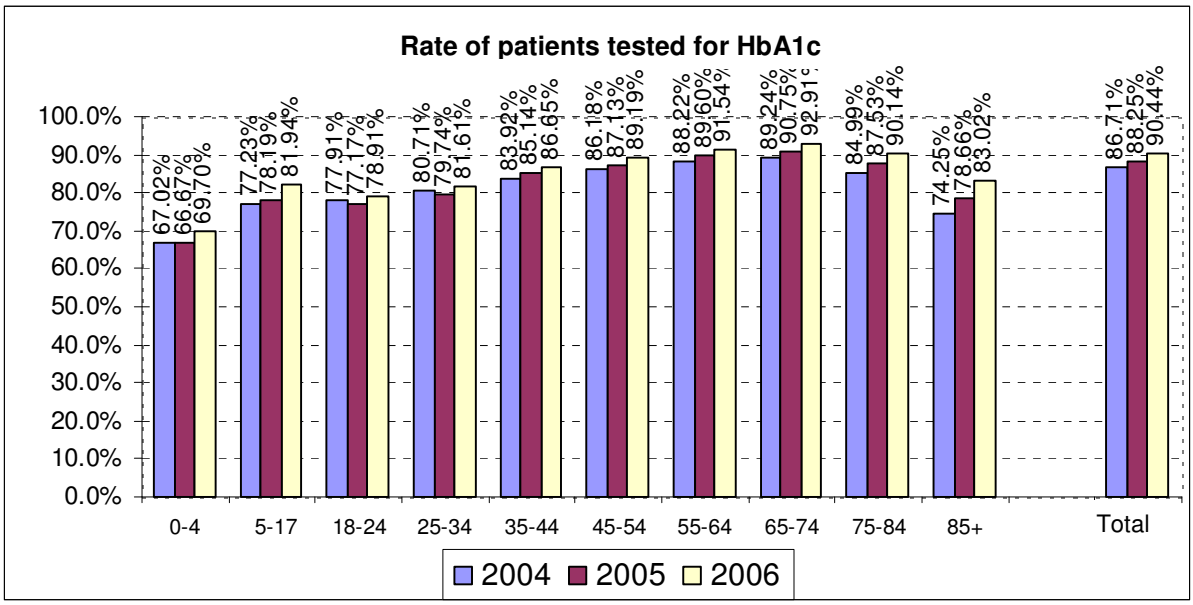
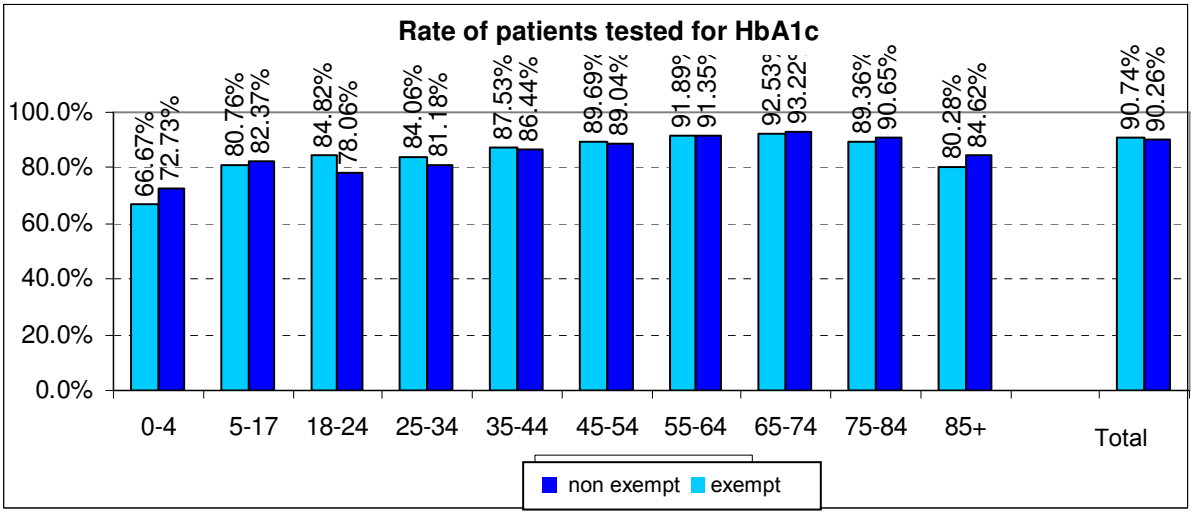


Figure 18: Performance rate of HbA1c test at least once a year, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	66.67%	72.73%	69.70%	44	48	92	66	66	132
5-17	80.76%	82.37%	81.94%	403	1,149	1,552	499	1,395	1,894
18-24	84.82%	78.06%	78.91%	190	1,217	1,407	224	1,559	1,783
25-34	84.06%	81.18%	81.61%	575	3,236	3,811	684	3,986	4,670
35-44	87.53%	86.44%	86.65%	2,310	9,660	11,970	2,639	11,175	13,814
45-54	89.69%	89.04%	89.19%	9,417	30,669	40,086	10,500	34,444	44,944
55-64	91.89%	91.35%	91.54%	23,637	42,371	66,008	25,722	46,383	72,105
65-74	92.53%	93.22%	92.91%	32,016	38,408	70,424	34,600	41,202	75,802
75-84	89.36%	90.65%	90.14%	16,813	26,041	42,854	18,815	28,728	47,543
85+	80.28%	84.62%	83.02%	2,552	4,615	7,167	3,179	5,454	8,633
Total	90.74%	90.26%	90.44%	87,957	157,414	245,371	96,928	174,392	271,320



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 2006, the number of diabetes patients with hemoglobin A1c levels below 7% was 48.0%, constituting a significant improvement of 5% [absolute] over the previous year (Figure 19) and a continuation of the long-term improvement trend. The improvement applies to all age groups of adults. In the

opinion of experts, this control rate is high. This value is not published in the 2006 NCQA report.

- The rate of well-controlled patients increases with age. There are two peaks in the control rate: between 25-34 and from age 75 and older (Figure 19).
- No sex-related difference was found in the rate of well-controlled patients.
- In 2006, the rate of well-controlled patients among insured individuals exempt from NII payments was 46.0% compared to 49.2% among the rest of insured individuals (Figure 20).

Figure 19: Percentage of patients with HbA1c level below 7%, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
0-4	9.52%	20.27%	20.65%	6	15	19	63	74	92
5-17	16.73%	15.97%	17.40%	214	221	270	1,279	1,384	1,552
18-24	31.12%	30.20%	35.82%	393	395	504	1,263	1,308	1,407
25-34	39.72%	38.78%	43.06%	1,358	1,357	1,641	3,419	3,499	3,811
35-44	32.21%	34.25%	37.62%	3,342	3,777	4,503	10,377	11,027	11,970
45-54	33.29%	34.47%	38.57%	11,532	12,771	15,460	34,642	37,054	40,086
55-64	37.62%	39.75%	44.83%	20,127	23,212	29,594	53,499	58,398	66,008
65-74	43.65%	46.00%	51.84%	26,802	30,099	36,507	61,400	65,438	70,424
75-84	49.33%	52.12%	58.54%	16,970	19,967	25,085	34,403	38,313	42,854
85+	51.75%	54.00%	59.65%	2,570	3,204	4,275	4,966	5,933	7,167
Total	40.58%	42.72%	48.03%	83,314	95,018	117,858	205,311	222,428	245,371

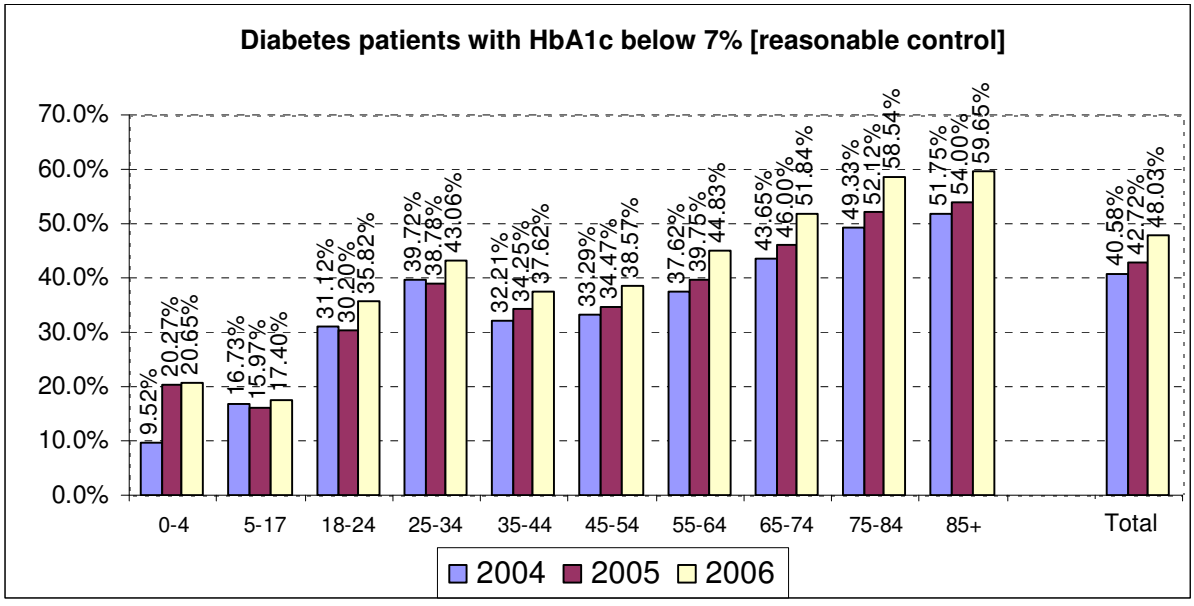
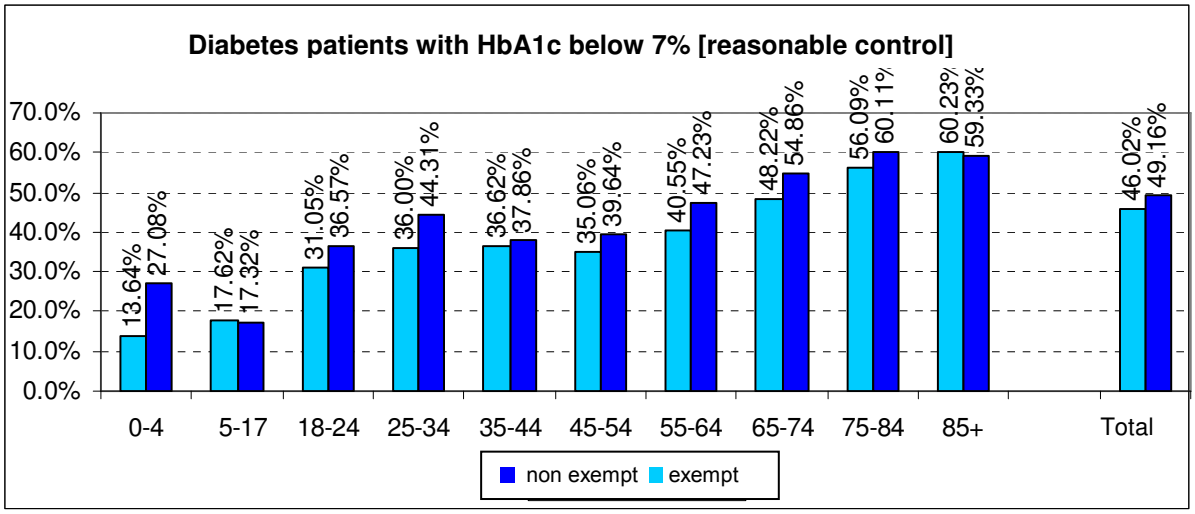


Figure 20: Percentage of patients with HbA1c level below 7%, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	13.64%	27.08%	20.65%	6	13	19	44	48	92
5-17	17.62%	17.32%	17.40%	71	199	270	403	1,149	1,552
18-24	31.05%	36.57%	35.82%	59	445	504	190	1,217	1,407
25-34	36.00%	44.31%	43.06%	207	1,434	1,641	575	3,236	3,811
35-44	36.62%	37.86%	37.62%	846	3,657	4,503	2,310	9,660	11,970
45-54	35.06%	39.64%	38.57%	3,302	12,158	15,460	9,417	30,669	40,086
55-64	40.55%	47.23%	44.83%	9,584	20,010	29,594	23,637	42,371	66,008
65-74	48.22%	54.86%	51.84%	15,438	21,069	36,507	32,016	38,408	70,424
75-84	56.09%	60.11%	58.54%	9,431	15,654	25,085	16,813	26,041	42,854
85+	60.23%	59.33%	59.65%	1,537	2,738	4,275	2,552	4,615	7,167
Total	46.02%	49.16%	48.03%	40,481	77,377	117,858	87,957	157,414	245,371



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 2006 HMO data, the percentage of uncontrolled patients with HbA1c levels above 9% was 13.9%. This rate is lower than in previous years. The drop in percentage of uncontrolled patients covered most of the age groups (Figure 21). The decline in the percentage of uncontrolled

patients is significant, in the opinion of experts. According to the 2006 NCQA report, the performance rate of the indicator was 29.7%-49.1%, depending on the type of insurance and age of the insured individual [1], meaning that the rate of uncontrolled patients is higher in the US.

- No sex-related difference was found in the rate of uncontrolled patients.
- In 2006, the rate of uncontrolled patients among insured individuals exempt from NII payments was 15.1% compared to 13.2% among the rest of insured individuals (Figure 22).

Figure 21: Percentage of patients with HbA1c level above 9%, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	26.98%	20.27%	22.83%	17	15	21	63	74	92
5-17	39.17%	37.28%	33.76%	501	516	524	1,279	1,384	1,552
18-24	25.57%	27.37%	25.02%	323	358	352	1,263	1,308	1,407
25-34	23.95%	24.04%	20.76%	819	841	791	3,419	3,499	3,811
35-44	29.12%	27.77%	25.14%	3,022	3,062	3,009	10,377	11,027	11,970
45-54	26.60%	24.67%	21.56%	9,214	9,142	8,643	34,642	37,054	40,086
55-64	19.58%	18.21%	15.51%	10,476	10,635	10,238	53,499	58,398	66,008
65-74	13.27%	12.03%	9.79%	8,147	7,869	6,896	61,400	65,438	70,424
75-84	10.10%	9.03%	7.13%	3,476	3,460	3,054	34,403	38,313	42,854
85+	9.38%	8.73%	6.82%	466	518	489	4,966	5,933	7,167
Total	17.76%	16.37%	13.86%	36,461	36,416	34,017	205,311	222,428	245,371

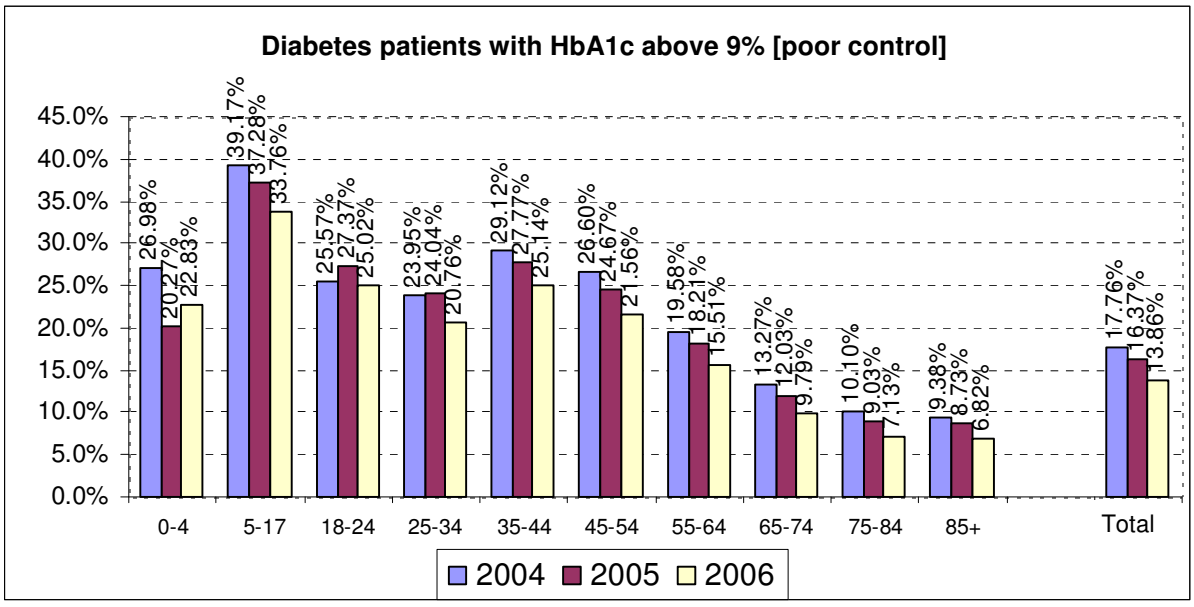
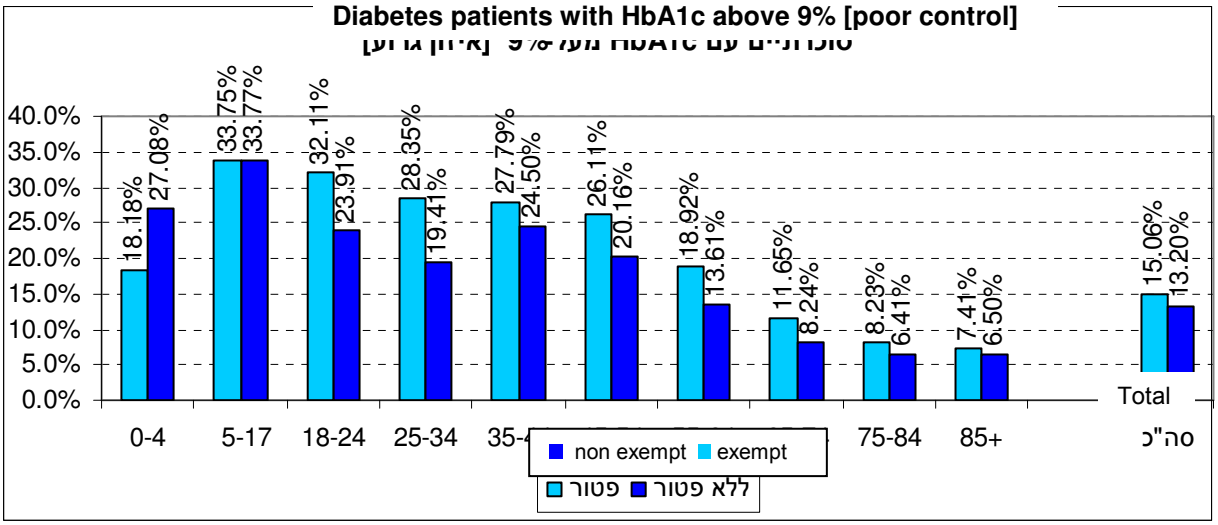


Figure 22: Percentage of patients with HbA1c level above 9%, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	18.18%	27.08%	22.83%	8	13	21	44	48	92
5-17	33.75%	33.77%	33.76%	136	388	524	403	1,149	1,552
18-24	32.11%	23.91%	25.02%	61	291	352	190	1,217	1,407
25-34	28.35%	19.41%	20.76%	163	628	791	575	3,236	3,811
35-44	27.79%	24.50%	25.14%	642	2,367	3,009	2,310	9,660	11,970
45-54	26.11%	20.16%	21.56%	2,459	6,184	8,643	9,417	30,669	40,086
55-64	18.92%	13.61%	15.51%	4,473	5,765	10,238	23,637	42,371	66,008
65-74	11.65%	8.24%	9.79%	3,731	3,165	6,896	32,016	38,408	70,424
75-84	8.23%	6.41%	7.13%	1,384	1,670	3,054	16,813	26,041	42,854
85+	7.41%	6.50%	6.82%	189	300	489	2,552	4,615	7,167
Total	15.06%	13.20%	13.86%	13,246	20,771	34,017	87,957	157,414	245,371



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 2006 approximately 51,548 diabetes patients were treated with insulin (19% of the total number of diabetes patients). Among the patients whose HbA1c level was above 9.0%, approximately 42.8% were treated with insulin (Figure 23). 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 decreases with age, from approximately 100% in children to approximately 42% in the elderly (Figure 23).
- The rate of patients treated with insulin in this controlled group was 36.9% for men and 42.1% for women.
- In 2006, the rate of uncontrolled patients treated with insulin among insured individuals exempt from NII payments was 49.0%, compared to 38.8% among the rest of the insured individuals (Figure 24).

Figure 23: Percentage of patients treated with insulin among diabetes patients with HbA1c level above 9.0%, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	100.00%	100.00%	100.00%	17	15	21	17	15	21
5-17	99.60%	99.81%	99.24%	499	515	520	501	516	524
18-24	93.50%	94.69%	95.74%	302	339	337	323	358	352
25-34	63.49%	65.40%	69.66%	520	550	551	819	841	791
35-44	37.92%	41.90%	43.84%	1,146	1,283	1,319	3,022	3,062	3,009
45-54	31.88%	36.57%	38.81%	2,937	3,343	3,354	9,214	9,142	8,643
55-64	33.94%	37.29%	39.83%	3,556	3,966	4,078	10,476	10,635	10,238
65-74	35.02%	39.18%	42.08%	2,853	3,083	2,902	8,147	7,869	6,896
75-84	33.69%	36.47%	41.62%	1,171	1,262	1,271	3,476	3,460	3,054
85+	31.55%	31.27%	41.31%	147	162	202	466	518	489
Total	36.06%	39.87%	42.79%	13,148	14,518	14,555	36,461	36,416	34,017

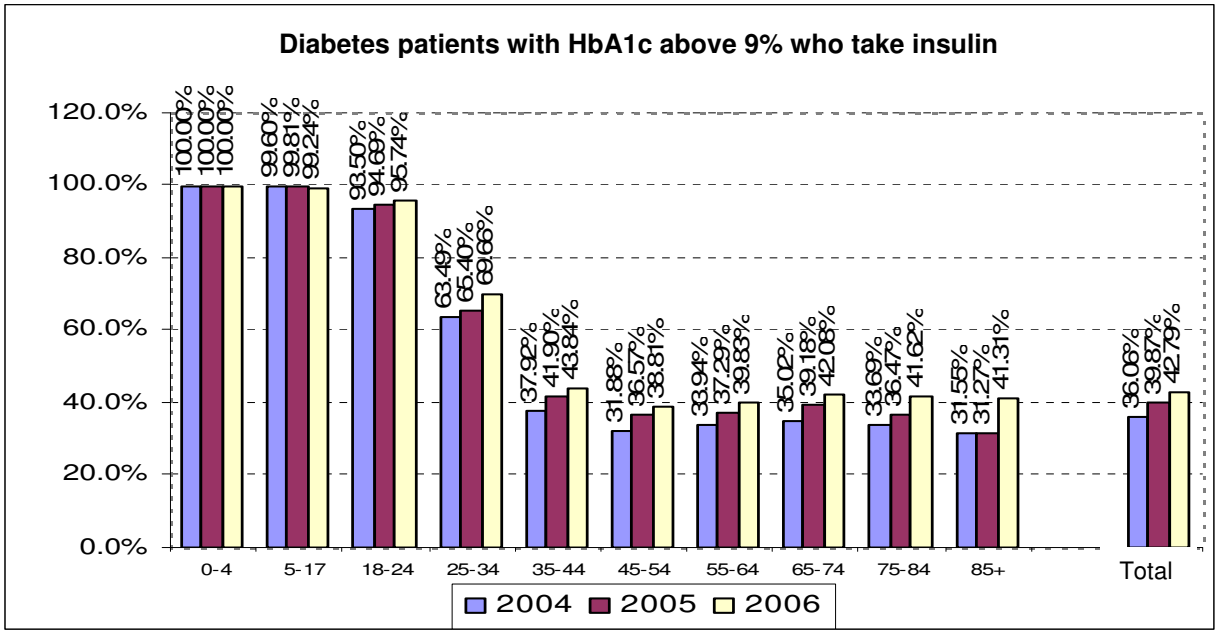
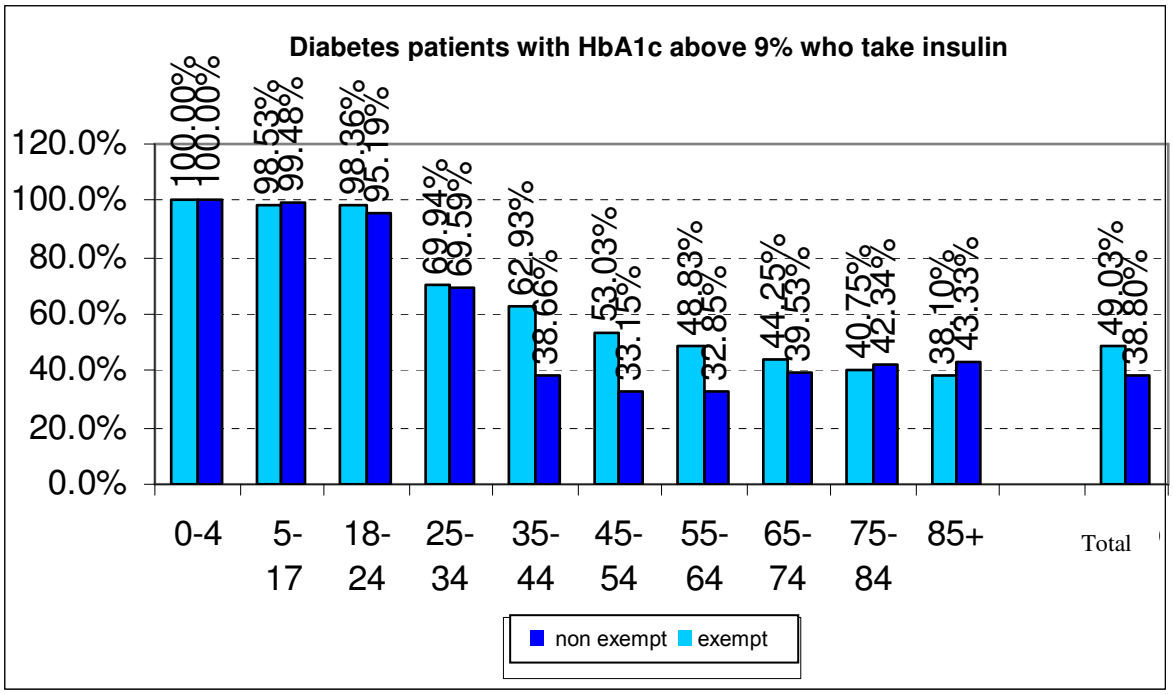

Diabetes patients with HbA1c above 9% who take insulin
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.00%
100.00%
100.00%
99.60%
99.81%
99.24%
93.50%
94.69%
95.74%
63.49%
65.40%
69.66%
37.92%
41.90%
43.84%
31.88%
36.57%
38.81%
33.94%
37.29%
39.83%
35.02%
39.18%
42.08%
33.69%
36.47%
41.62%
31.53%
31.27%
41.31%
36.06%
39.87%
42.79%
0-4
5-17
18-24
25-34
35-44
45-54
55-64
65-74
75-84
85+
Total
2004
2005
2006

Figure 24: Percentage of patients treated with insulin among diabetes patients with HbA1c level above 9.0%, in 2006, 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%	8	13	21	8	13	21
5-17	98.53%	99.48%	99.24%	134	386	520	136	388	524
18-24	98.36%	95.19%	95.74%	60	277	337	61	291	352
25-34	69.94%	69.59%	69.66%	114	437	551	163	628	791
35-44	62.93%	38.66%	43.84%	404	915	1,319	642	2,367	3,009
45-54	53.03%	33.15%	38.81%	1,304	2,050	3,354	2,459	6,184	8,643
55-64	48.83%	32.85%	39.83%	2,184	1,894	4,078	4,473	5,765	10,238
65-74	44.25%	39.53%	42.08%	1,651	1,251	2,902	3,731	3,165	6,896
75-84	40.75%	42.34%	41.62%	564	707	1,271	1,384	1,670	3,054
85+	38.10%	43.33%	41.31%	72	130	202	189	300	489
Total	49.03%	38.80%	42.79%	6,495	8,060	14,555	13,246	20,771	34,017



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 level in diabetes patients is attained when their LDL cholesterol level is below 100 milligrams per deciliter, while a value lower than 130 mg/dl is considered minimal (indicator B.2). The target of lower than 100 mg/dl for control of LDL cholesterol level in 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 2006, lipidograms were performed on 89.3% of the patients, reflecting the continued improvement seen in previous years in all age groups (Figure 25). According to experts, this rate of performance is high. The 2006 NCQA report found an 80.5% - 93.3% performance rate for this indicator, depending on the type of insurance and age of the insured [1].
- The test rate increases with age (Figure 25) and no difference was found by sex of the patient or exemption status for NII payments (Figure 26).

Figure 25: Rate of lipidograms performed at least once a year, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
0-4	34.04%	27.93%	37.88%	32	31	50	94	111	132
5-17	57.73%	61.07%	65.05%	956	1,081	1,232	1,656	1,770	1,894
18-24	69.46%	68.14%	73.36%	1,126	1,155	1,308	1,621	1,695	1,783
25-34	74.91%	74.23%	77.79%	3,173	3,257	3,633	4,236	4,388	4,670
35-44	78.98%	79.58%	82.54%	9,767	10,307	11,402	12,366	12,952	13,814
45-54	83.72%	83.83%	86.56%	33,653	35,653	38,904	40,195	42,528	44,944
55-64	87.45%	87.97%	90.24%	53,033	57,334	65,071	60,644	65,178	72,105
65-74	89.72%	90.10%	92.56%	61,731	64,973	70,159	68,807	72,109	75,802
75-84	86.51%	88.01%	91.02%	35,017	38,526	43,276	40,478	43,773	47,543
85+	76.27%	79.81%	84.12%	5,101	6,020	7,262	6,688	7,543	8,633
Total	85.98%	86.63%	89.30%	203,589	218,337	242,297	236,785	252,047	271,320

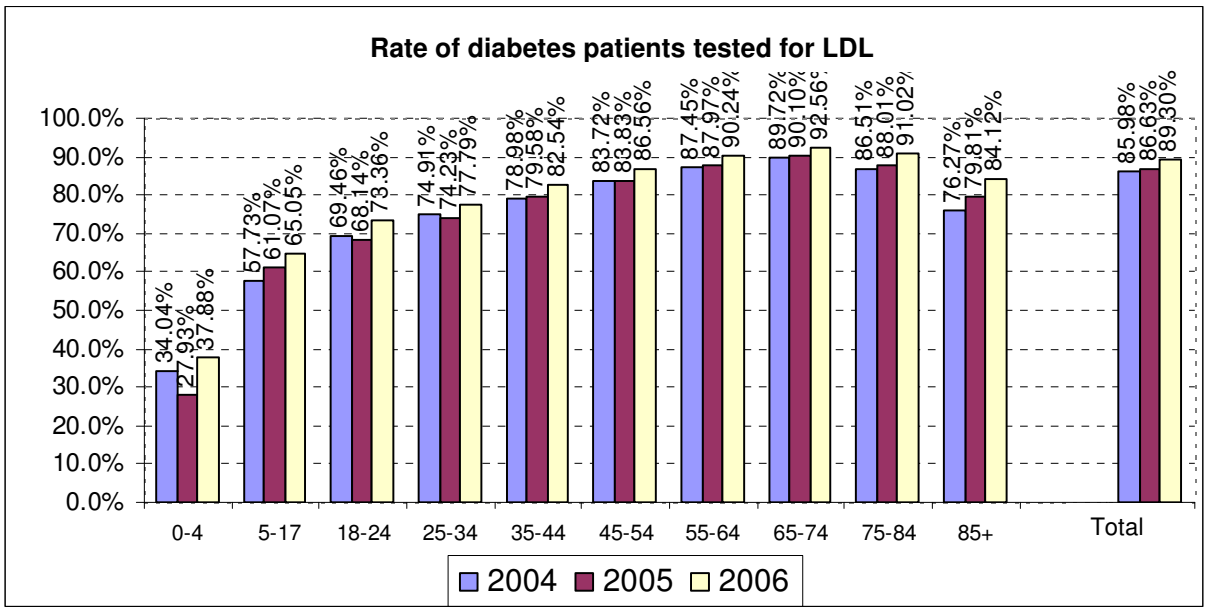
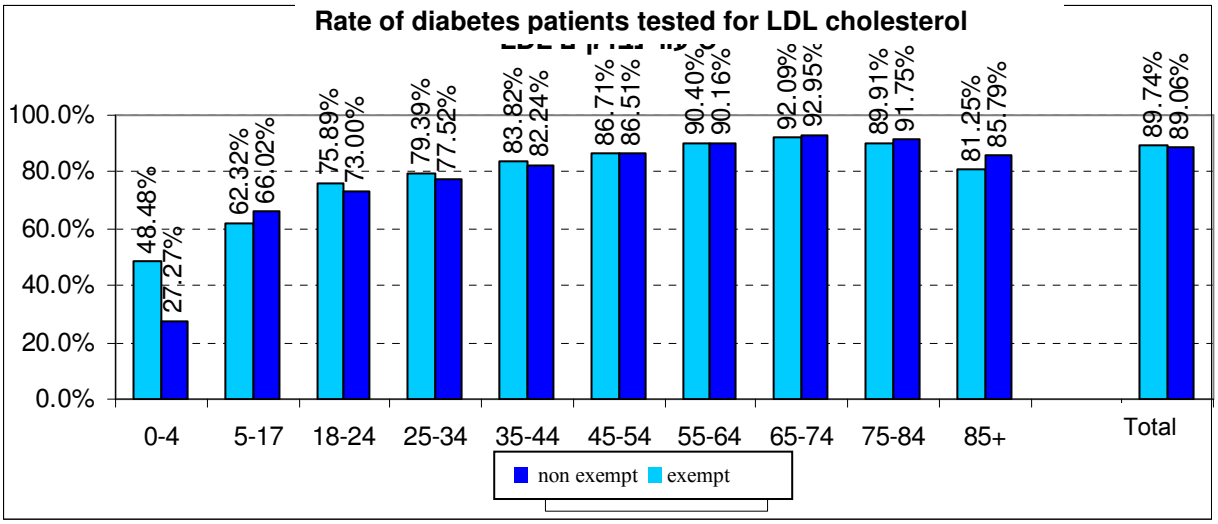


Figure 26: Rate of lipidograms performed at least once a year, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	48.48%	27.27%	37.88%	32	18	50	66	66	132
5-17	62.32%	66.02%	65.05%	311	921	1,232	499	1,395	1,894
18-24	75.89%	73.00%	73.36%	170	1,138	1,308	224	1,559	1,783
25-34	79.39%	77.52%	77.79%	543	3,090	3,633	684	3,986	4,670
35-44	83.82%	82.24%	82.54%	2,212	9,190	11,402	2,639	11,175	13,814
45-54	86.71%	86.51%	86.56%	9,105	29,799	38,904	10,500	34,444	44,944
55-64	90.40%	90.16%	90.24%	23,253	41,818	65,071	25,722	46,383	72,105
65-74	92.09%	92.95%	92.56%	31,862	38,297	70,159	34,600	41,202	75,802
75-84	89.91%	91.75%	91.02%	16,917	26,359	43,276	18,815	28,728	47,543
85+	81.25%	85.79%	84.12%	2,583	4,679	7,262	3,179	5,454	8,633
Total	89.74%	89.06%	89.30%	86,988	155,309	242,297	96,928	174,392	271,320



B.2 Percentage of diabetes patients with LDL cholesterol below 130 mg/dl

Definition of the indicator

The percentage of diabetes patients with LDL cholesterol levels in the minimal range of below 130 mg/dl, in the most recent test in the measurement year.

Main Findings

- According to HMO data for 2006, the rate of patients with an LDL cholesterol level below 130 mg/dl was 83.7%. This percentage reflects the continued improvement trend we have seen over several years. The improved performance was particularly marked in the 35 and over age group (Figure 27) and was higher

in men (85.8%) than women (81.8%). The 2006 NCQA report found a 51.3% - 71.6% performance rate for this indicator, depending on the type of insurance and age of the insured [1].

- In 2006, the rate of patients with an LDL cholesterol level below 130 mg/dl among insured individuals exempt from NII payments was 82.4%, compared to 84.4% among the rest of the insured individuals (Figure 28).

Figure 27: Percentage of diabetes patients with LDL cholesterol level below 130 mg/dl, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	96.88%	90.32%	86.00%	31	28	43	32	31	50
5-17	88.39%	88.16%	91.48%	845	953	1,127	956	1,081	1,232
18-24	85.52%	85.37%	86.62%	963	986	1,133	1,126	1,155	1,308
25-34	77.53%	77.80%	80.79%	2,460	2,534	2,935	3,173	3,257	3,633
35-44	72.34%	75.37%	78.44%	7,065	7,768	8,944	9,767	10,307	11,402
45-54	73.19%	76.23%	79.65%	24,631	27,179	30,986	33,653	35,653	38,904
55-64	76.74%	79.68%	83.80%	40,697	45,685	54,529	53,033	57,334	65,071
65-74	79.46%	82.39%	86.12%	49,054	53,532	60,421	61,731	64,973	70,159
75-84	78.29%	81.00%	85.14%	27,415	31,207	36,844	35,017	38,526	43,276
85+	73.26%	76.13%	79.87%	3,737	4,583	5,800	5,101	6,020	7,262
Total	77.07%	79.90%	83.68%	156,898	174,455	202,762	203,589	218,337	242,297

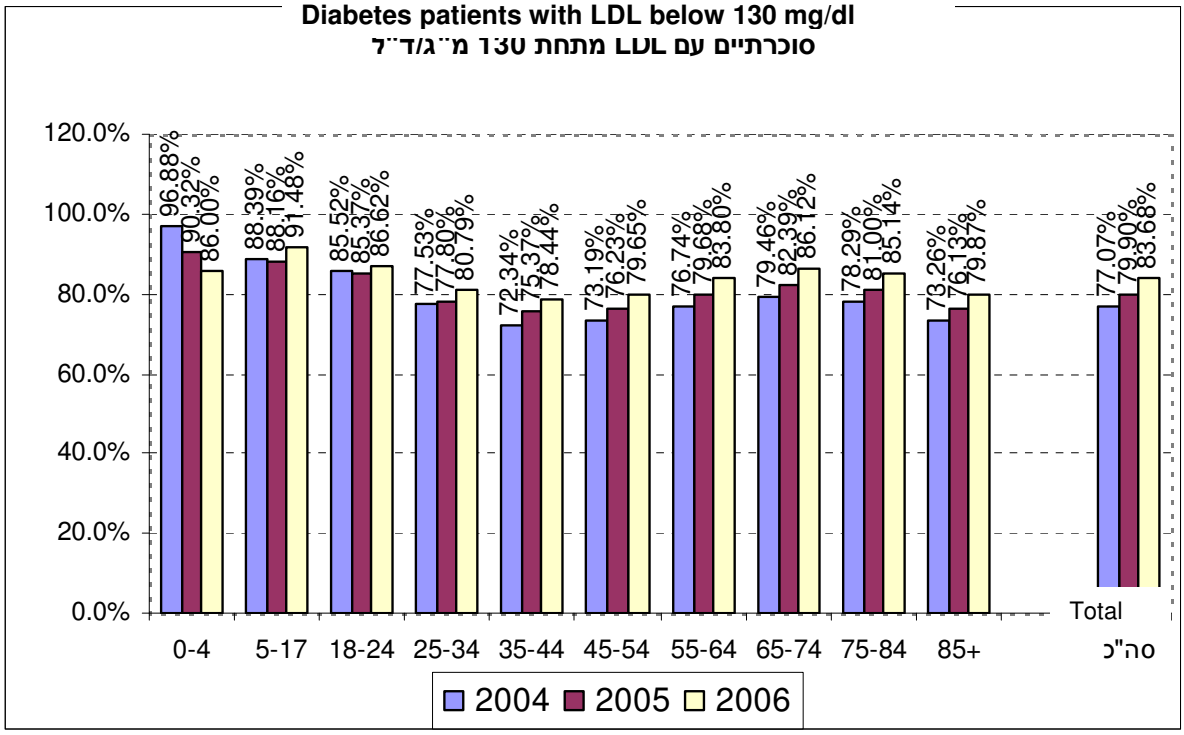
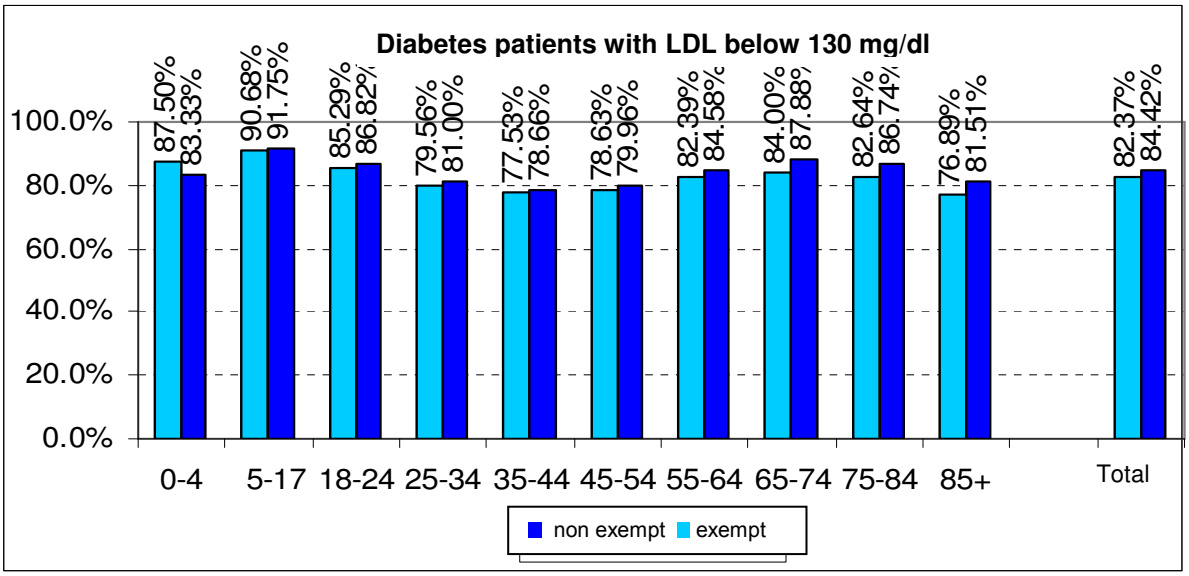


Figure 28: Percentage of diabetes patients with LDL cholesterol level below 130 mg/dl, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	87.50%	83.33%	86.00%	28	15	43	32	18	50
5-17	90.68%	91.75%	91.48%	282	845	1,127	311	921	1,232
18-24	85.29%	86.82%	86.62%	145	988	1,133	170	1,138	1,308
25-34	79.56%	81.00%	80.79%	432	2,503	2,935	543	3,090	3,633
35-44	77.53%	78.66%	78.44%	1,715	7,229	8,944	2,212	9,190	11,402
45-54	78.63%	79.96%	79.65%	7,159	23,827	30,986	9,105	29,799	38,904
55-64	82.39%	84.58%	83.80%	19,158	35,371	54,529	23,253	41,818	65,071
65-74	84.00%	87.88%	86.12%	26,764	33,657	60,421	31,862	38,297	70,159
75-84	82.64%	86.74%	85.14%	13,980	22,864	36,844	16,917	26,359	43,276
85+	76.89%	81.51%	79.87%	1,986	3,814	5,800	2,583	4,679	7,262
Total	82.37%	84.42%	83.68%	71,649	131,113	202,762	86,988	155,309	242,297



B.3 Percentage of diabetes patients with LDL cholesterol below 100 mg/dl

Definition of the indicator

The percentage of diabetes patients with well-controlled LDL cholesterol levels, meaning below 100 mg/dl in the most recent test in the measurement year.

Main Findings

- According to HMO data for 2006, the rate of patients with an LDL cholesterol level below 100 mg/dl was 54.8%. This reflects continued improvement, at an impressive rate of 7% (absolute) relative to the previous year. The improvement

in the results was marked in the 35 and over age group (Figure 29), as a reflection of improvement in control of lipidemia in Type 2 diabetes patients. In the opinion of experts, this rate is high. The 2006 NCQA report found an 32.6% - 50.0% performance rate for this indicator, 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, 58.3% compared to 51.5%, respectively. In the opinion of experts, this difference is significant.

In 2006, no significant difference was found in the control of LDL cholesterol levels below 100 mg/dl among insured individuals exempt from NII payments. 53.6% among insured individuals exempt from payments were controlled as opposed to 55.5% among the rest of the patients (Figure 30).

Figure 29: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	68.75%	51.61%	54.00%	22	16	27	32	31	50
5-17	62.87%	57.35%	62.42%	601	620	769	956	1,081	1,232
18-24	56.84%	56.97%	57.95%	640	658	758	1,126	1,155	1,308
25-34	41.13%	42.62%	46.85%	1,305	1,388	1,702	3,173	3,257	3,633
35-44	37.67%	39.64%	45.42%	3,679	4,086	5,179	9,767	10,307	11,402
45-54	38.72%	42.19%	49.19%	13,032	15,041	19,137	33,653	35,653	38,904
55-64	42.54%	47.33%	54.53%	22,561	27,135	35,486	53,033	57,334	65,071
65-74	45.91%	51.34%	59.01%	28,342	33,354	41,402	61,731	64,973	70,159
75-84	44.57%	50.08%	57.04%	15,606	19,294	24,685	35,017	38,526	43,276
85+	39.13%	42.43%	49.59%	1,996	2,554	3,601	5,101	6,020	7,262
Total	43.12%	47.70%	54.79%	87,784	104,146	132,746	203,589	218,337	242,297

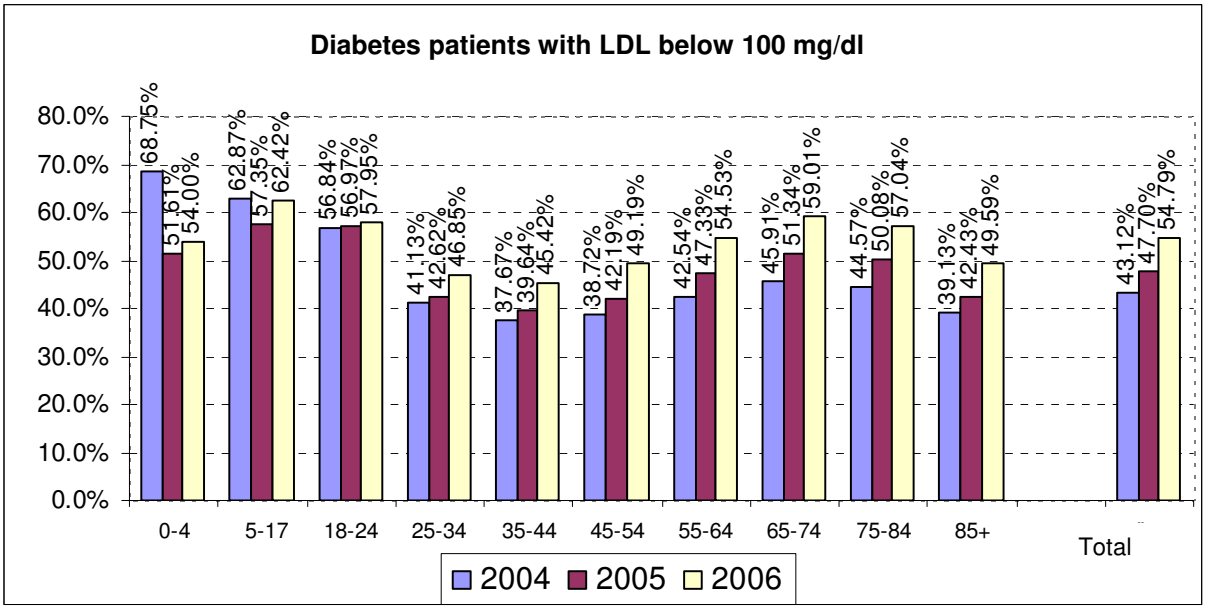
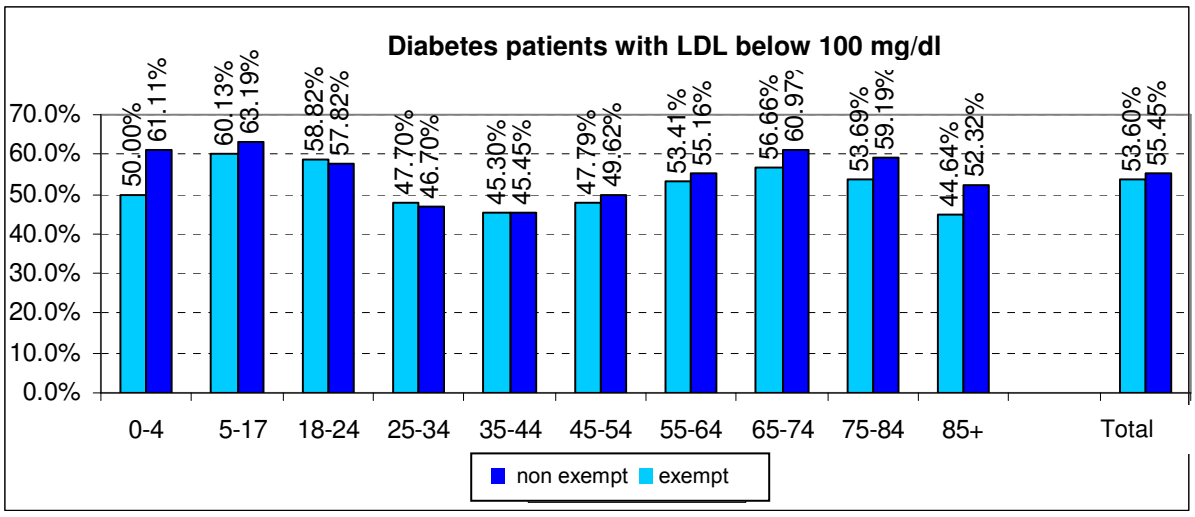

Diabetes patients with LDL below 100 mg/dl
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
68.75%
51.61%
54.00%
62.87%
57.35%
62.42%
56.84%
56.97%
57.95%
41.13%
42.62%
46.85%
37.67%
39.64%
45.42%
38.72%
42.19%
49.19%
42.54%
47.33%
54.53%
45.91%
51.34%
59.01%
44.57%
50.08%
57.04%
39.13%
42.43%
49.59%
43.12%
47.70%
54.79%
0-4
5-17
18-24
25-34
35-44
45-54
55-64
65-74
75-84
85+
Total
2004
2005
2006

Figure 30: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	50.00%	61.11%	54.00%	16	11	27	32	18	50
5-17	60.13%	63.19%	62.42%	187	582	769	311	921	1,232
18-24	58.82%	57.82%	57.95%	100	658	758	170	1,138	1,308
25-34	47.70%	46.70%	46.85%	259	1,443	1,702	543	3,090	3,633
35-44	45.30%	45.45%	45.42%	1,002	4,177	5,179	2,212	9,190	11,402
45-54	47.79%	49.62%	49.19%	4,351	14,786	19,137	9,105	29,799	38,904
55-64	53.41%	55.16%	54.53%	12,420	23,066	35,486	23,253	41,818	65,071
65-74	56.66%	60.97%	59.01%	18,054	23,348	41,402	31,862	38,297	70,159
75-84	53.69%	59.19%	57.04%	9,083	15,602	24,685	16,917	26,359	43,276
85+	44.64%	52.32%	49.59%	1,153	2,448	3,601	2,583	4,679	7,262
Total	53.60%	55.45%	54.79%	46,625	86,121	132,746	86,988	155,309	242,297



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

The percentage of diabetes patients who have had an eye test at an eye clinic at least once in the measurement year.

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, 61.3% of patients had an eye examination in 2006. This rate is a slight improvement over previous years (Figure 31). The 2006 NCQA report found a 48.6% - 66.5% performance rate for this indicator, depending on the type of insurance and age of the insured [1].
- No sex-related difference was found in the rate of control.
- In 2006, the rate of patients who had an eye examination among the insured individuals exempt from NII payments was 62.5% compared to 60.6% among the rest of insured individuals (Figure 32).

Figure 31: Rate of eye examinations performed at least once a year, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	29.79%	32.43%	31.06%	28	36	41	94	111	132
5-17	53.26%	55.88%	57.97%	882	989	1,098	1,656	1,770	1,894
18-24	52.31%	49.91%	51.26%	848	846	914	1,621	1,695	1,783
25-34	48.77%	49.36%	49.57%	2,066	2,166	2,315	4,236	4,388	4,670
35-44	48.86%	50.31%	52.66%	6,042	6,516	7,275	12,366	12,952	13,814
45-54	50.97%	52.95%	55.14%	20,486	22,518	24,784	40,195	42,528	44,944
55-64	57.83%	59.08%	61.36%	35,071	38,504	44,242	60,644	65,178	72,105
65-74	64.12%	65.59%	67.91%	44,118	47,299	51,480	68,807	72,109	75,802
75-84	60.05%	61.46%	62.91%	24,307	26,905	29,910	40,478	43,773	47,543
85+	45.38%	46.81%	49.24%	3,035	3,531	4,251	6,688	7,543	8,633
Total	57.81%	59.24%	61.30%	136,883	149,310	166,310	236,785	252,047	271,320

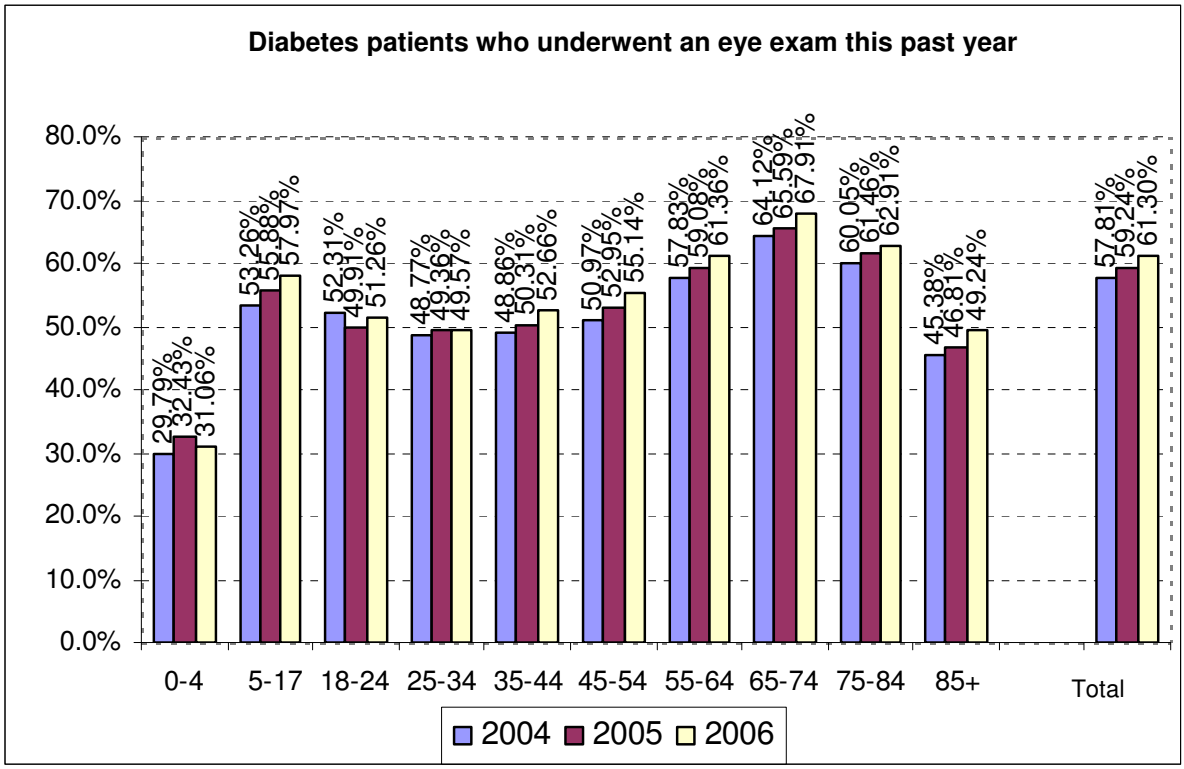
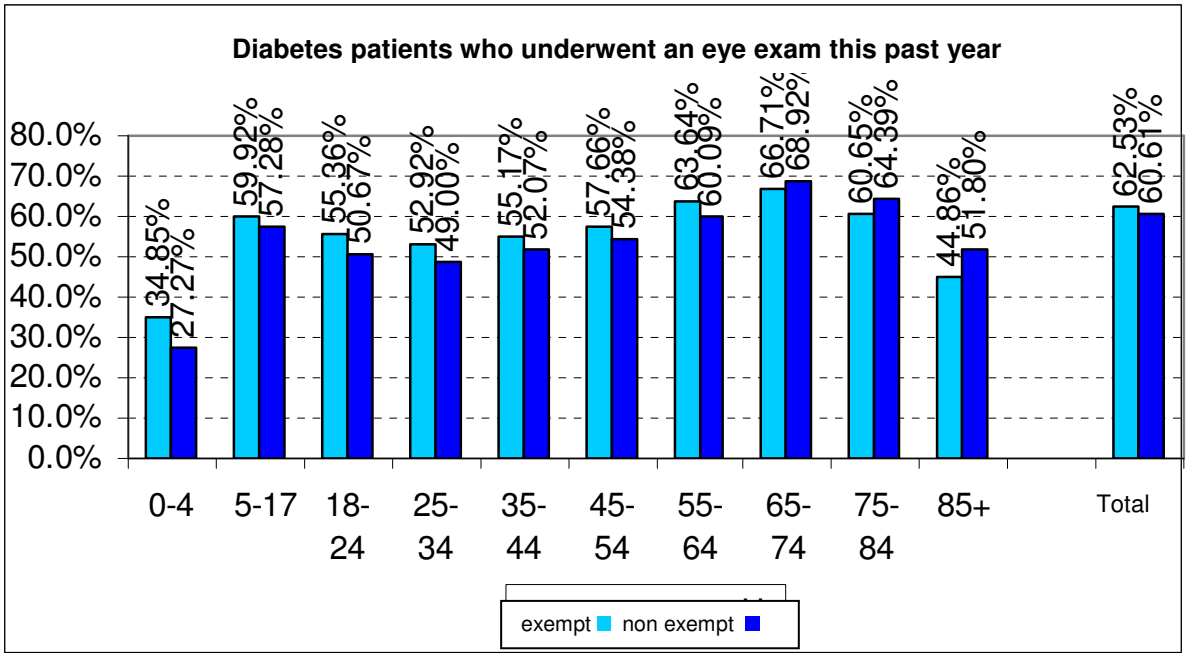


Figure 32: Rate of eye examinations performed at least once a year, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
0-4	34.85%	27.27%	31.06%	23	18	41	66	66	132
5-17	59.92%	57.28%	57.97%	299	799	1,098	499	1,395	1,894
18-24	55.36%	50.67%	51.26%	124	790	914	224	1,559	1,783
25-34	52.92%	49.00%	49.57%	362	1,953	2,315	684	3,986	4,670
35-44	55.17%	52.07%	52.66%	1,456	5,819	7,275	2,639	11,175	13,814
45-54	57.66%	54.38%	55.14%	6,054	18,730	24,784	10,500	34,444	44,944
55-64	63.64%	60.09%	61.36%	16,369	27,873	44,242	25,722	46,383	72,105
65-74	66.71%	68.92%	67.91%	23,082	28,398	51,480	34,600	41,202	75,802
75-84	60.65%	64.39%	62.91%	11,412	18,498	29,910	18,815	28,728	47,543
85+	44.86%	51.80%	49.24%	1,426	2,825	4,251	3,179	5,454	8,633
Total	62.53%	60.61%	61.30%	60,607	105,703	166,310	96,928	174,392	271,320



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

The percentage of diabetes patients who have had an albumin / microalbumin in urine test at least once in the measurement year.

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, 67.6% of patients were tested in 2006. This figure indicates 31% improvement over 2004 in all age groups (Figure 33). The 2006 NCQA report found a 48.8% - 60.2% performance rate for this indicator, 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 or status of exemption from NII payments (Figure 34).

Figure 33: Rate of performance of albumin/microalbumin in urine test at least once a year, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
0-4	17.02%	18.92%	24.24%	16	21	32	94	111	132
5-17	44.02%	48.36%	52.11%	729	856	987	1,656	1,770	1,894
18-24	46.82%	52.33%	57.26%	759	887	1,021	1,621	1,695	1,783
25-34	51.91%	54.76%	60.94%	2,199	2,403	2,846	4,236	4,388	4,670
35-44	53.15%	57.88%	65.69%	6,573	7,496	9,074	12,366	12,952	13,814
45-54	54.31%	59.29%	67.93%	21,829	25,214	30,530	40,195	42,528	44,944
55-64	56.25%	61.61%	70.84%	34,110	40,154	51,082	60,644	65,178	72,105
65-74	53.71%	60.51%	71.34%	36,956	43,633	54,075	68,807	72,109	75,802
75-84	44.06%	51.58%	62.67%	17,833	22,576	29,793	40,478	43,773	47,543
85+	28.75%	35.77%	45.70%	1,923	2,698	3,945	6,688	7,543	8,633
Total	51.92%	57.90%	67.59%	122,927	145,938	183,385	236,785	252,047	271,320

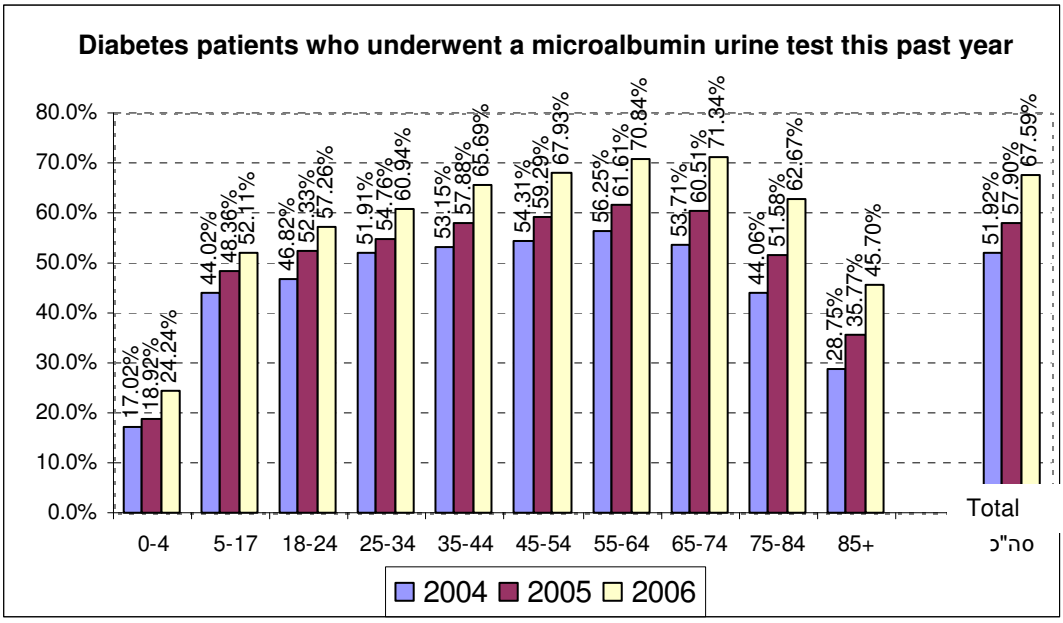
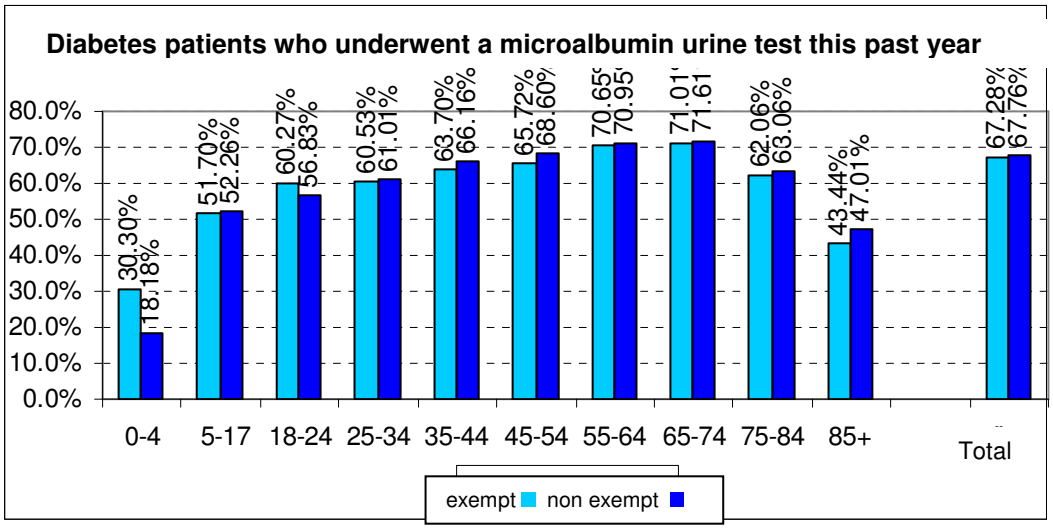


Figure 34: Rate of performance of albumin/microalbumin in urine test at least once a year, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	30.30%	18.18%	24.24%	20	12	32	66	66	132
5-17	51.70%	52.26%	52.11%	258	729	987	499	1,395	1,894
18-24	60.27%	56.83%	57.26%	135	886	1,021	224	1,559	1,783
25-34	60.53%	61.01%	60.94%	414	2,432	2,846	684	3,986	4,670
35-44	63.70%	66.16%	65.69%	1,681	7,393	9,074	2,639	11,175	13,814
45-54	65.72%	68.60%	67.93%	6,901	23,629	30,530	10,500	34,444	44,944
55-64	70.65%	70.95%	70.84%	18,172	32,910	51,082	25,722	46,383	72,105
65-74	71.01%	71.61%	71.34%	24,571	29,504	54,075	34,600	41,202	75,802
75-84	62.06%	63.06%	62.67%	11,677	18,116	29,793	18,815	28,728	47,543
85+	43.44%	47.01%	45.70%	1,381	2,564	3,945	3,179	5,454	8,633
Total	67.28%	67.76%	67.59%	65,210	118,175	183,385	96,928	174,392	271,320



E. Rate of flu vaccination for diabetes patients

Definition of indicator

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

Main Findings

- According to HMO data, 41.3% of diabetes patients were vaccinated against the flu in 2006. This finding marks a significant absolute decline of 5.5% [11.8% relative] compared to the previous year and breaks the improvement trend we had seen each year (Figure 35), without sex-related differences.

- The rate of flu vaccination among diabetes patients increases with age, reaching its peak at 75+ - 53.9%.
- In 2006, the number of patients up to the age of 65 exempt from NII payments received more flu shots than patients without an exemption, while over the age of 65 the trend reversed itself and fewer exempt patients were vaccinated. In total, 42.6% of those exempt from NII payments were vaccinated compared to 40.6% of the other insured individuals (Figure 36).

Figure 35: Rate of flu vaccination among diabetes patients by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
18-24	21.90%	26.08%	19.91%	355	442	355	1,621	1,695	1,783
25-34	20.85%	26.80%	20.56%	883	1,176	960	4,236	4,388	4,670
35-44	23.31%	28.36%	24.98%	2,882	3,673	3,451	12,366	12,952	13,814
45-54	26.78%	32.88%	27.69%	10,765	13,985	12,447	40,195	42,528	44,944
55-64	38.20%	43.86%	36.41%	23,166	28,584	26,253	60,644	65,178	72,105
65-74	52.02%	54.85%	49.60%	35,792	39,555	37,599	68,807	72,109	75,802
75-84	55.86%	58.32%	53.94%	22,613	25,530	25,647	40,478	43,773	47,543
85+	54.47%	57.01%	52.84%	3,643	4,300	4,562	6,688	7,543	8,633
Total	42.59%	46.87%	41.32%	100,099	117,245	111,274	235,035	250,166	269,294

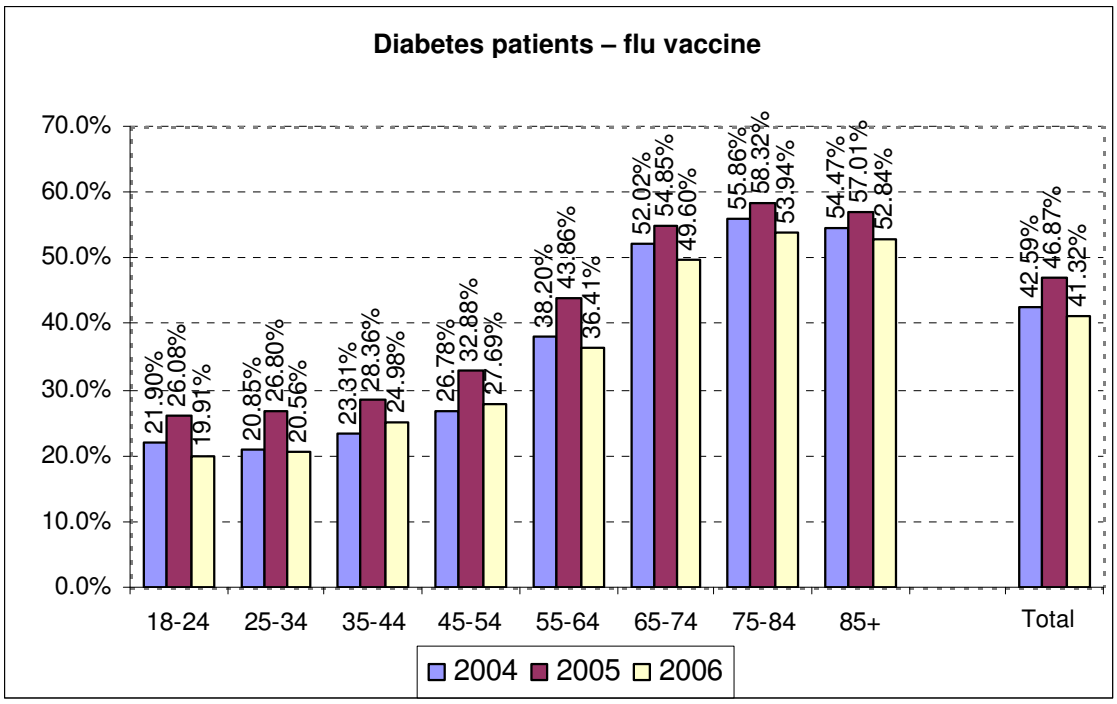
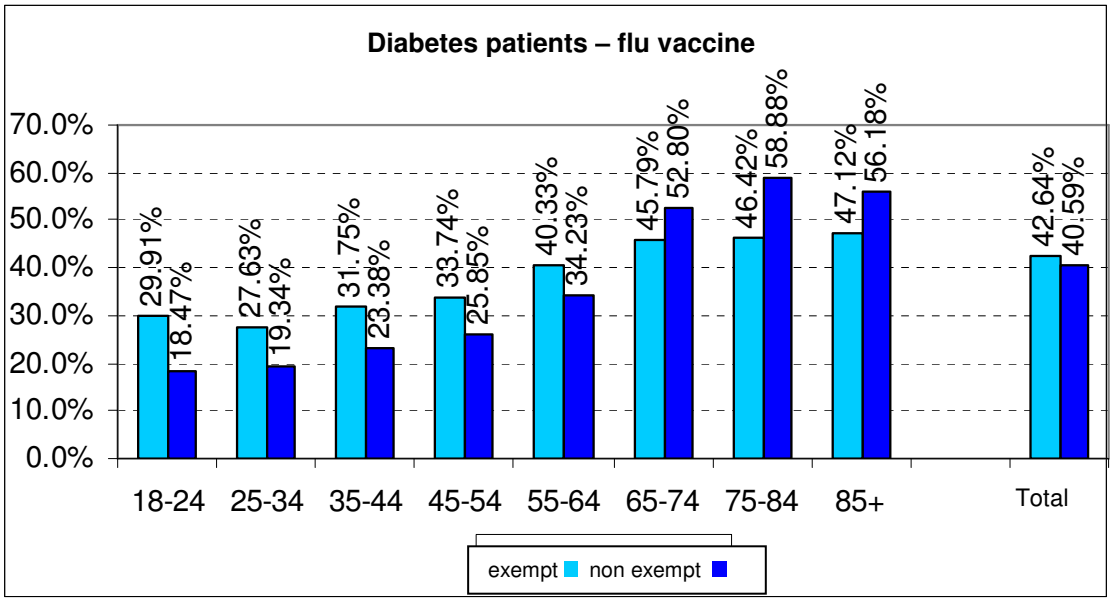


Figure 36: Rate of flu vaccination among diabetes patients in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	29.91%	18.47%	19.91%	67	288	355	224	1,559	1,783
25-34	27.63%	19.34%	20.56%	189	771	960	684	3,986	4,670
35-44	31.75%	23.38%	24.98%	838	2,613	3,451	2,639	11,175	13,814
45-54	33.74%	25.85%	27.69%	3,543	8,904	12,447	10,500	34,444	44,944
55-64	40.33%	34.23%	36.41%	10,374	15,879	26,253	25,722	46,383	72,105
65-74	45.79%	52.80%	49.60%	15,845	21,754	37,599	34,600	41,202	75,802
75-84	46.42%	58.88%	53.94%	8,733	16,914	25,647	18,815	28,728	47,543
85+	47.12%	56.18%	52.84%	1,498	3,064	4,562	3,179	5,454	8,633
Total	42.64%	40.59%	41.32%	41,087	70,187	111,274	96,363	172,931	269,294



F. Weight gain in diabetes: BMI documentation

Background

Overweight 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 can be calculated in 2006.

Main Findings

- In 2006, body weight was documented for 57.7% of diabetes patients and height documented for 70.2% of diabetes patients. Thus, BMI could be calculated for 55.1% of diabetes patients. Compared to the past two years, we can see that the documentation level is improving significantly. However, most of the documentation was done for patients aged 35-74 (Figure 37).
- No difference was found in BMI documentation by sex or by status of exemption from NII payments (Figure 38).
- The current level of documentation remains insufficient to specify overall obesity among diabetes patients.

Figure 37: Rate of documentation of BMI components among diabetes patients, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
18-24	20.60%	26.73%	42.60%	280	391	665	1,359	1,463	1,561
25-34	26.95%	34.45%	48.85%	1,056	1,403	2,111	3,918	4,073	4,321
35-44	32.02%	40.81%	55.57%	3,748	5,048	7,313	11,704	12,371	13,161
45-54	31.20%	40.53%	56.95%	12,017	16,601	24,696	38,512	40,963	43,368
55-64	31.84%	40.68%	57.01%	18,544	25,667	39,895	58,250	63,094	69,982
65-74	31.12%	39.74%	57.77%	20,595	27,831	42,678	66,181	70,031	73,878
75-84	26.35%	33.53%	50.72%	10,371	14,374	23,675	39,353	42,867	46,680
85+	17.35%	22.25%	35.70%	1,137	1,650	3,031	6,552	7,415	8,490
Total	30.00%	38.37%	55.10%	67,748	92,965	144,064	225,829	242,277	261,441

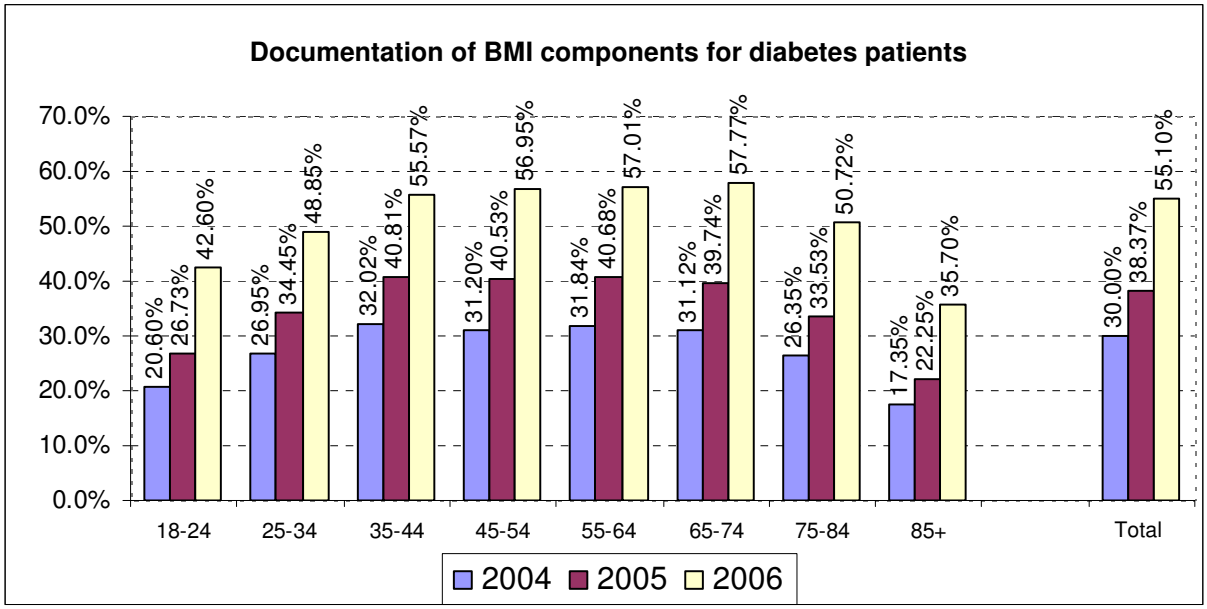
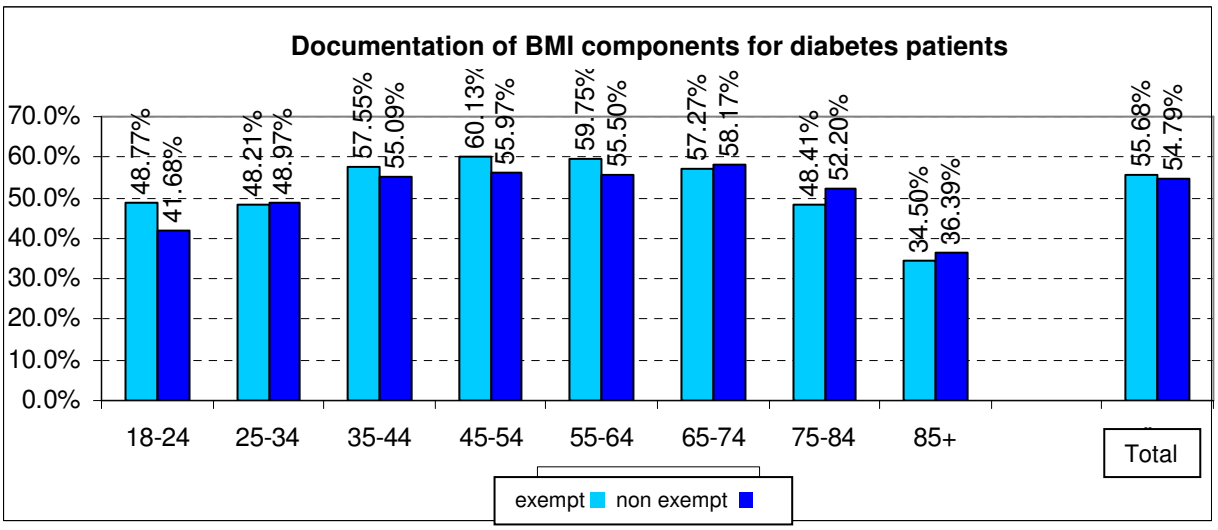


Figure 38: Rate of documentation of BMI components among diabetes patients in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	48.77%	41.68%	42.60%	99	566	665	203	1,358	1,561
25-34	48.21%	48.97%	48.85%	309	1,802	2,111	641	3,680	4,321
35-44	57.55%	55.09%	55.57%	1,459	5,854	7,313	2,535	10,626	13,161
45-54	60.13%	55.97%	56.95%	6,121	18,575	24,696	10,179	33,189	43,368
55-64	59.75%	55.50%	57.01%	14,846	25,049	39,895	24,846	45,136	69,982
65-74	57.27%	58.17%	57.77%	19,061	23,617	42,678	33,280	40,598	73,878
75-84	48.41%	52.20%	50.72%	8,839	14,836	23,675	18,258	28,422	46,680
85+	34.50%	36.39%	35.70%	1,073	1,958	3,031	3,110	5,380	8,490
Total	55.68%	54.79%	55.10%	51,807	92,257	144,064	93,052	168,389	261,441



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 2006, blood pressure values were documented for 82.5% of diabetes patients. Compared to the past two years, we can see that the documentation level is improving significantly. We believe that this level of documentation enables calculation of blood pressure control among diabetes patients (Figure 39).
- The level of documentation increases with age, reaching close to 86.3% documentation in patients aged 65-74.
- No sex-related difference was found in the rate of documentation.
- The level of documentation is higher among individuals exempt from NII payments (85.1%) than for other patients (80.6%) (Figure 40).

Figure 39: Rate of blood pressure readings among diabetes patients, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
18-24	40.59%	44.96%	53.56%	658	762	955	1,621	1,695	1,783
25-34	54.18%	58.34%	65.63%	2,295	2,560	3,065	4,236	4,388	4,670
35-44	64.18%	68.51%	76.18%	7,936	8,873	10,523	12,366	12,952	13,814
45-54	67.96%	72.70%	79.67%	27,315	30,919	35,805	40,195	42,528	44,944
55-64	71.74%	76.40%	82.58%	43,505	49,793	59,541	60,644	65,178	72,105
65-74	76.14%	80.63%	86.29%	52,391	58,143	65,409	68,807	72,109	75,802
75-84	74.16%	78.57%	83.83%	30,017	34,394	39,853	40,478	43,773	47,543
85+	61.90%	67.82%	72.74%	4,140	5,116	6,280	6,688	7,543	8,633
Total	71.59%	76.17%	82.23%	168,257	190,560	221,431	235,035	250,166	269,294

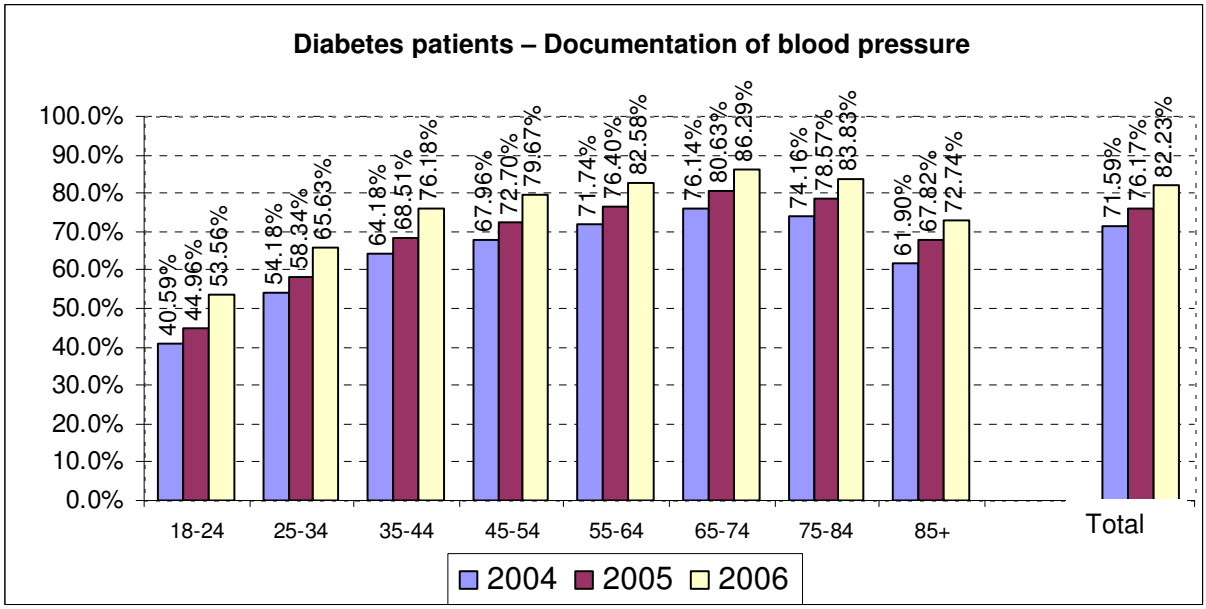
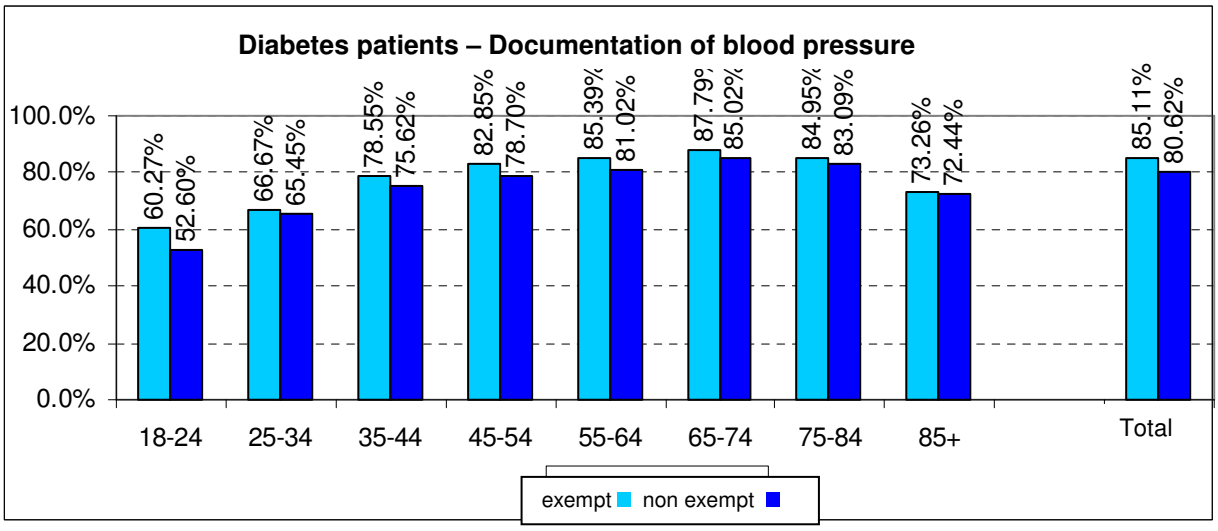


Figure 40: Rate of blood pressure readings among diabetes patients, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
18-24	60.27%	52.60%	53.56%	135	820	955	224	1,559	1,783
25-34	66.67%	65.45%	65.63%	456	2,609	3,065	684	3,986	4,670
35-44	78.55%	75.62%	76.18%	2,073	8,450	10,523	2,639	11,175	13,814
45-54	82.85%	78.70%	79.67%	8,699	27,106	35,805	10,500	34,444	44,944
55-64	85.39%	81.02%	82.58%	21,963	37,578	59,541	25,722	46,383	72,105
65-74	87.79%	85.02%	86.29%	30,377	35,032	65,409	34,600	41,202	75,802
75-84	84.95%	83.09%	83.83%	15,984	23,869	39,853	18,815	28,728	47,543
85+	73.26%	72.44%	72.74%	2,329	3,951	6,280	3,179	5,454	8,633
Total	85.11%	80.62%	82.23%	82,016	139,415	221,431	96,363	172,931	269,294



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 2006 blood pressure control targets were achieved in 61.7% of diabetes patients, for whom blood pressure readings are documented (Figure 41). This value is slightly higher than in 2005, a year in which the documentation level of blood pressure enabled us to relate to blood pressure values for the first time.
- No sex-related difference was found in the rate of control.
- The blood pressure control target was achieved in 60.55% of individuals exempt from NII payments and in 62.3% of other patients (Figure 42).

Figure 41: Rate of blood pressure control among diabetes patients, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
18-24	87.23%	87.14%	87.96%	574	664	840	658	762	955
25-34	76.73%	75.90%	76.84%	1,761	1,943	2,355	2,295	2,560	3,065
35-44	66.78%	67.09%	68.94%	5,300	5,953	7,255	7,936	8,873	10,523
45-54	58.70%	60.01%	62.90%	16,033	18,556	22,522	27,315	30,919	35,805
55-64	54.98%	57.18%	59.38%	23,917	28,471	35,354	43,505	49,793	59,541
65-74	53.99%	56.78%	60.43%	28,285	33,016	39,525	52,391	58,143	65,409
75-84	54.52%	58.48%	61.95%	16,366	20,113	24,687	30,017	34,394	39,853
85+	57.00%	59.58%	63.20%	2,360	3,048	3,969	4,140	5,116	6,280
Total	56.22%	58.65%	61.65%	94,596	111,764	136,507	168,257	190,560	221,431

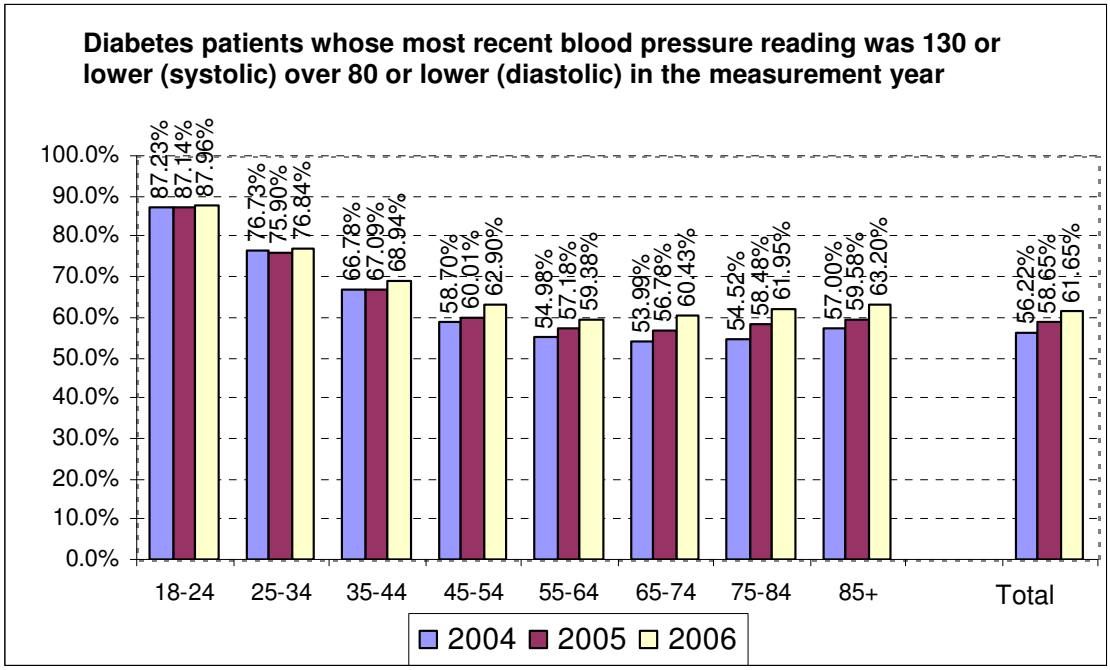
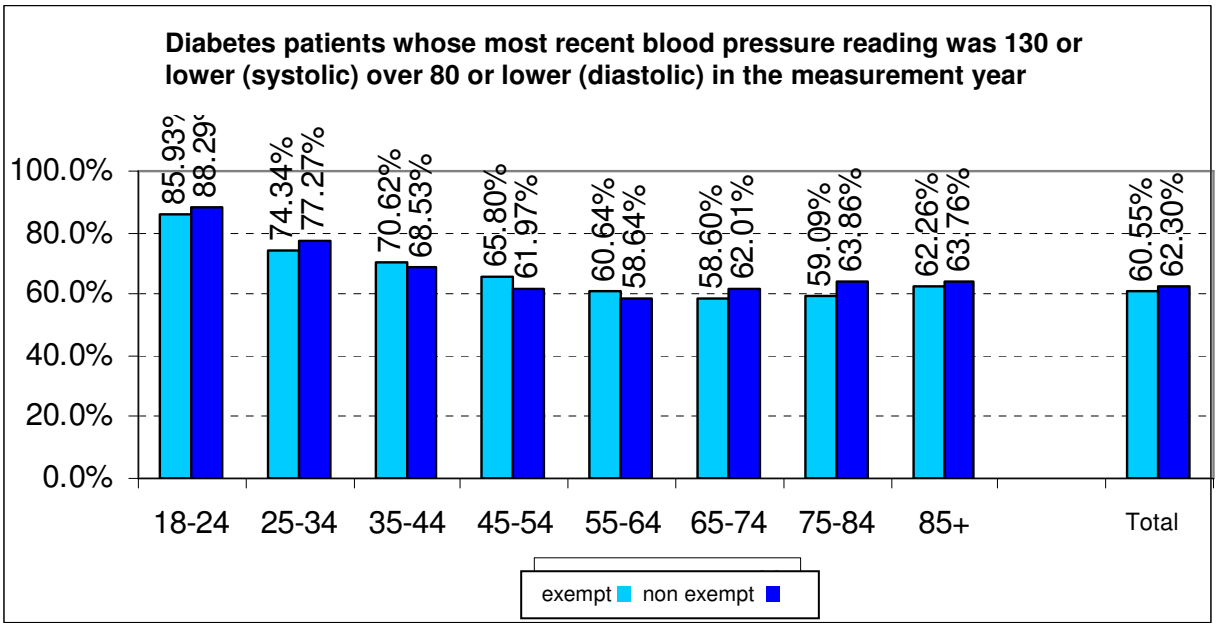


Figure 42: Rate of blood pressure control among diabetes patients, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	85.93%	88.29%	87.96%	116	724	840	135	820	955
25-34	74.34%	77.27%	76.84%	339	2,016	2,355	456	2,609	3,065
35-44	70.62%	68.53%	68.94%	1,464	5,791	7,255	2,073	8,450	10,523
45-54	65.80%	61.97%	62.90%	5,724	16,798	22,522	8,699	27,106	35,805
55-64	60.64%	58.64%	59.38%	13,319	22,035	35,354	21,963	37,578	59,541
65-74	58.60%	62.01%	60.43%	17,800	21,725	39,525	30,377	35,032	65,409
75-84	59.09%	63.86%	61.95%	9,445	15,242	24,687	15,984	23,869	39,853
85+	62.26%	63.76%	63.20%	1,450	2,519	3,969	2,329	3,951	6,280
Total	60.55%	62.30%	61.65%	49,657	86,850	136,507	82,016	139,415	221,431


Diabetes patients whose most recent blood pressure reading was 130 or lower (systolic) over 80 or lower (diastolic) in the measurement year
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
85.93%
88.29%
74.34%
77.27%
70.62%
68.53%
65.80%
61.97%
60.64%
58.64%
58.60%
62.01%
59.09%
63.86%
62.26%
63.76%
60.55%
62.30%
18-24
25-34
35-44
45-54
55-64
65-74
75-84
85+
Total
exempt
non exempt

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 is very strict about her routine, which includes a special diet and workout at the gym twice a week. She is worried about her family history. Her father suffered a heart attack at the age of 50, and her brother has high cholesterol. In a regular blood test, her family physician found her cholesterol level to be a source of concern. He recommended that she maintain her life style and diet, and also treated her with statins. Yona sighed with relief when the next blood test showed a marked 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 – younger age group

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 2006, 1,124,498 people underwent tests for LDL cholesterol level, as defined by the indicator, meaning 75.0%. The percentage increased with age, from 68.4% of the 35-44 age group to 82.1% of the 45-54 age group (Figure 43). These values show continued improvement in performance of the indicator.
- Women were tested more than men – 80.4% compared to 69.2%, respectively (Figure 44).
- A significant difference was found in performance of the test, in favor of individuals exempt from NII payments in the group examined: 82.3% compared to 74.4% for the rest of the population (Figure 45).

Figure 43: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	59.07%	64.56%	68.38%	437,488	487,113	527,323	740,610	754,461	771,179
45-54	75.20%	79.56%	82.07%	529,567	570,688	597,175	704,219	717,300	727,677
Total	66.93%	71.87%	75.02%	967,055	1,057,801	1,124,498	1,444,829	1,471,761	1,498,856

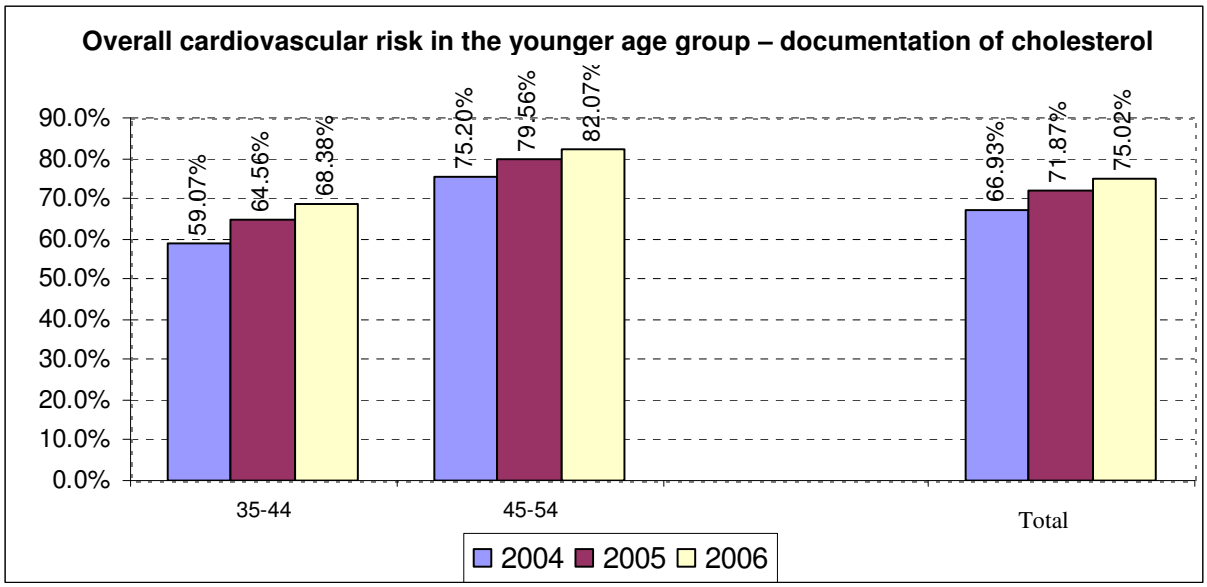


Figure 44: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	61.88%	74.45%	68.38%	230,362	296,961	527,323	372,289	398,890	771,179
45-54	77.01%	86.73%	82.07%	268,866	328,309	597,175	349,153	378,524	727,677
Total	69.20%	80.43%	75.02%	499,228	625,270	1,124,498	721,442	777,414	1,498,856

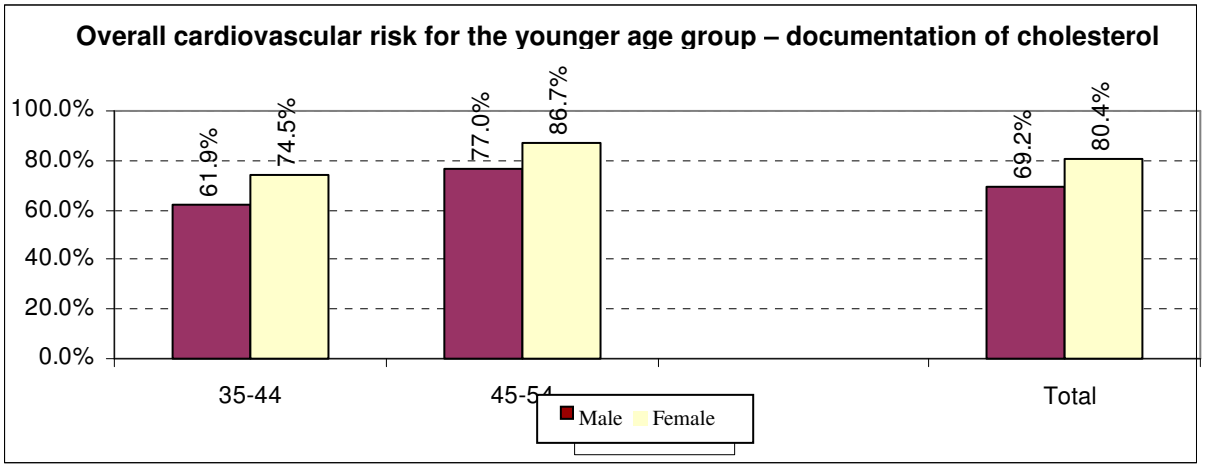
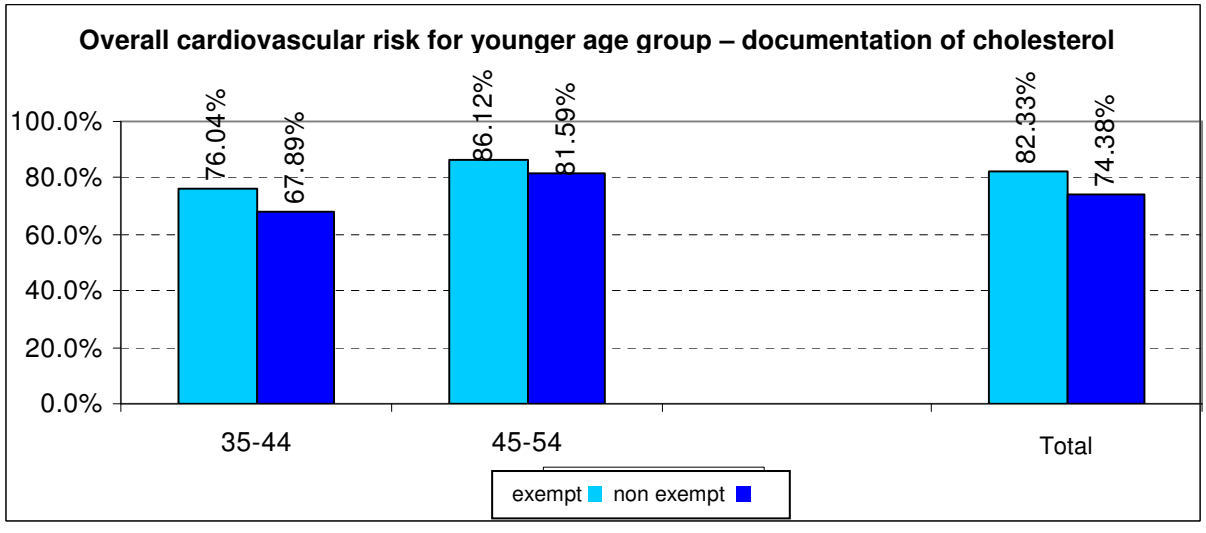


Figure 45: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
35-44	76.04%	67.89%	68.38%	34,874	492,449	527,323	45,865	725,314	771,179
45-54	86.12%	81.59%	82.07%	65,601	531,574	597,175	76,172	651,505	727,677
Total	82.33%	74.38%	75.02%	100,475	1,024,023	1,124,498	122,037	1,376,819	1,498,856



A.2 Performance of cholesterol testing for the general population – older age group

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 930,181 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 2006, 672,247 people underwent tests for LDL cholesterol level in the relevant age group, meaning 72.3%. The percentage increased with age, from 68.0% of the 55-64 age group to 78.6% of the 65-74 age group (Figure 46).
- Women were tested than men, 75.3% compared to 68.8%, respectively (Figure 47).
- A difference was found in the number of tests performed, in favor of individuals exempt from NII payments, 75.6% compared to 70.9% for other insured individuals (Figure 48).

Figure 46: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test 2006, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
55-64	62.85%	64.50%	68.01%	316,626	338,344	377,387	503,755	524,588	554,870
65-74	73.54%	74.86%	78.56%	270,734	278,282	294,860	368,154	371,746	375,311
Total	67.36%	68.79%	72.27%	587,360	616,626	672,247	871,909	896,334	930,181

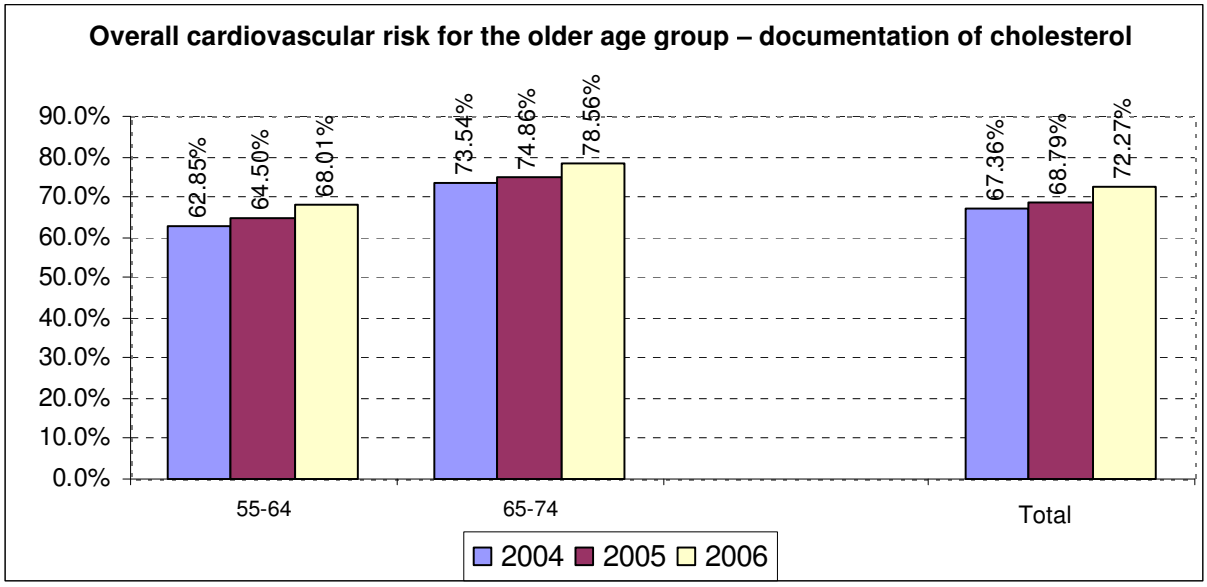


Figure 47: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	63.91%	71.75%	68.01%	169,056	208,331	377,387	264,503	290,367	554,870
65-74	76.33%	80.38%	78.56%	128,583	166,277	294,860	168,448	206,863	375,311
Total	68.75%	75.34%	72.27%	297,639	374,608	672,247	432,951	497,230	930,181

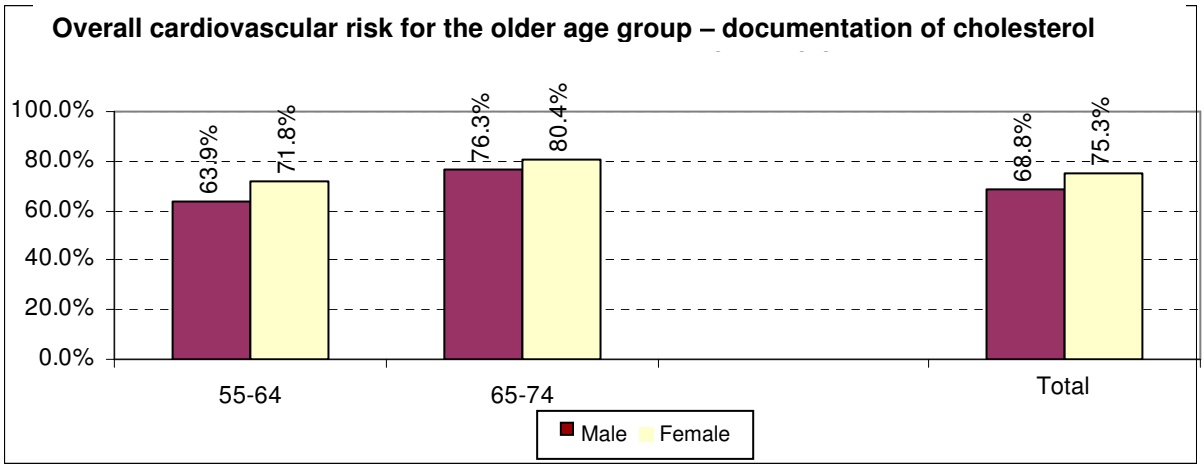
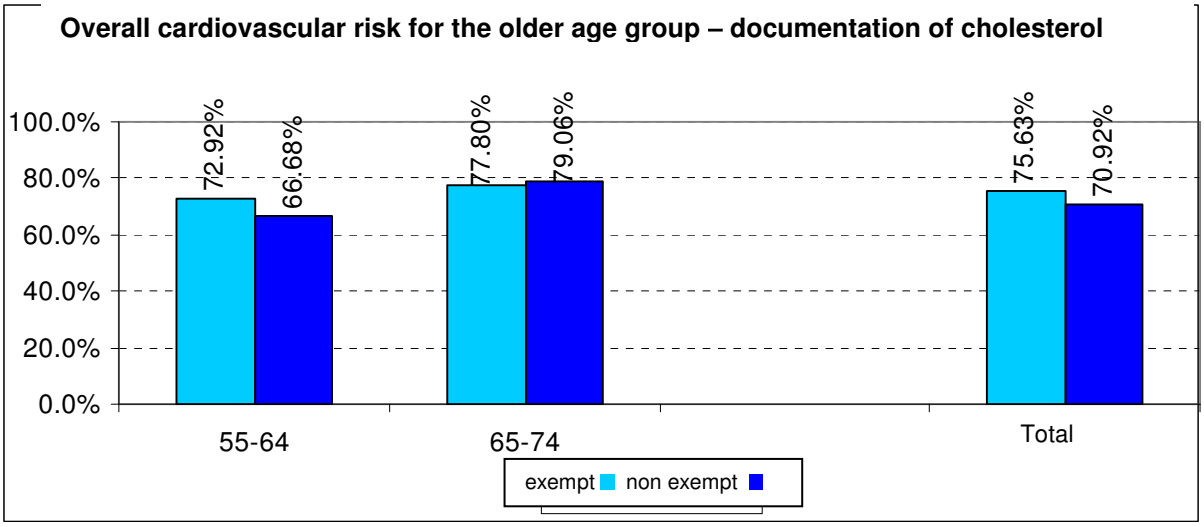


Figure 48: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	72.92%	66.68%	68.01%	86,583	290,804	377,387	118,733	436,137	554,870
65-74	77.80%	79.06%	78.56%	115,451	179,409	294,860	148,386	226,925	375,311
Total	75.63%	70.92%	72.27%	202,034	470,213	672,247	267,119	663,062	930,181



B. Cholesterol control in the general population

B.1 Percentage of the general population with cholesterol at target level – younger age group

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 1,124,498 subjects.

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

Main Findings

- In 2006, 732,581 individuals met the target level, in other words 65.2%. The rate of control decreased with age, from 69.6% in the 35-44 age group to

61.2% of the 45-54 age group (Figure 51). This decrease was expected, as cholesterol levels increase with age.

- More women conformed to the control target than men, 68.0% compared to 61.6%, respectively (Figure 50). This biological difference partially explains the higher risk for development of atherosclerosis among younger men.
- No significant difference was found in attaining the target level in this age group based on status exemption from NII payments (Figure 51).

Figure 49: 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 (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	67.65%	68.29%	69.62%	295,942	332,637	367,129	437,488	487,113	527,323
45-54	57.43%	58.82%	61.20%	304,136	335,702	365,452	529,567	570,688	597,175
Total	62.05%	63.18%	65.15%	600,078	668,339	732,581	967,055	1,057,801	1,124,498

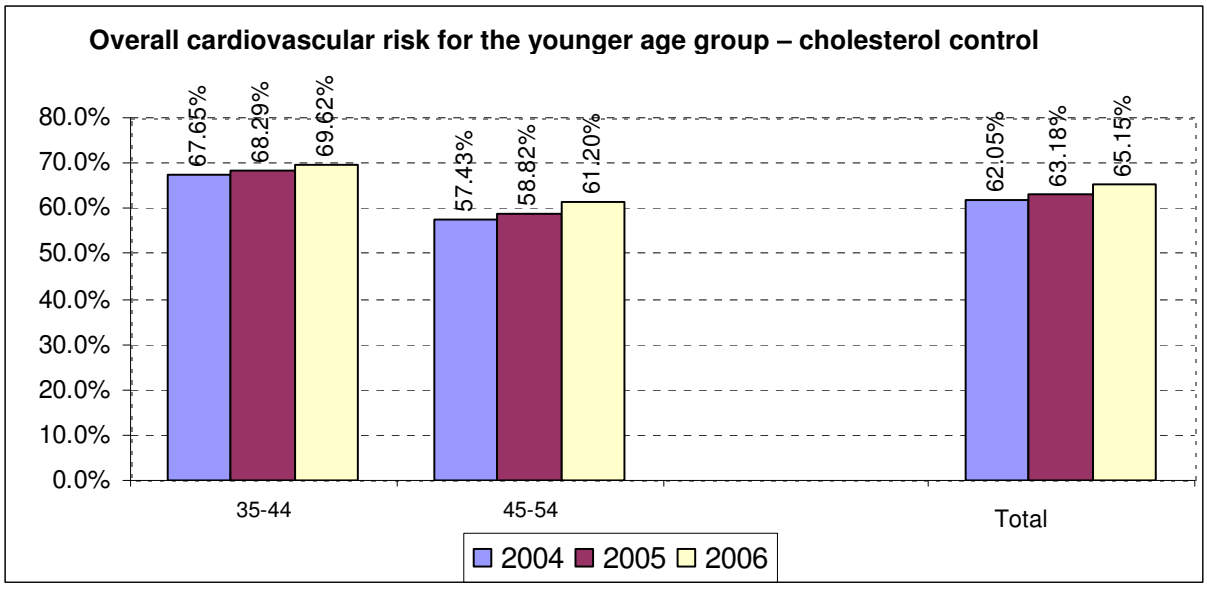


Figure 50: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	62.67%	75.01%	69.62%	144,375	222,754	367,129	230,362	296,961	527,323
45-54	60.71%	61.59%	61.20%	163,241	202,211	365,452	268,866	328,309	597,175
Total	61.62%	67.97%	65.15%	307,616	424,965	732,581	499,228	625,270	1,124,498

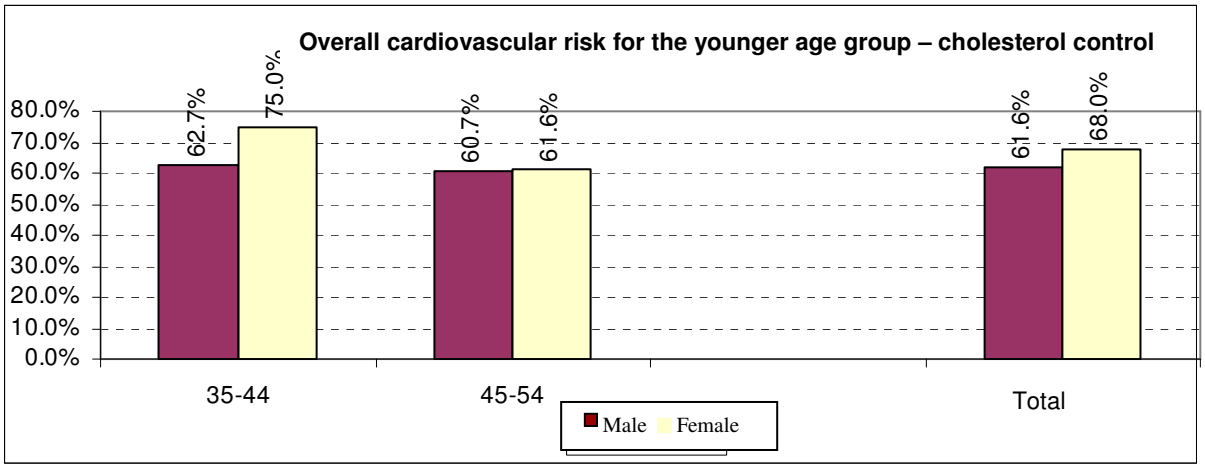
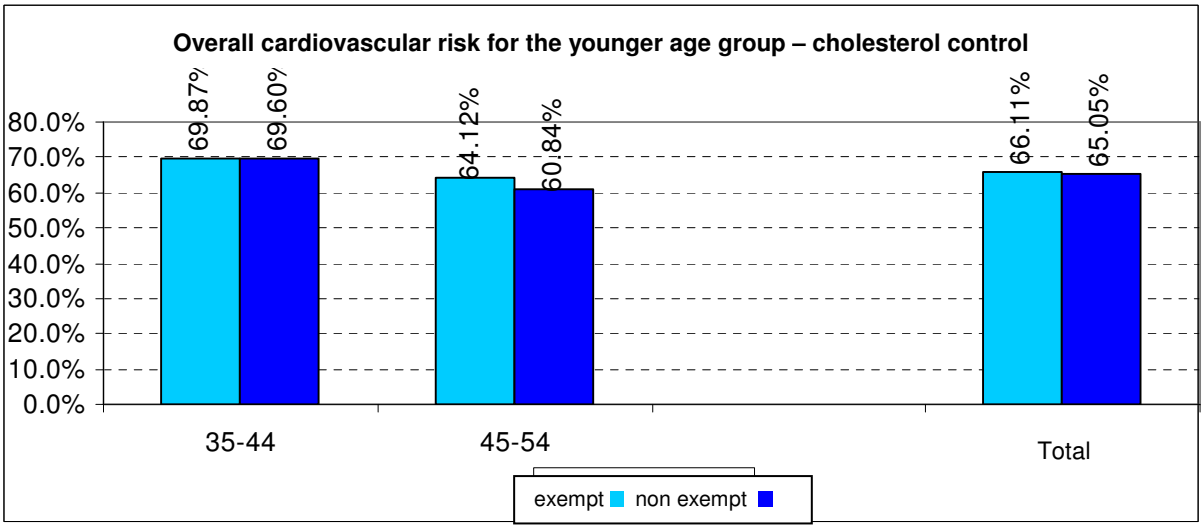


Figure 51: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	69.87%	69.60%	69.62%	24,365	342,764	367,129	34,874	492,449	527,323
45-54	64.12%	60.84%	61.20%	42,064	323,388	365,452	65,601	531,574	597,175
Total	66.11%	65.05%	65.15%	66,429	666,152	732,581	100,475	1,024,023	1,124,498



B.2 Percentage of the general population with cholesterol at target level – older age group

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 672,247 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 2006, 463,046 individuals met the target level, that is 68.9%. The rate of control increased with age, from 65.3% in the 55-64 age group to 73.5% of the 65-74 age group (Figure 52). This increase is evidently attributable to treatment with statin drugs, which increases with age, to reduce the level of cholesterol in the blood. An annual 3% improvement was found for this indicator in the reporting period.
- More men met the target than women, 73.3% compared to 65.3%, respectively (Figure 53).
- 70.4% of individuals exempt from NII payments reached the target level compared to 68.2% of the remaining population (Figure 54).

Figure 52: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
55-64	57.90%	60.76%	65.26%	183,331	205,577	246,264	316,626	338,344	377,387
65-74	65.70%	69.13%	73.52%	177,863	192,390	216,782	270,734	278,282	294,860
Total	61.49%	64.54%	68.88%	361,194	397,967	463,046	587,360	616,626	672,247

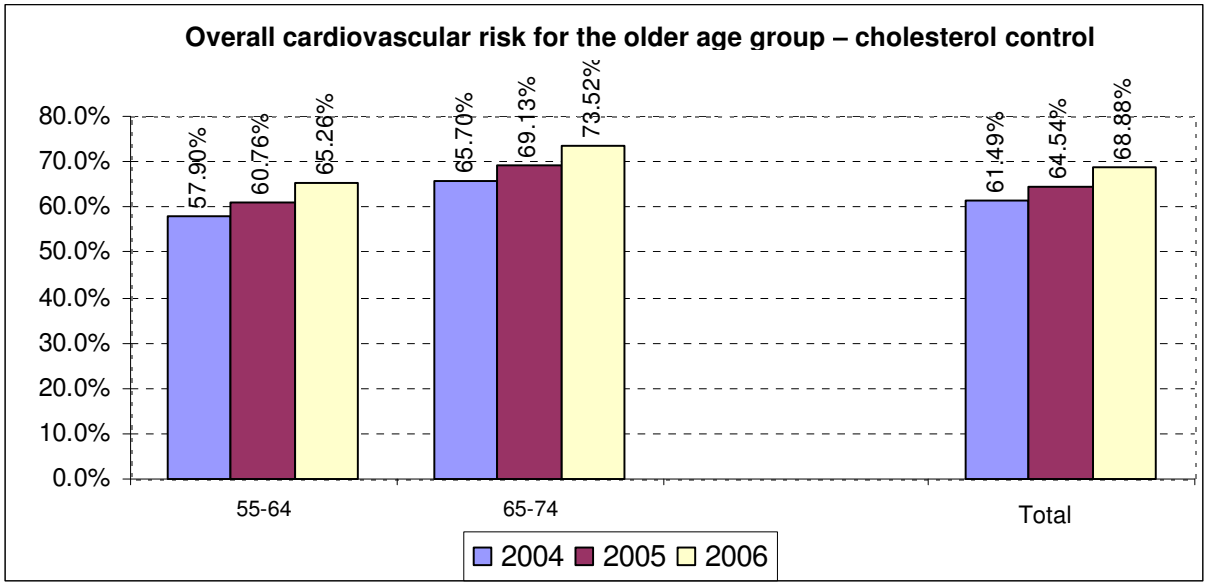


Figure 53: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	70.01%	61.40%	65.26%	118,357	127,907	246,264	169,056	208,331	377,387
65-74	77.71%	70.28%	73.52%	99,928	116,854	216,782	128,583	166,277	294,860
Total	73.34%	65.34%	68.88%	218,285	244,761	463,046	297,639	374,608	672,247

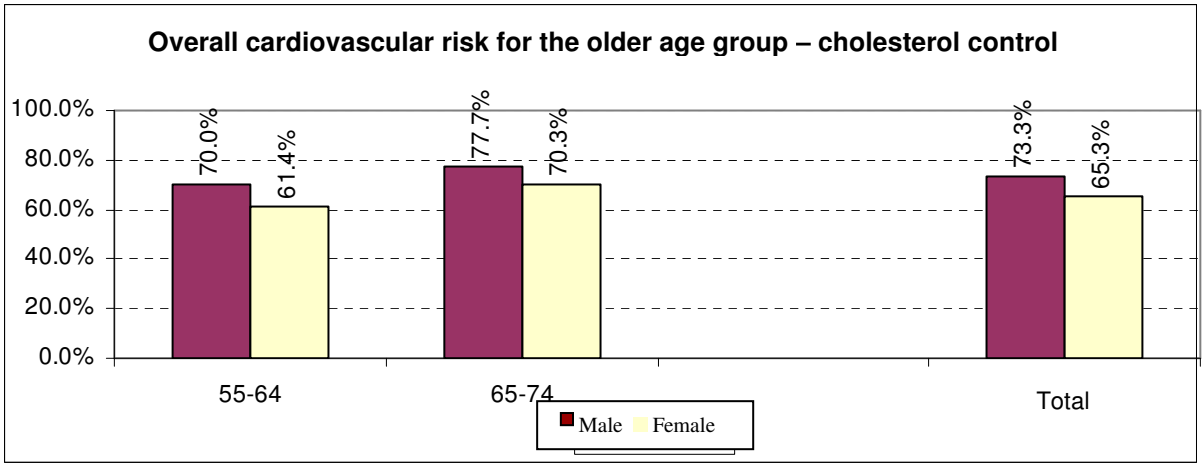
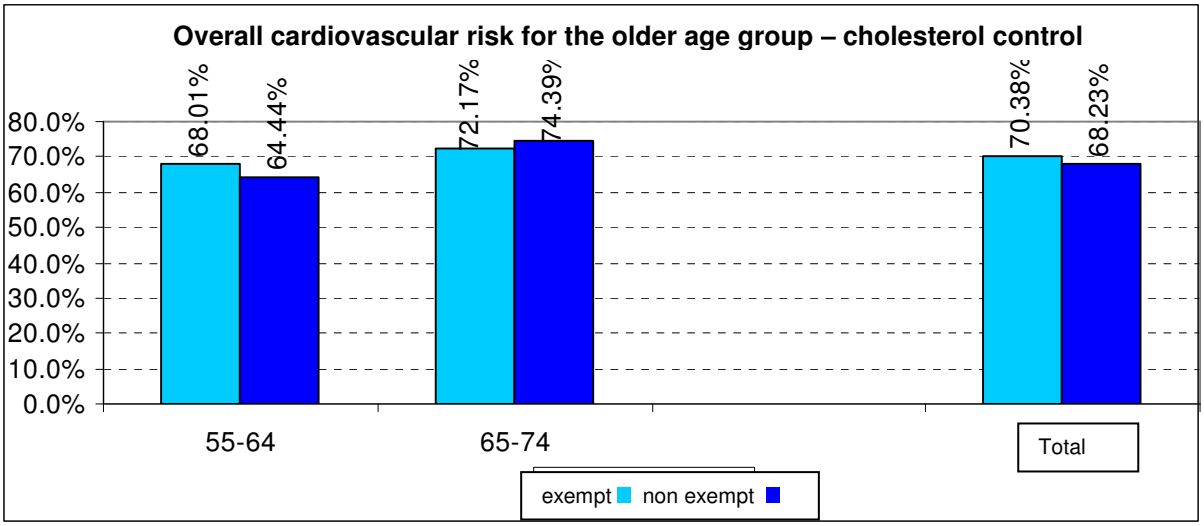


Figure 54: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	68.01%	64.44%	65.26%	58,882	187,382	246,264	86,583	290,804	377,387
65-74	72.17%	74.39%	73.52%	83,316	133,466	216,782	115,451	179,409	294,860
Total	70.38%	68.23%	68.88%	142,198	320,848	463,046	202,034	470,213	672,247



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 health 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 the younger age group

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 55).
- Among women, weight documentation is slightly better than for men, 28.2% compared to 21.2% (Figure 56).
- Individuals exempt from NII payments had better weight documentation than insured individuals who are not exempt, 33.2% compared to 24.3% (Figure 57).

Figure 55: Rate of insured individuals aged 20-54 who were weighed at least once in the past five years, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
20-34	7.56%	11.80%	19.90%	84,207	134,076	230,278	1,114,154	1,136,457	1,157,043
35-44	9.16%	14.40%	24.35%	67,833	108,560	187,656	740,295	754,046	770,642
45-54	14.13%	21.14%	33.27%	99,487	151,575	241,996	704,046	717,112	727,399
Total	9.83%	15.12%	24.86%	251,527	394,211	659,930	2,558,495	2,607,615	2,655,084

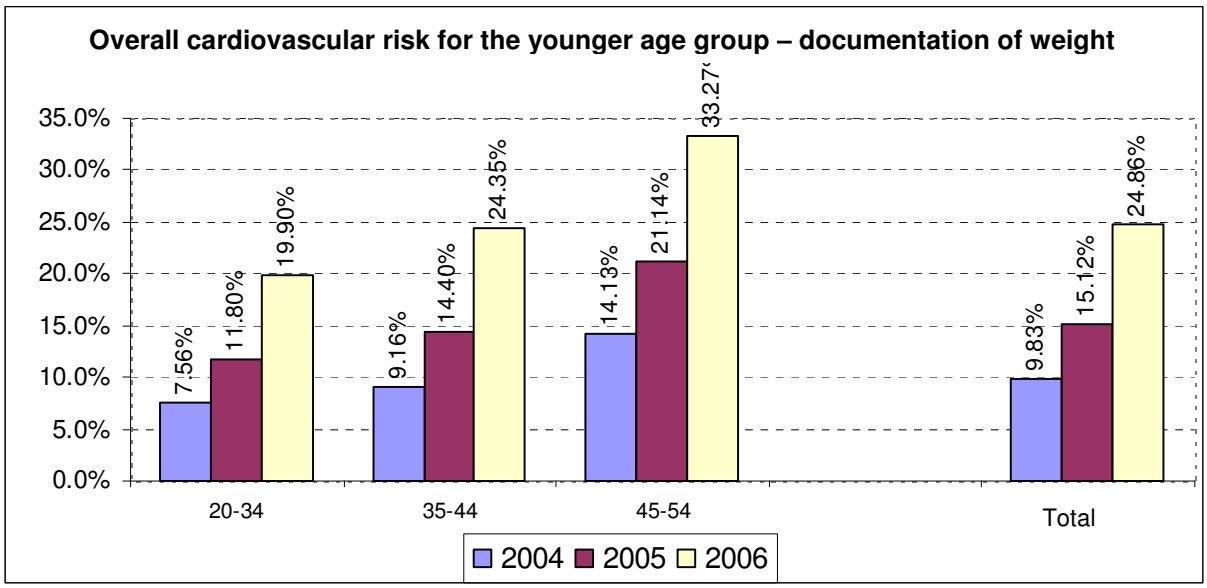


Figure 56: Rate of insured individuals aged 20-54 who were weighed at least once in the past five years, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
20-34	14.18%	24.79%	19.90%	75,618	154,660	230,278	533,181	623,862	1,157,043
35-44	21.52%	26.99%	24.35%	80,038	107,618	187,656	371,897	398,745	770,642
45-54	31.47%	34.92%	33.27%	109,826	132,170	241,996	348,937	378,462	727,399
Total	21.17%	28.15%	24.86%	265,482	394,448	659,930	1,254,015	1,401,069	2,655,084

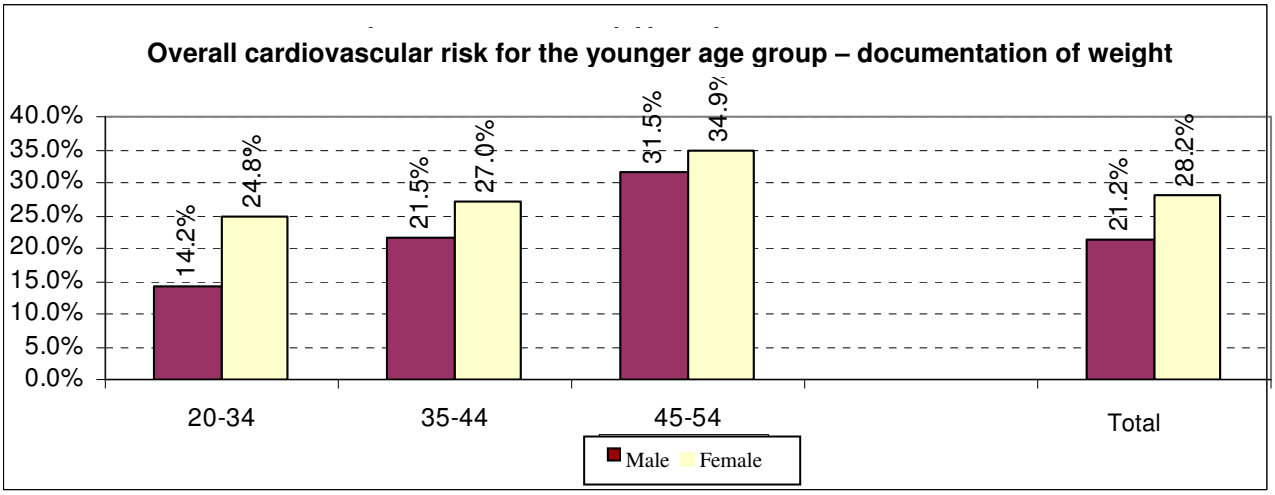
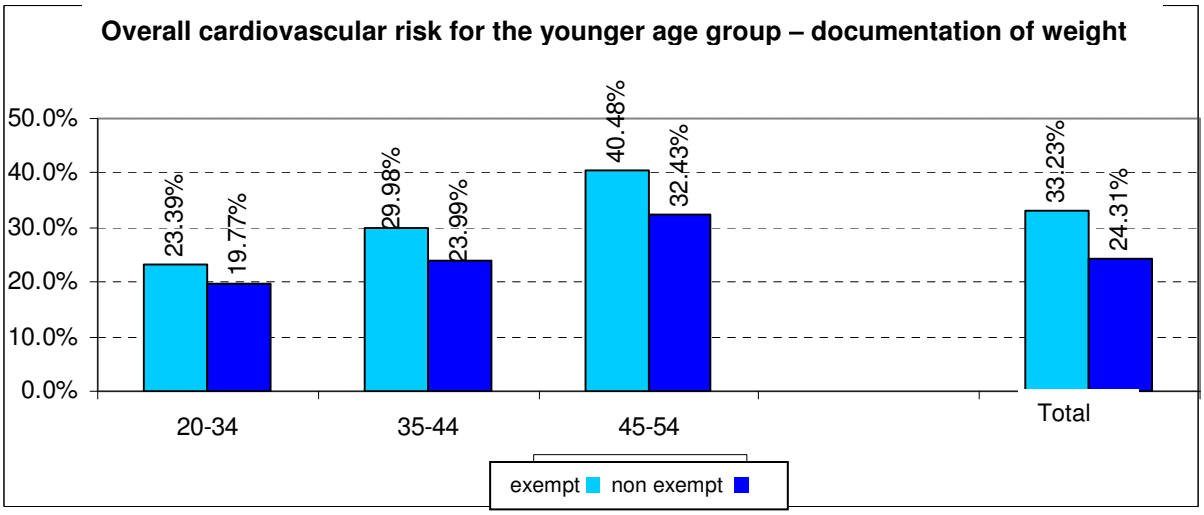


Figure 57: Rate of insured individuals aged 20-54 who were weighed at least once in the past five years, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	23.39%	19.77%	19.90%	9,595	220,683	230,278	41,024	1,116,019	1,157,043
35-44	29.98%	23.99%	24.35%	13,745	173,911	187,656	45,842	724,800	770,642
45-54	40.48%	32.43%	33.27%	30,824	211,172	241,996	76,152	651,247	727,399
Total	33.23%	24.31%	24.86%	54,164	605,766	659,930	163,018	2,492,066	2,655,084



C.2 Documentation of weight for the older age group

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 33.1% of the population, though an impressive improvement in documentation of approximately 18% [absolute] during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 58).
- Among women, weight documentation is slightly better than for men, 34.5% compared to 31.6% (Figure 59).
- Individuals exempt from NII payments had slightly better weight documentation than insured individuals who are not exempt, 37.1% compared to 31.5% (Figure 60).

Figure 58: Rate of insured individuals aged 55-74 who were weighed at least once in the past year, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
55-64	13.36%	18.10%	29.98%	67,318	94,964	166,339	503,755	524,588	554,870
65-74	17.63%	22.70%	37.76%	64,890	84,379	141,719	368,154	371,746	375,311
Total	15.16%	20.01%	33.12%	132,208	179,343	308,058	871,909	896,334	930,181

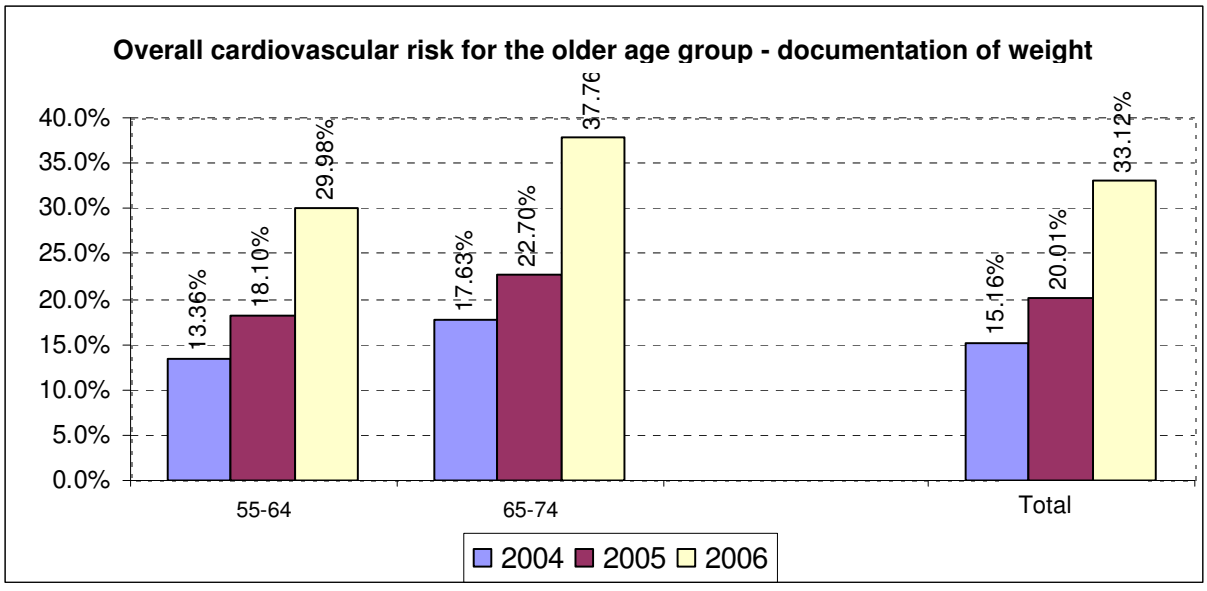


Figure 59: Rate of insured individuals aged 55-74 who were weighed at least once in the past year, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	28.50%	31.32%	29.98%	75,389	90,950	166,339	264,503	290,367	554,870
65-74	36.42%	38.85%	37.76%	61,345	80,374	141,719	168,448	206,863	375,311
Total	31.58%	34.46%	33.12%	136,734	171,324	308,058	432,951	497,230	930,181

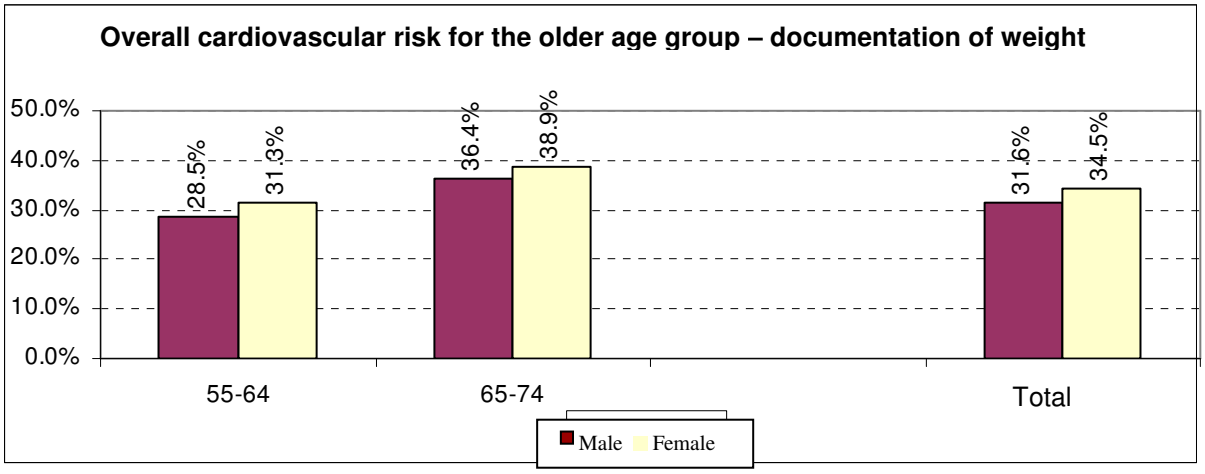
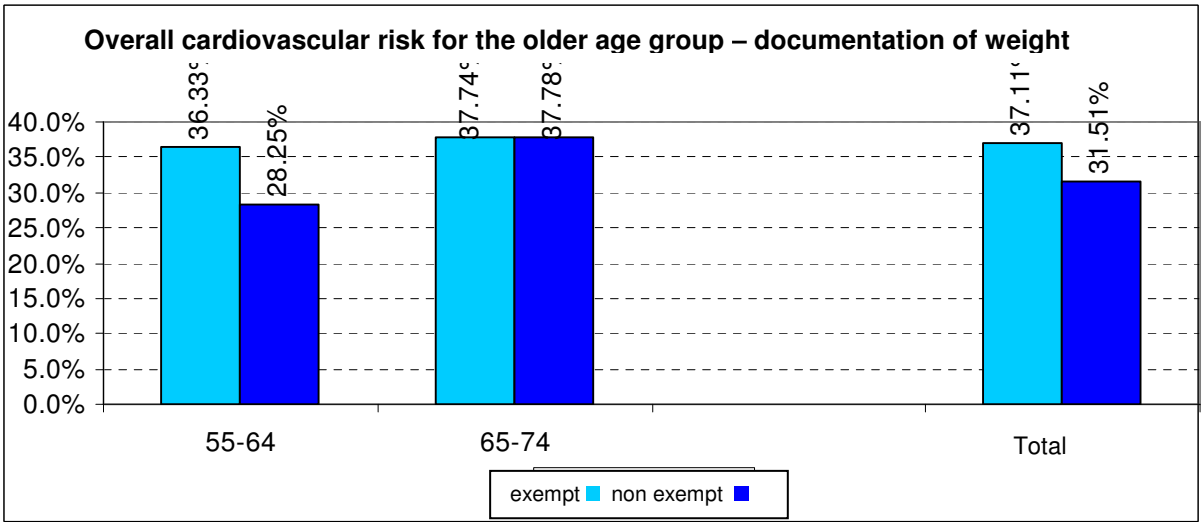


Figure 60: Rate of insured individuals aged 55-74 who were weighed at least once in the past year, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	36.33%	28.25%	29.98%	43,138	123,201	166,339	118,733	436,137	554,870
65-74	37.74%	37.78%	37.76%	55,996	85,723	141,719	148,386	226,925	375,311
Total	37.11%	31.51%	33.12%	99,134	208,924	308,058	267,119	663,062	930,181



C.3 Documentation of height for the younger age group

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 22.1% of the population, though an impressive improvement of approximately 14% [absolute] during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 61).
- Among women, height documentation was slightly better than for men, 23.8% compared to 20.1% (Figure 62).
- Individuals exempt from NII payments had slightly better height documentation than insured individuals who are not exempt, 30.43% compared to 21.5% (Figure 63).

Figure 61: Rate of insured individuals aged 20-54, in 2006, whose height was checked at least once in the past five years, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
20-34	5.33%	8.90%	16.09%	59,425	101,197	186,191	1,114,154	1,136,457	1,157,043
35-44	7.67%	12.56%	22.00%	56,808	94,697	169,556	740,295	754,046	770,642
45-54	12.31%	19.43%	31.59%	86,677	139,320	229,785	704,046	717,112	727,399
Total	7.93%	12.86%	22.05%	202,910	335,214	585,532	2,558,495	2,607,615	2,655,084

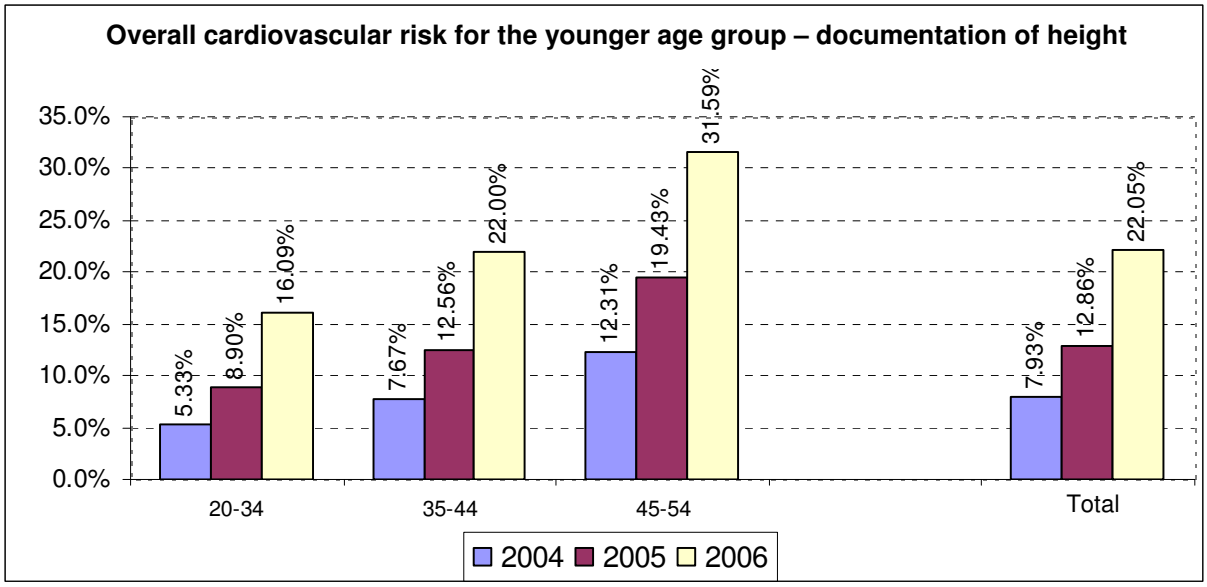


Figure 62: Rate of insured individuals aged 20-54, in 2006, who had their height checked least once in the past five years, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
20-34	13.35%	18.44%	16.09%	71,174	115,017	186,191	533,181	623,862	1,157,043
35-44	20.50%	23.40%	22.00%	76,246	93,310	169,556	371,897	398,745	770,642
45-54	29.99%	33.07%	31.59%	104,644	125,141	229,785	348,937	378,462	727,399
Total	20.10%	23.80%	22.05%	252,064	333,468	585,532	1,254,015	1,401,069	2,655,084

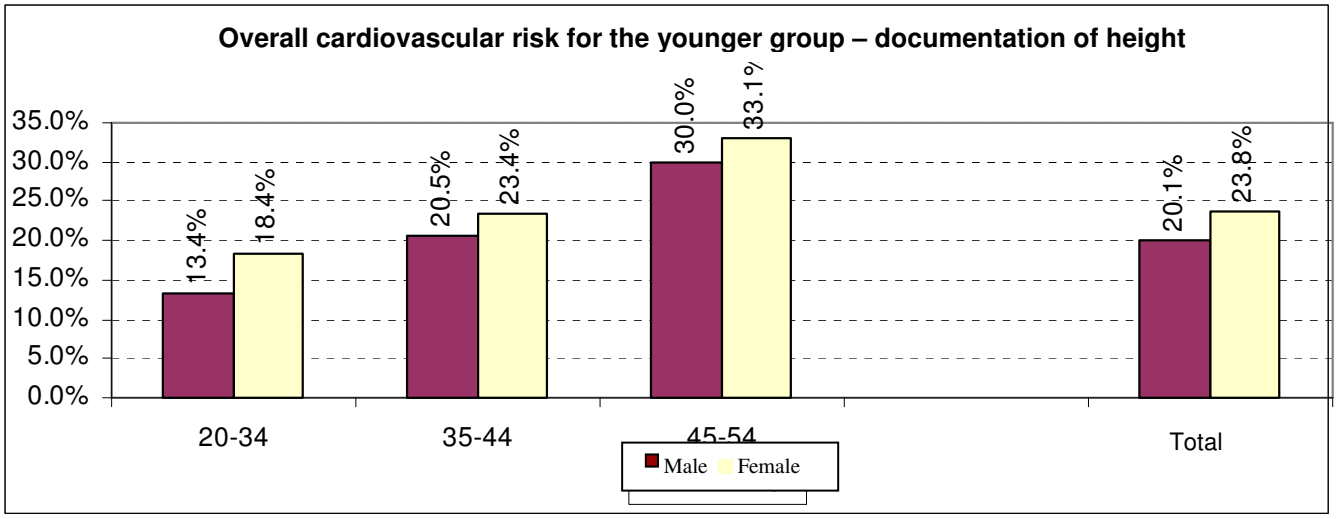
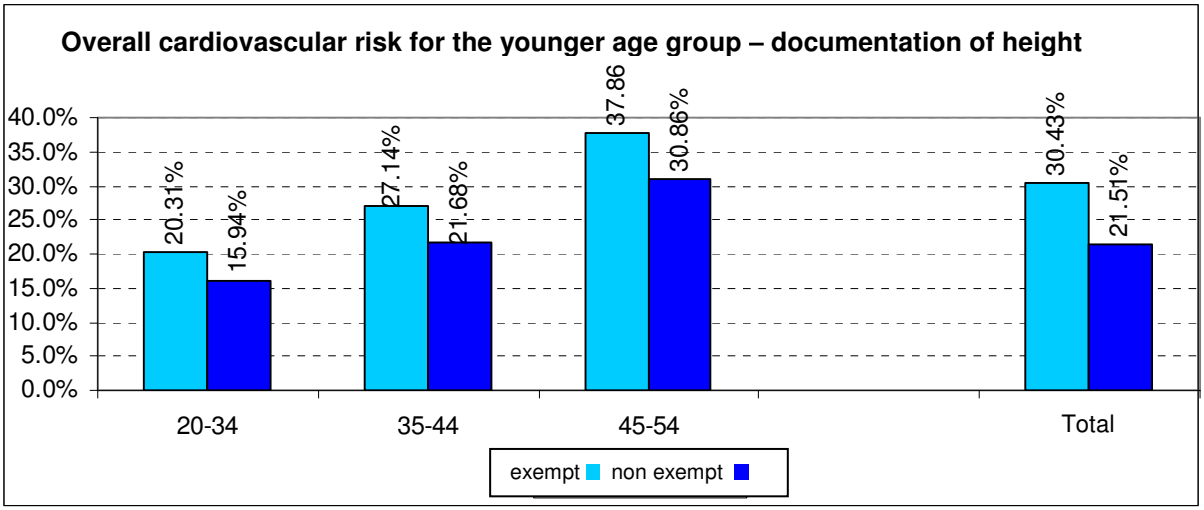


Figure 63: Rate of insured individuals aged 20-54, in 2006, who had their height checked least once in the past five years, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	20.31%	15.94%	16.09%	8,333	177,858	186,191	41,024	1,116,019	1,157,043
35-44	27.14%	21.68%	22.00%	12,441	157,115	169,556	45,842	724,800	770,642
45-54	37.86%	30.86%	31.59%	28,830	200,955	229,785	76,152	651,247	727,399
Total	30.43%	21.51%	22.05%	49,604	535,928	585,532	163,018	2,492,066	2,655,084



C.4 Documentation of height in the older age group

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 43.0% of the population, though an impressive improvement of approximately 24% [absolute] in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 64).
- Among women, height documentation was slightly better than for men, 44.5% compared to 41.3% (Figure 65).
- Individuals exempt from NII payments had slightly better height documentation than insured individuals who are not exempt, 46.7% compared to 41.5% (Figure 66).

Figure 64: Rate of insured individuals aged 55-74 whose height was checked at least once in the past five years, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
55-64	16.94%	25.73%	40.07%	81,047	129,548	214,484	478,456	503,558	535,287
65-74	21.01%	30.53%	47.26%	73,535	108,978	171,243	350,013	357,012	362,345
Total	18.66%	27.72%	42.97%	154,582	238,526	385,727	828,469	860,570	897,632

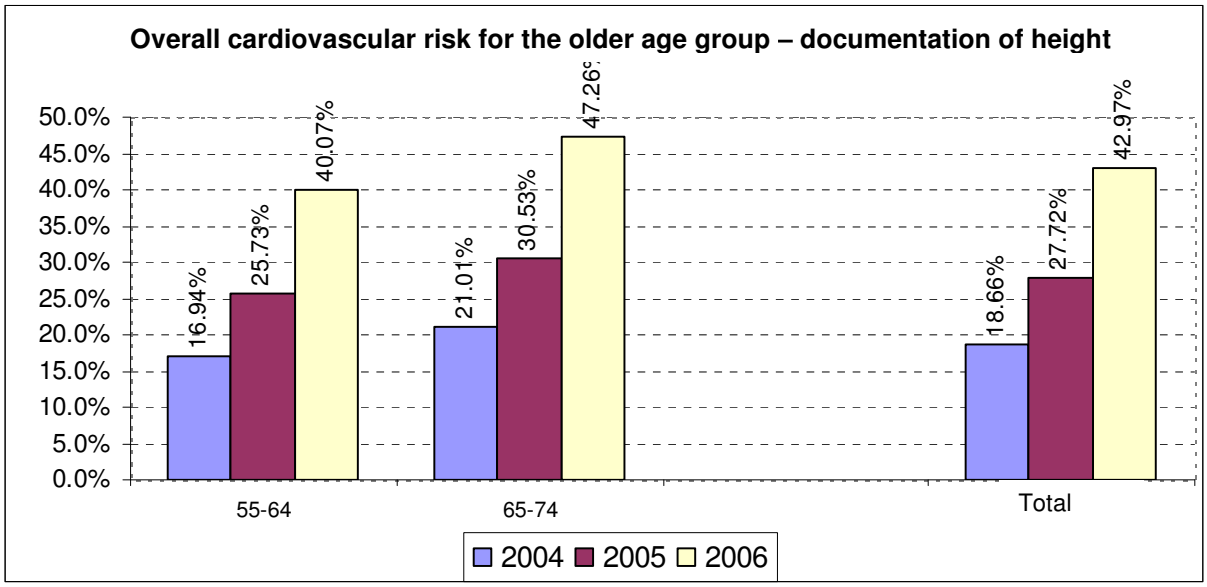


Figure 65: Rate of insured individuals aged 55-74, in 2006, who had their height checked least once in the past five years, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	38.32%	41.67%	40.07%	97,969	116,515	214,484	255,640	279,647	535,287
65-74	45.85%	48.41%	47.26%	74,539	96,704	171,243	162,589	199,756	362,345
Total	41.25%	44.48%	42.97%	172,508	213,219	385,727	418,229	479,403	897,632

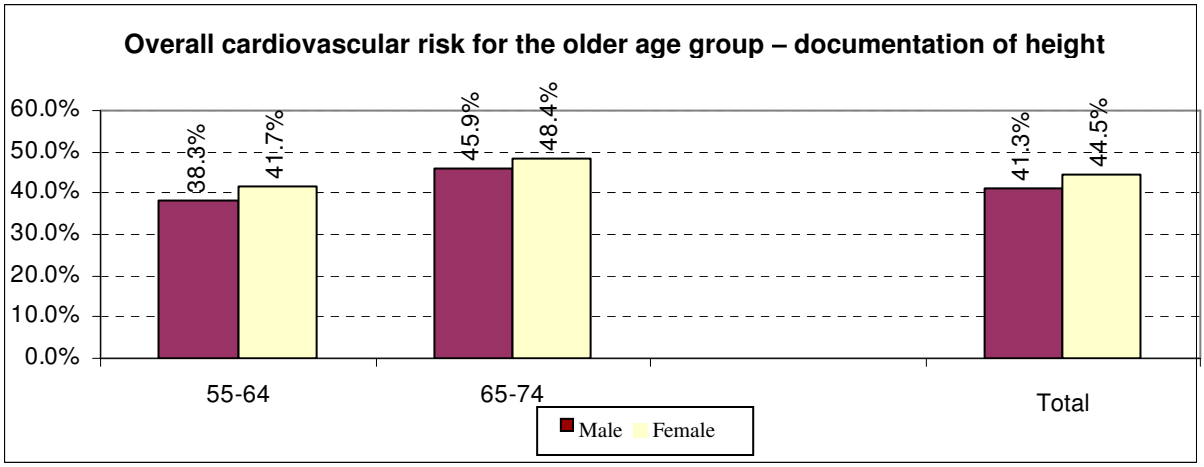
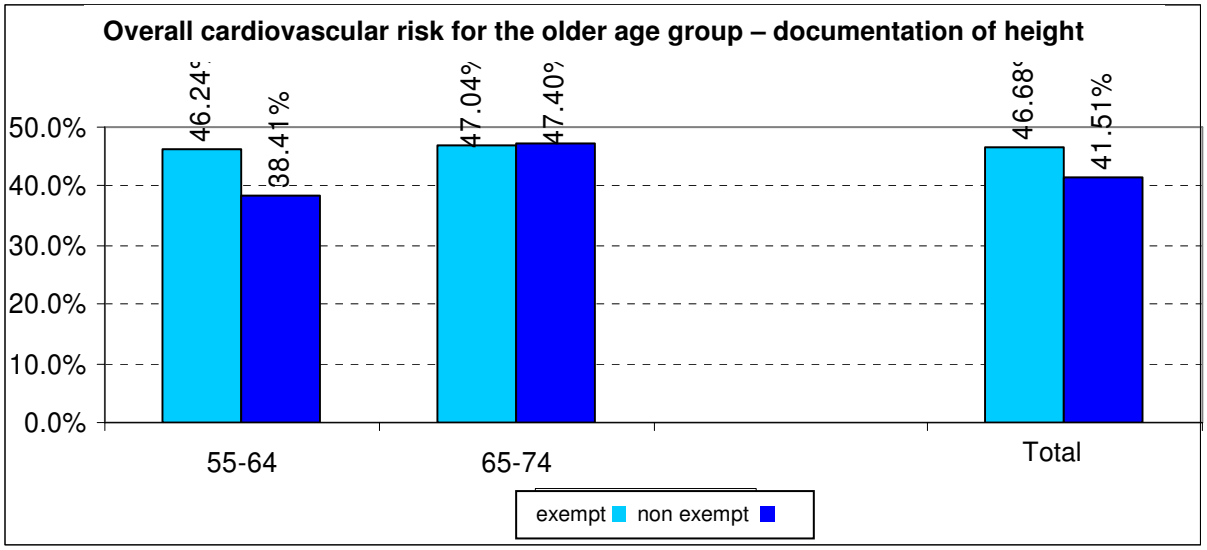


Figure 66: Rate of insured individuals aged 55-74, in 2006, who had their height checked least once in the past five years, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	46.24%	38.41%	40.07%	52,422	162,062	214,484	113,376	421,911	535,287
65-74	47.04%	47.40%	47.26%	65,971	105,272	171,243	140,236	222,109	362,345
Total	46.68%	41.51%	42.97%	118,393	267,334	385,727	253,612	644,020	897,632



C.5 Documentation of components for calculation of BMI in the younger age group

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 24.8% 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 67).
- Among women, BMI documentation was slightly better than for men, 26.4% compared to 22.9% (Figure 68).
- Individuals exempted from NII payments had somewhat better BMI documentation that insured individuals who are not exempt, 36.6% compared to 23.7% (Figure 69).

- 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 67: Rate of individuals aged 20-64 with documentation of BMI components, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
20-34	5.17%	8.70%	15.83%	57,657	98,899	183,184	1,114,154	1,136,457	1,157,043
35-44	7.50%	12.33%	21.72%	55,512	92,997	167,418	740,295	754,046	770,642
45-54	12.07%	19.16%	31.28%	85,002	137,368	227,527	704,046	717,112	727,399
55-64	16.70%	25.44%	39.73%	79,895	128,076	212,635	478,368	503,464	535,146
Total	9.16%	14.70%	24.79%	278,066	457,340	790,764	3,036,863	3,111,079	3,190,230

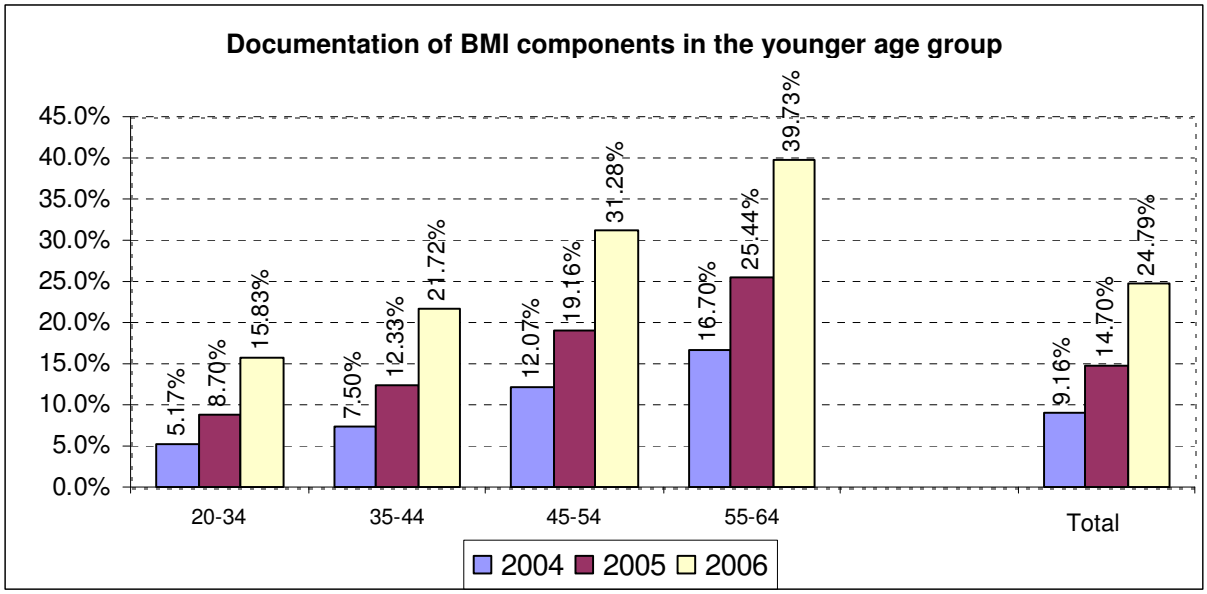


Figure 68: Rate of individuals aged 20-64 with documentation of BMI components, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
20-34	13.15%	18.13%	15.83%	70,105	113,079	183,184	533,181	623,862	1,157,043
35-44	20.27%	23.08%	21.72%	75,385	92,033	167,418	371,897	398,745	770,642
45-54	29.71%	32.72%	31.28%	103,682	123,845	227,527	348,937	378,462	727,399
55-64	38.02%	41.30%	39.73%	97,147	115,488	212,635	255,540	279,606	535,146
Total	22.94%	26.44%	24.79%	346,319	444,445	790,764	1,509,555	1,680,675	3,190,230

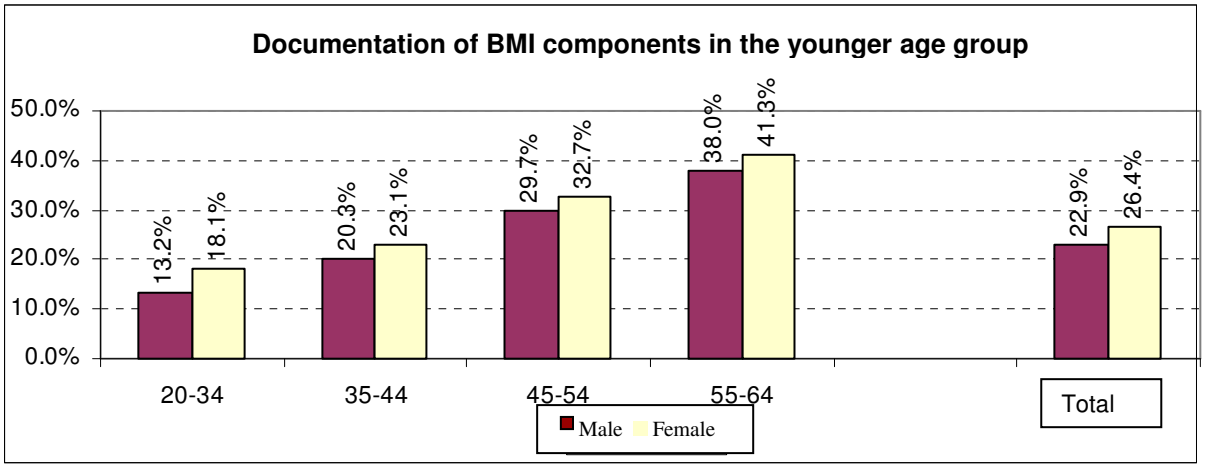
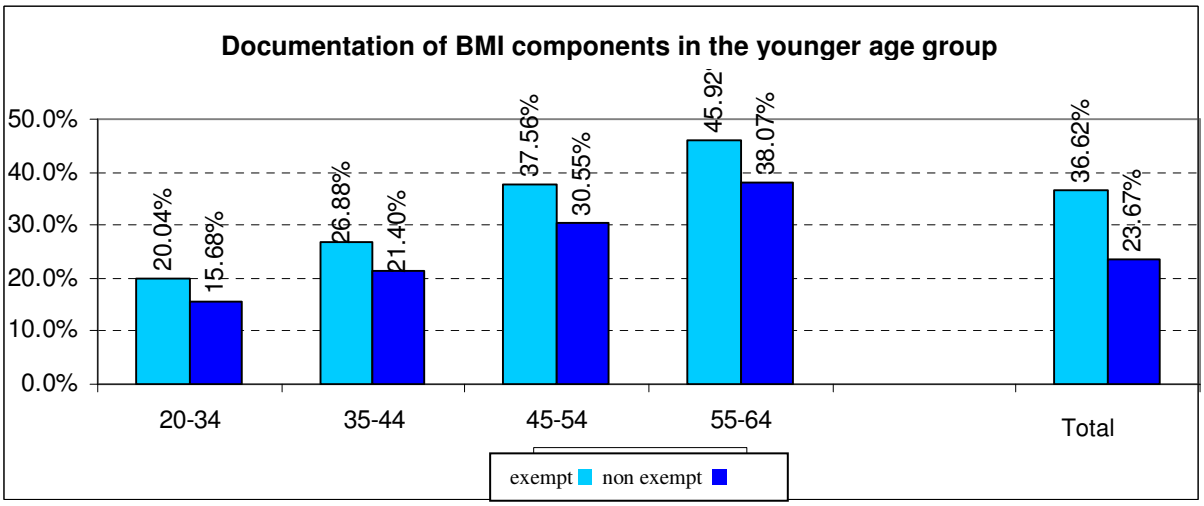


Figure 69: Rate of insured individuals aged 20-64 with documentation of BMI components, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	20.04%	15.68%	15.83%	8,222	174,962	183,184	41,024	1,116,019	1,157,043
35-44	26.88%	21.40%	21.72%	12,324	155,094	167,418	45,842	724,800	770,642
45-54	37.56%	30.55%	31.28%	28,601	198,926	227,527	76,152	651,247	727,399
55-64	45.92%	38.07%	39.73%	52,054	160,581	212,635	113,363	421,783	535,146
Total	36.62%	23.67%	24.79%	101,201	689,563	790,764	276,381	2,913,849	3,190,230



C.5 Documentation of components for calculation of BMI in the older age group

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 35.9% of the population, though an impressive improvement of approximately 20% [absolute] in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 70).
- Among women, BMI documentation was slightly better than for men, 36.9% compared to 34.8% (Figure 71).
- No significant differences were found based on exemption from NII payments in this group (Figure 72).
- 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 70: Rate of insured individuals aged 65-74 with documentation of BMI components, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
65-74	14.51%	20.44%	35.93%	50,799	72,958	130,190	350,013	357,012	362,345
Total	14.51%	20.44%	35.93%	50,799	72,958	130,190	350,013	357,012	362,345

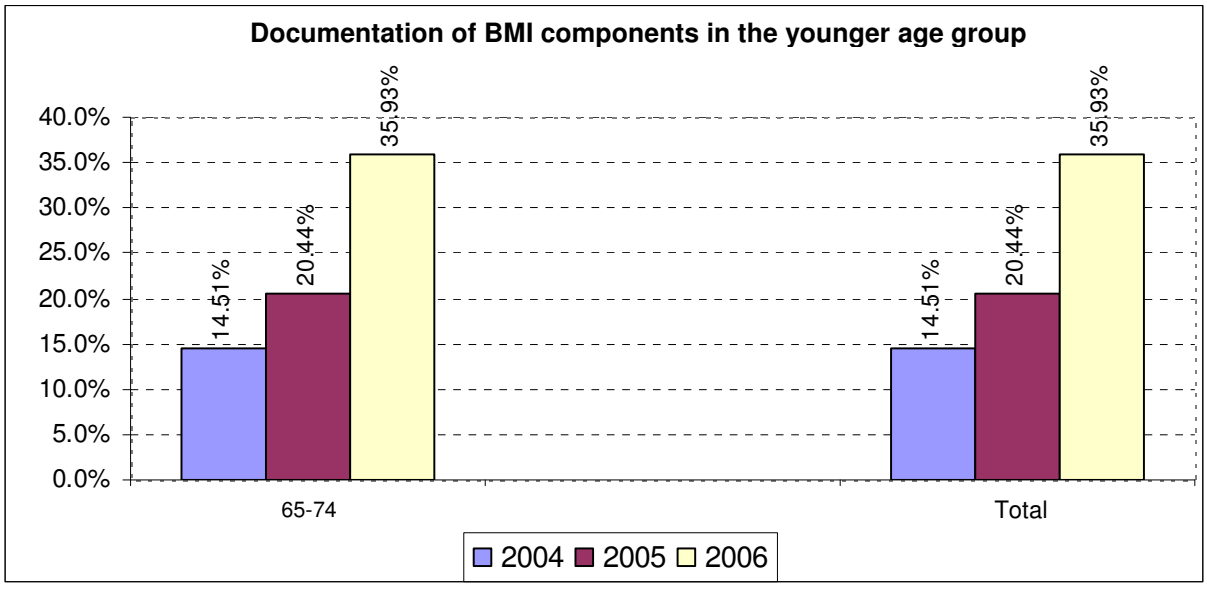


Figure 71: Rate of individuals aged 65-74, with documentation of BMI components, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
65-74	34.75%	36.89%	35.93%	56,504	73,686	130,190	162,589	199,756	362,345
Total	34.75%	36.89%	35.93%	56,504	73,686	130,190	162,589	199,756	362,345

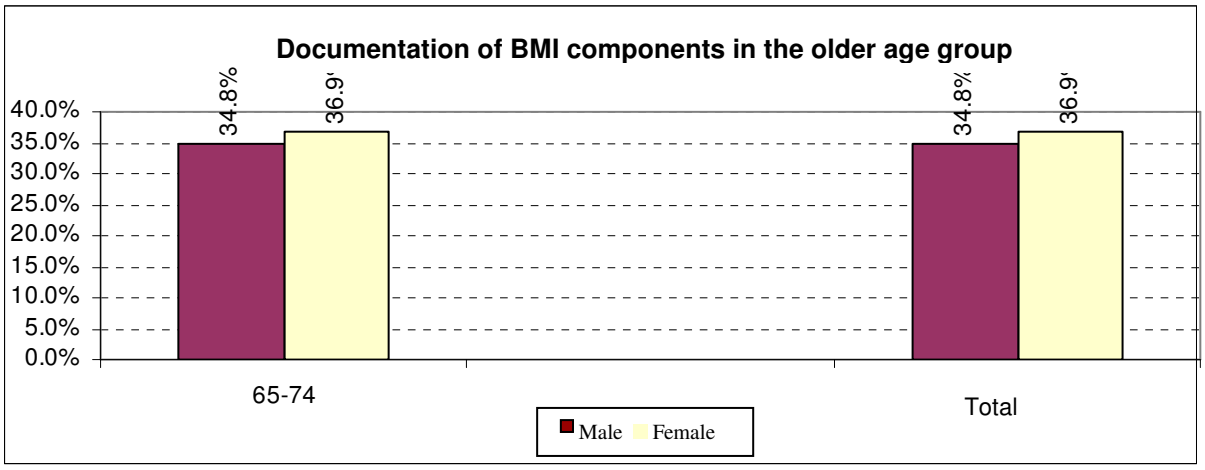
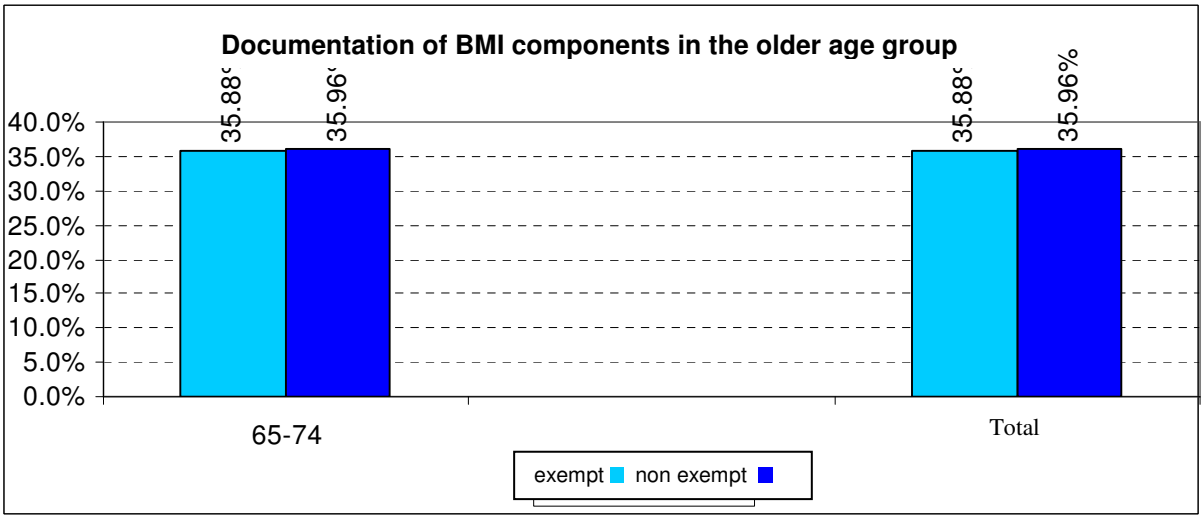


Figure 72: Rate of insured individuals aged 65-74 with documentation of BMI components, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
65-74	35.88%	35.96%	35.93%	50,313	79,877	130,190	140,236	222,109	362,345
Total	35.88%	35.96%	35.93%	50,313	79,877	130,190	140,236	222,109	362,345



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 – the younger age group

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 2006, blood pressure was documented for 1,582,653 individuals aged 20-54, meaning for 59.6% 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 73).
- Documentation was higher in the 45-54 age group, where it reached over 70%.
- Documentation was higher for women (64.9%) than for men (53.8%) in all age groups (Figure 74).
- Documentation was better among individuals exempt from NII payments: 65.5% compared to 59.2% for the rest of the population (Figure 75).

Figure 73: Rate of insured individuals aged 20-54 whose blood pressure was documented in the past five years, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
20-34	31.20%	41.42%	51.36%	347,567	470,760	594,221	1,114,154	1,136,457	1,157,043
35-44	39.04%	50.93%	61.49%	289,033	384,061	473,869	740,295	754,046	770,642
45-54	47.35%	60.43%	70.74%	333,362	433,379	514,563	704,046	717,112	727,399
Total	37.91%	49.40%	59.61%	969,962	1,288,200	1,582,653	2,558,495	2,607,615	2,655,084

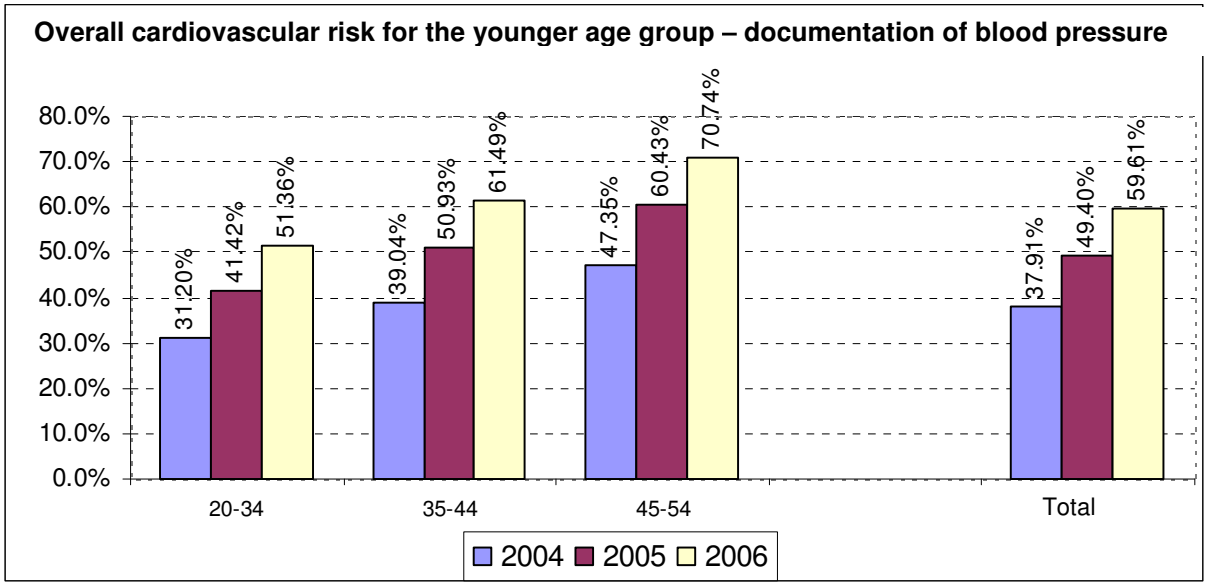


Figure 74: Rate of insured individuals aged 20-54 whose blood pressure was documented in the past five years, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**	**All**
20-34	41.53%	59.76%	51.36%	221,404	372,817	594,221	533,181	623,862	1,157,043
35-44	57.39%	65.32%	61.49%	213,424	260,445	473,869	371,897	398,745	770,642
45-54	68.54%	72.76%	70.74%	239,176	275,387	514,563	348,937	378,462	727,399
Total	53.75%	64.85%	59.61%	674,004	908,649	1,582,653	1,254,015	1,401,069	2,655,084

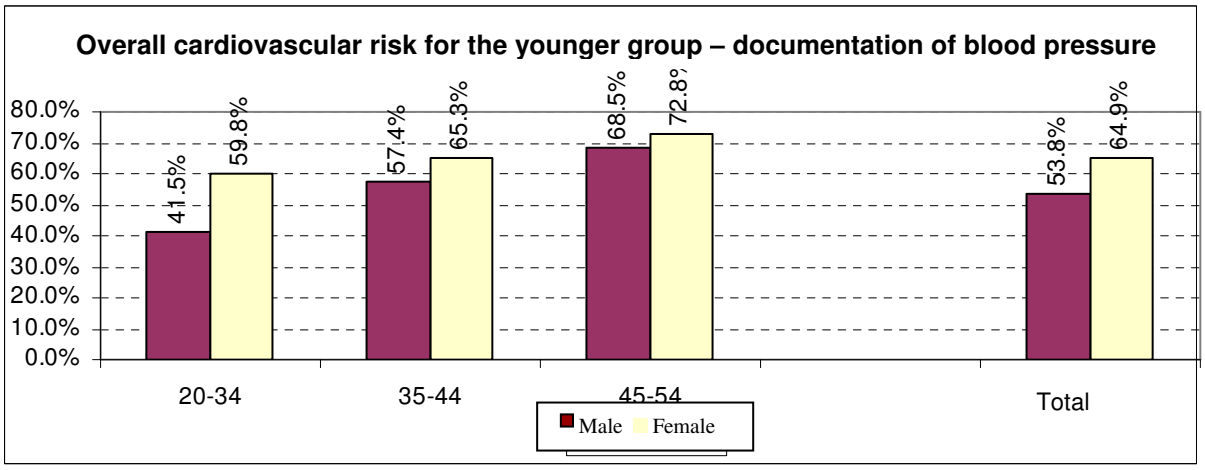
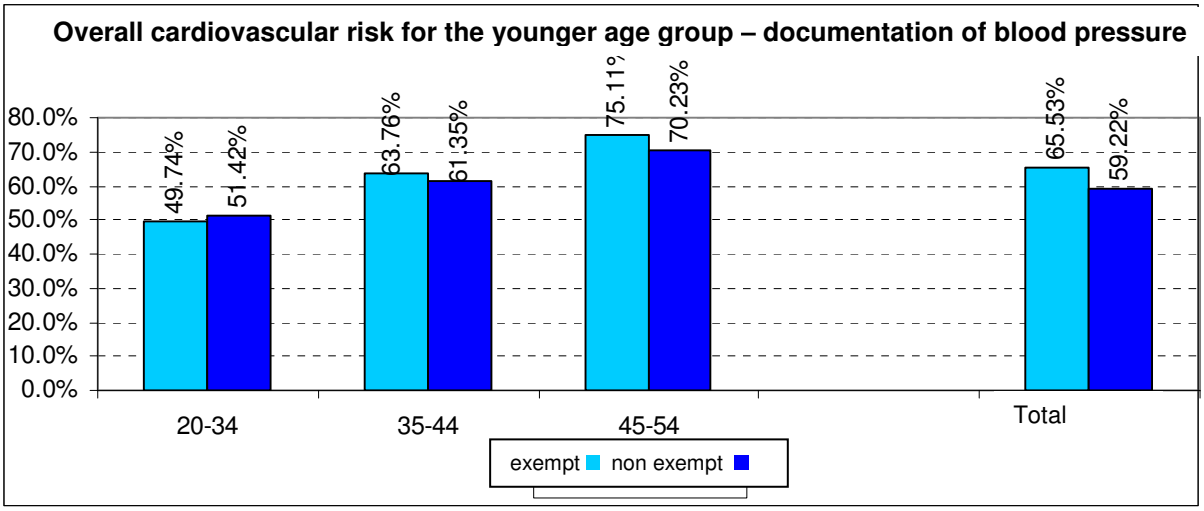


Figure 75: Rate of insured individuals aged 20-54 whose blood pressure was documented in the past five years, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	49.74%	51.42%	51.36%	20,404	573,817	594,221	41,024	1,116,019	1,157,043
35-44	63.76%	61.35%	61.49%	29,228	444,641	473,869	45,842	724,800	770,642
45-54	75.11%	70.23%	70.74%	57,200	457,363	514,563	76,152	651,247	727,399
Total	65.53%	59.22%	59.61%	106,832	1,475,821	1,582,653	163,018	2,492,066	2,655,084



D.1 Documentation of blood pressure – the older age group

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 2006, blood pressure was documented for 629,007 individuals aged 55-74, meaning for 67.6% of the population. An impressive improvement of approximately 12% [absolute] in documentation was found during the reporting period, as characteristic of a new reportable measure (Figure 76).
- Documentation was better in the 65-74 age group than for the younger individuals.
- Documentation was slightly better for women, 69.8%, compared to 65.1% for men, in all age groups (Figure 77).

- Documentation was better among individuals exempt from NII payments: 74.5% compared to 64.9% for the rest of the population (Figure 78).

Figure 76: Rate of insured individuals aged 55-74 whose blood pressure was documented at least once a year, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
55-64	50.13%	56.08%	62.94%	252,544	294,175	349,254	503,755	524,588	554,870
65-74	61.70%	67.57%	74.54%	227,152	251,197	279,753	368,154	371,746	375,311
Total	55.02%	60.84%	67.62%	479,696	545,372	629,007	871,909	896,334	930,181

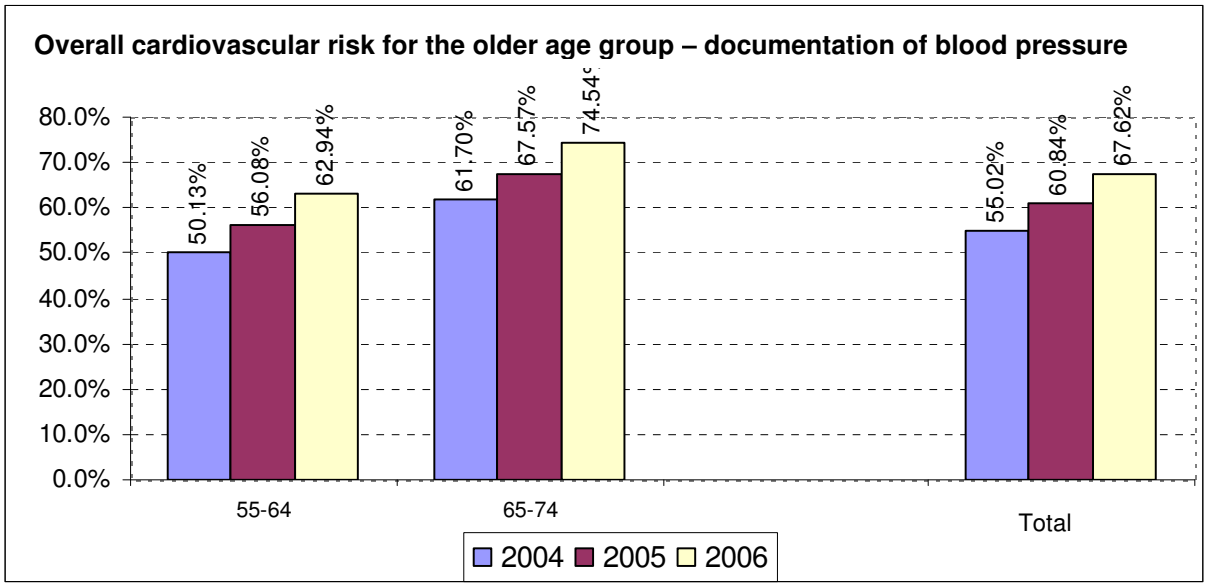


Figure 77: Rate of insured individuals aged 55-74 whose blood pressure was documented at least once a year, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	60.32%	65.33%	62.94%	159,556	189,698	349,254	264,503	290,367	554,870
65-74	72.66%	76.07%	74.54%	122,388	157,365	279,753	168,448	206,863	375,311
Total	65.12%	69.80%	67.62%	281,944	347,063	629,007	432,951	497,230	930,181

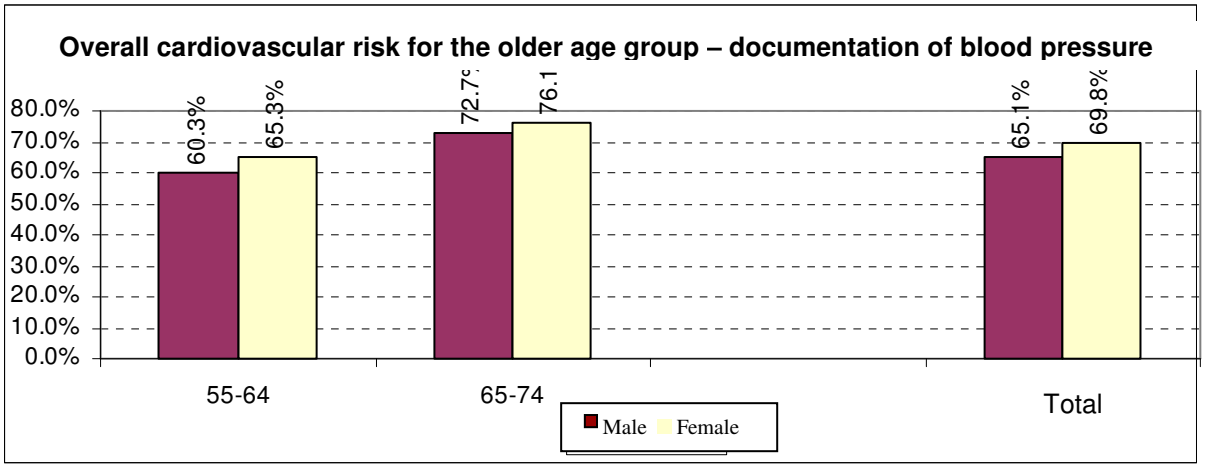
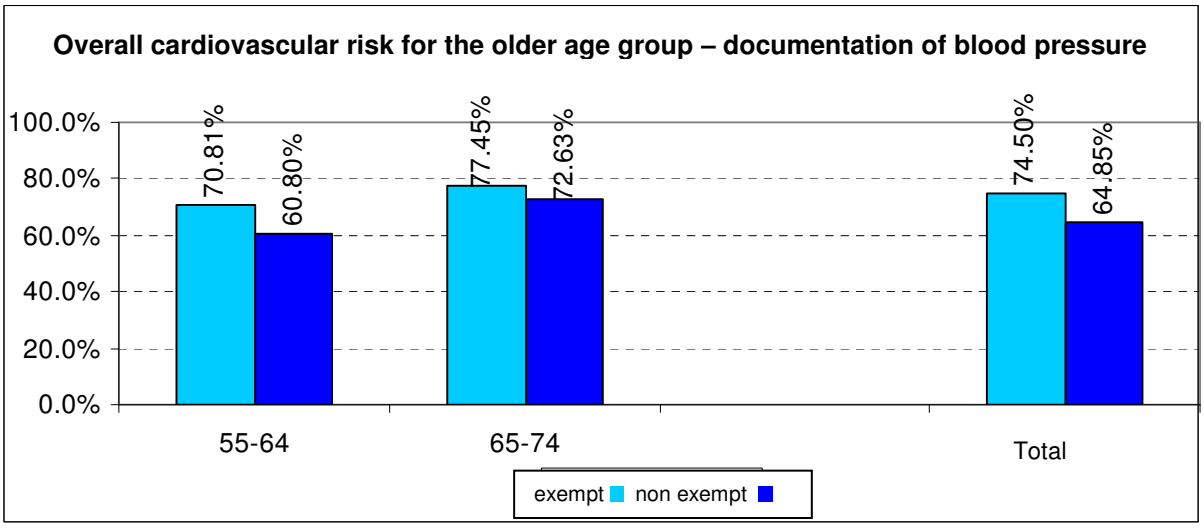


Figure 78: Rate of insured individuals aged 55-74 whose blood pressure was documented at least once a year, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
55-64	70.81%	60.80%	62.94%	84,072	265,182	349,254	118,733	436,137	554,870
65-74	77.45%	72.63%	74.54%	114,929	164,824	279,753	148,386	226,925	375,311
Total	74.50%	64.85%	67.62%	199,001	430,006	629,007	267,119	663,062	930,181



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 2006 was 14,401 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 2006, 81.0% of the patients who underwent surgery purchased statins. Only approximately 47% of the patients in the 35-44 age group who underwent surgery needed and purchased statins, while approximately 85% 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 79).
- Men purchased more statins than women, 82.5% compared to 76.3%, respectively, until reaching the 65-74 age group, where the rate of purchase equalizes (Figure 80).
- Individuals exempt from NII payments purchased statins at virtually the same level as the others who underwent surgery, 79.6% compared to 82.2%, respectively, a difference that was not significant in most age groups (Figure 81).

Figure 79: Rate of patients who underwent coronary bypass surgery and receive statins, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	39.71%	48.98%	47.30%	218	264	245	549	539	518
45-54	69.95%	71.95%	74.37%	1,825	1,821	1,845	2,609	2,531	2,481
55-64	78.23%	80.90%	82.71%	3,949	4,049	4,133	5,048	5,005	4,997
65-74	78.82%	82.34%	85.00%	5,542	5,589	5,444	7,031	6,788	6,405
Total	75.70%	78.87%	81.02%	11,534	11,723	11,667	15,237	14,863	14,401

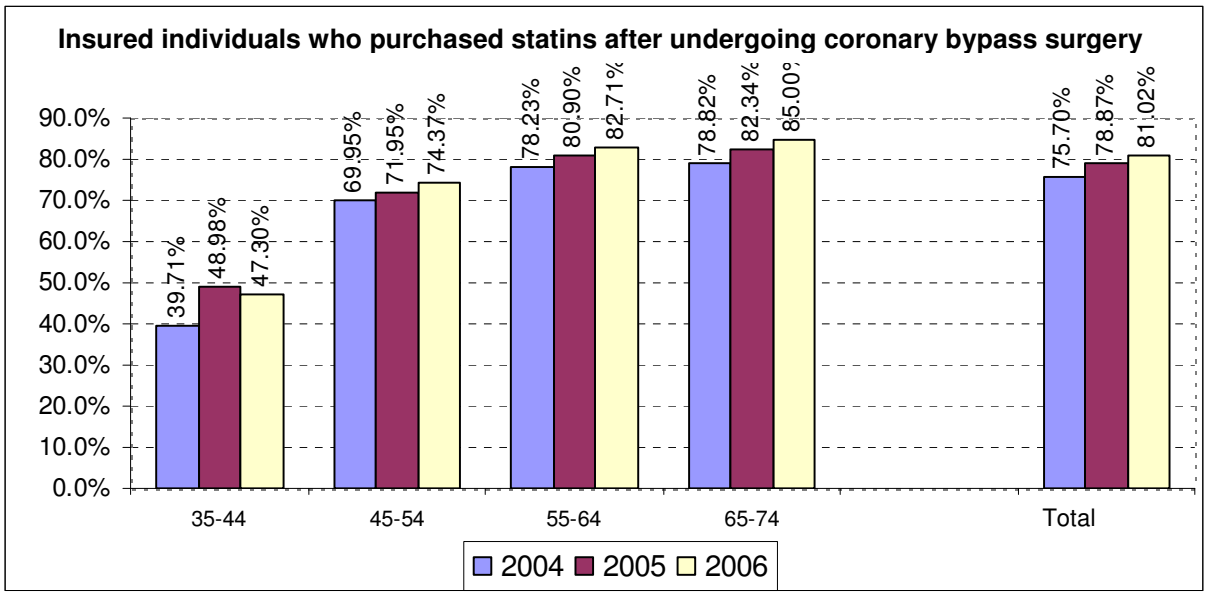


Figure 80: Rate of patients who underwent coronary bypass surgery and receive statins, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	58.94%	21.25%	47.30%	211	34	245	358	160	518
45-54	78.65%	55.19%	74.37%	1,595	250	1,845	2,028	453	2,481
55-64	84.25%	76.57%	82.71%	3,365	768	4,133	3,994	1,003	4,997
65-74	84.59%	85.99%	85.00%	3,842	1,602	5,444	4,542	1,863	6,405
Total	82.52%	76.29%	81.02%	9,013	2,654	11,667	10,922	3,479	14,401

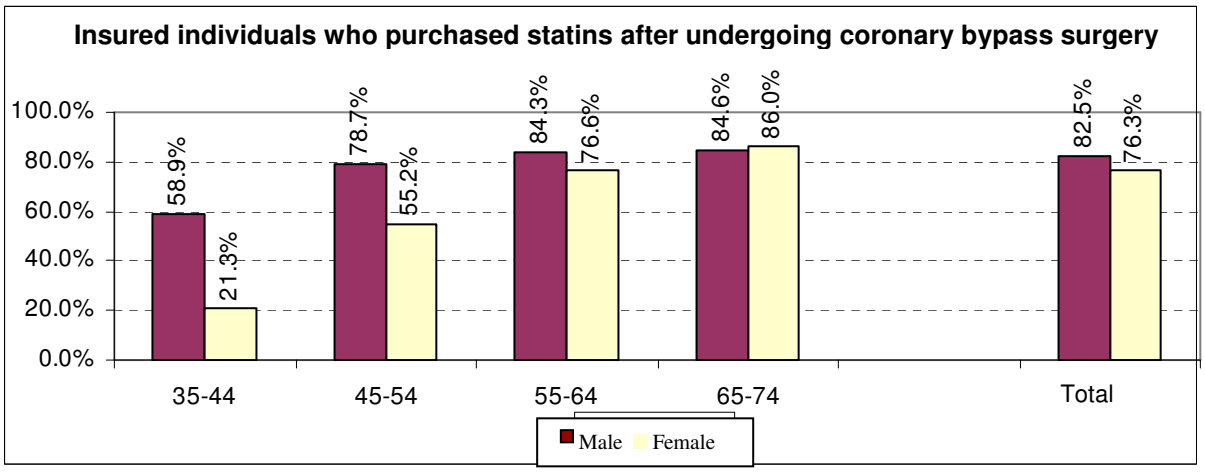
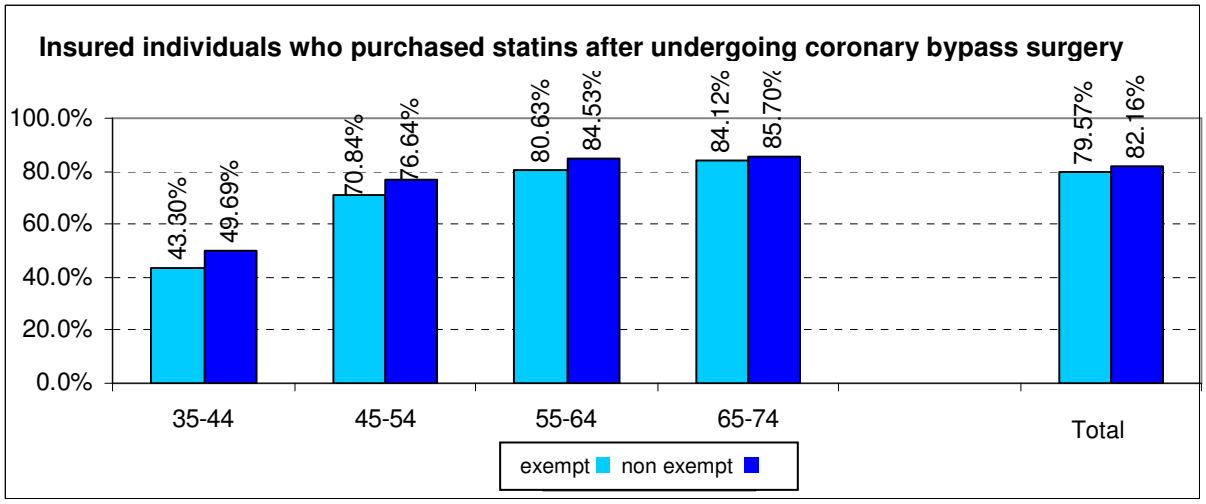


Figure 81: Rate of patients who underwent coronary bypass surgery and receive statins, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	43.30%	49.69%	47.30%	84	161	245	194	324	518
45-54	70.84%	76.64%	74.37%	690	1,155	1,845	974	1,507	2,481
55-64	80.63%	84.53%	82.71%	1,881	2,252	4,133	2,333	2,664	4,997
65-74	84.12%	85.70%	85.00%	2,411	3,033	5,444	2,866	3,539	6,405
Total	79.57%	82.16%	81.02%	5,066	6,601	11,667	6,367	8,034	14,401



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 2006, 59.2% of the patients who underwent surgery purchased ACEI/ARB. Only approximately 32.6% of the patients in the 35-44 age group who underwent surgery purchased these drugs, while approximately 66.0% 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 82).

- Women purchased slightly more ACEI/ARB than me, 60.6% compared to 58.8%, respectively (Figure 83).
- Patients exempt from NII payments purchased more ACEI/ARB that the rest of those who underwent surgery, 63.4% compared to 55.9%, respectively, a difference found in all age groups (Figure 84).

Figure 82: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	30.60%	31.35%	32.63%	168	169	169	549	539	518
45-54	45.88%	45.91%	46.72%	1,197	1,162	1,159	2,609	2,531	2,481
55-64	56.08%	58.30%	59.50%	2,831	2,918	2,973	5,048	5,005	4,997
65-74	61.95%	64.08%	66.03%	4,356	4,350	4,229	7,031	6,788	6,405
Total	56.13%	57.86%	59.23%	8,552	8,599	8,530	15,237	14,863	14,401

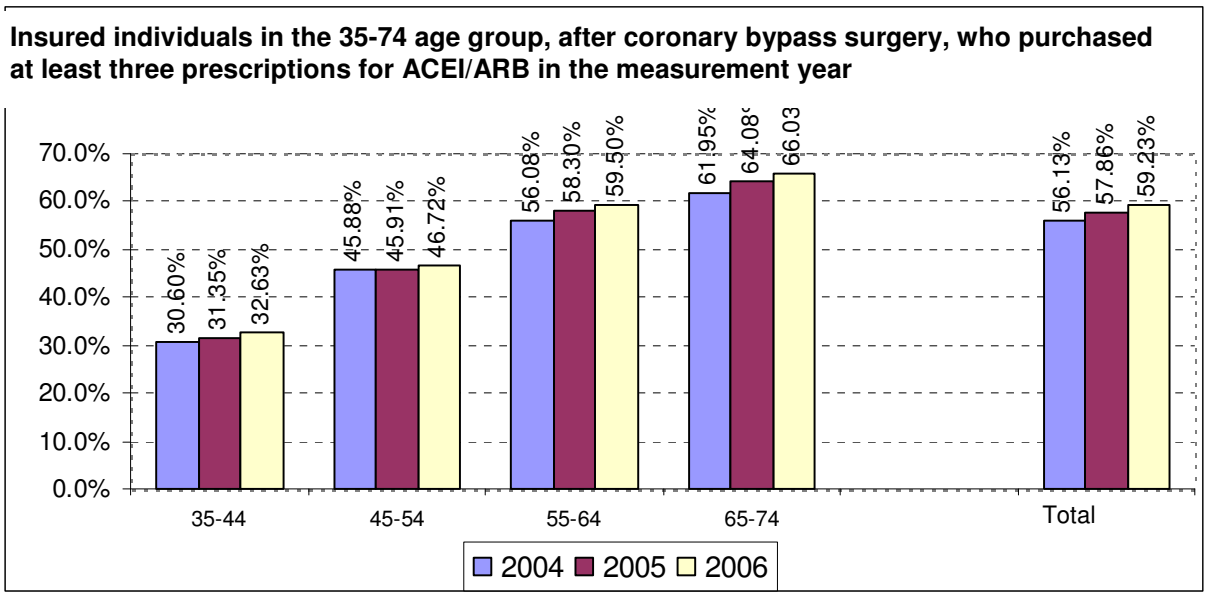


Figure 83: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	40.22%	15.63%	32.63%	144	25	169	358	160	518
45-54	48.03%	40.84%	46.72%	974	185	1,159	2,028	453	2,481
55-64	59.69%	58.72%	59.50%	2,384	589	2,973	3,994	1,003	4,997
65-74	64.27%	70.32%	66.03%	2,919	1,310	4,229	4,542	1,863	6,405
Total	58.79%	60.62%	59.23%	6,421	2,109	8,530	10,922	3,479	14,401

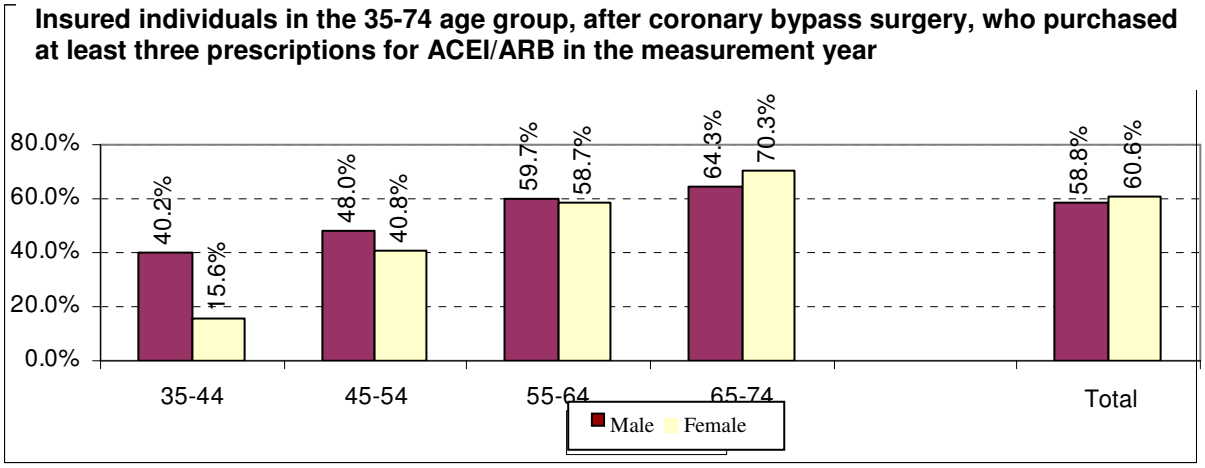
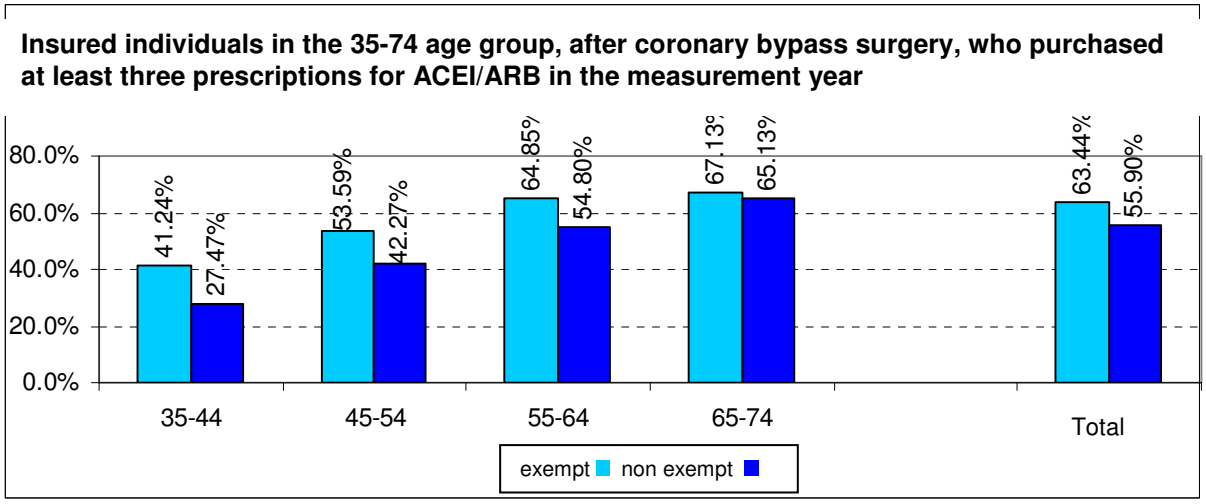


Figure 84: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	41.24%	27.47%	32.63%	80	89	169	194	324	518
45-54	53.59%	42.27%	46.72%	522	637	1,159	974	1,507	2,481
55-64	64.85%	54.80%	59.50%	1,513	1,460	2,973	2,333	2,664	4,997
65-74	67.13%	65.13%	66.03%	1,924	2,305	4,229	2,866	3,539	6,405
Total	63.44%	55.90%	59.23%	4,039	4,491	8,530	6,367	8,034	14,401



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 2006, 69.2% of the patients who underwent surgery purchased beta blockers. Only approximately 51.9% of the patients in the 35-44 age group who underwent surgery purchased these drugs, while approximately 71.8% 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 85).
- 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 (58.1% compared to 38.1%, respectively) (Figure 86).
- Patients exempt from NII payments purchased slightly more beta blockers than the rest of those who underwent surgery, 72.0% compared to 67.1%, respectively, a difference found in all age groups (Figure 87).

Figure 85: Rate of patients who underwent coronary bypass surgery and receive beta blockers, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	46.81%	51.76%	51.93%	257	279	269	549	539	518
45-54	64.43%	64.99%	64.57%	1,681	1,645	1,602	2,609	2,531	2,481
55-64	68.03%	70.11%	70.00%	3,434	3,509	3,498	5,048	5,005	4,997
65-74	68.23%	70.64%	71.80%	4,797	4,795	4,599	7,031	6,788	6,405
Total	66.74%	68.82%	69.22%	10,169	10,228	9,968	15,237	14,863	14,401

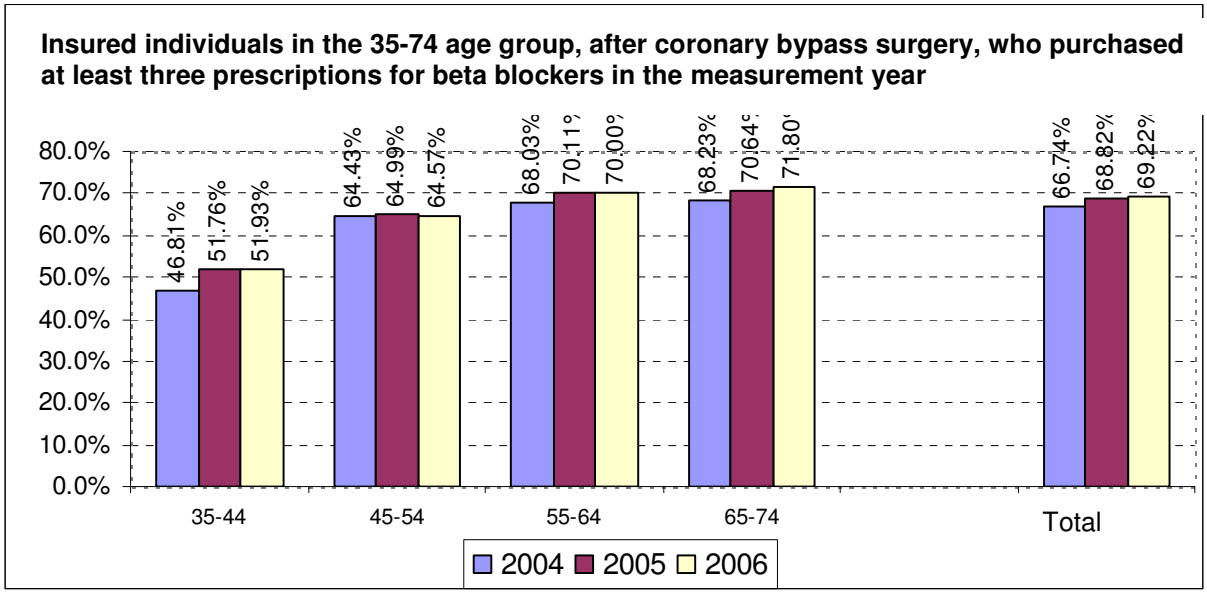


Figure 86: Rate of patients who underwent coronary bypass surgery and receive beta blockers, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	58.10%	38.13%	51.93%	208	61	269	358	160	518
45-54	64.89%	63.13%	64.57%	1,316	286	1,602	2,028	453	2,481
55-64	70.26%	68.99%	70.00%	2,806	692	3,498	3,994	1,003	4,997
65-74	70.85%	74.13%	71.80%	3,218	1,381	4,599	4,542	1,863	6,405
Total	69.11%	69.56%	69.22%	7,548	2,420	9,968	10,922	3,479	14,401

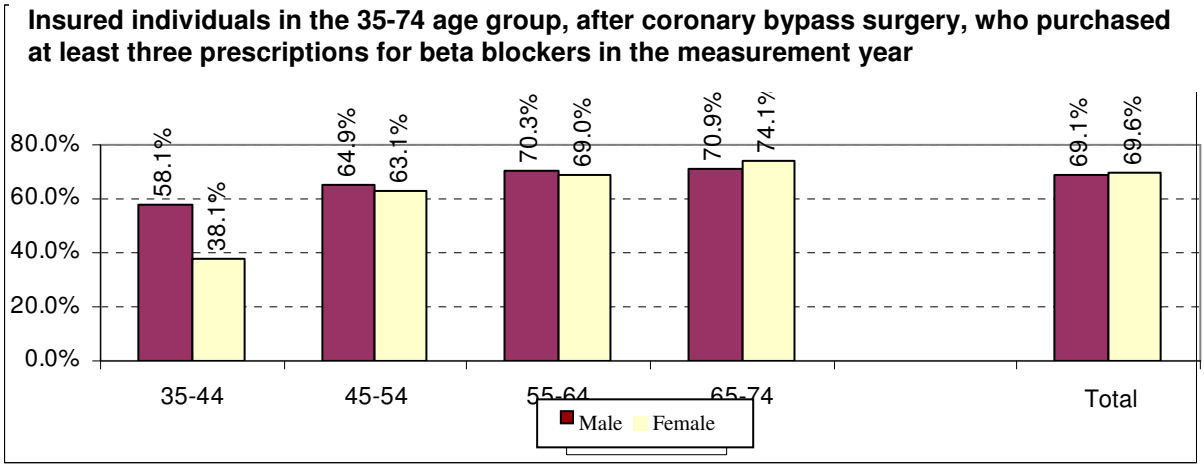
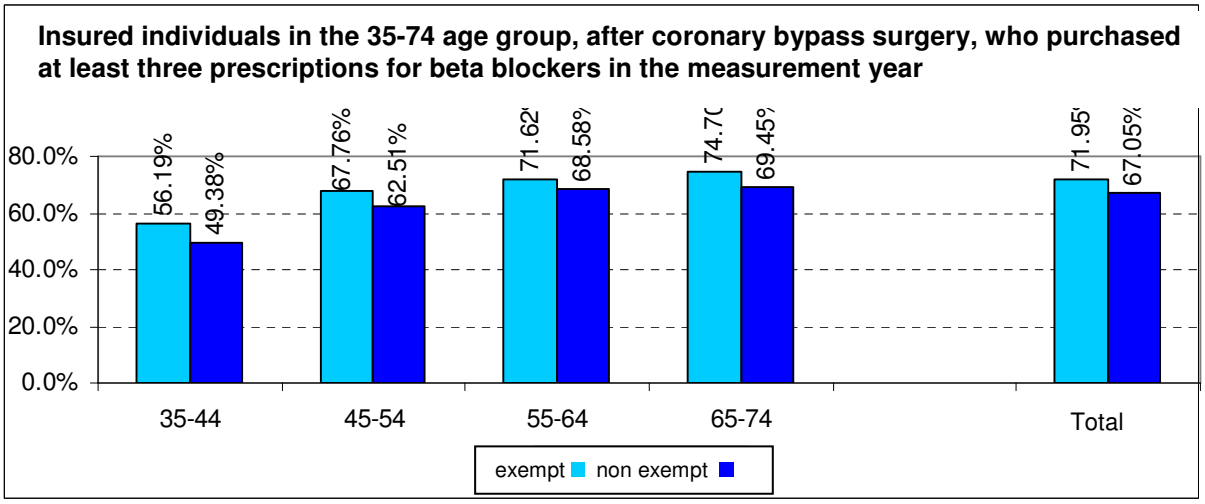


Figure 87: Rate of patients who underwent coronary bypass surgery and receive beta blockers, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**	**Exempt**	**Non-exempt**	**All**
35-44	56.19%	49.38%	51.93%	109	160	269	194	324	518
45-54	67.76%	62.51%	64.57%	660	942	1,602	974	1,507	2,481
55-64	71.62%	68.58%	70.00%	1,671	1,827	3,498	2,333	2,664	4,997
65-74	74.70%	69.45%	71.80%	2,141	2,458	4,599	2,866	3,539	6,405
Total	71.95%	67.05%	69.22%	4,581	5,387	9,968	6,367	8,034	14,401



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 2005 was 47,268 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 2006, 83.1% of the patients who underwent therapeutic coronary angiography purchased statins. In the 35-44 age group, only approximately 65.0% of patients who underwent therapeutic coronary angiography purchased statins, while among patients aged 65 and older, over 87.0% of those who underwent therapeutic coronary angiography received this treatment. An annual increase was recorded in the performance of this indicator (Figure 88).
- Young men purchased [or required] more statins than did young women (71.3% compared to 32.8%, respectively), but from the age of 55, differences by sex were equalized (Figure 89).
- No differences were found in the purchase of statins based on status of exemption from NII payments (Figure 90).

Figure 88: Rate of patients who underwent therapeutic coronary angiography and receive statins, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	61.57%	64.82%	65.70%	1,357	1,511	1,649	2,204	2,331	2,510
45-54	74.97%	77.33%	78.59%	6,969	7,857	8,592	9,296	10,161	10,932
55-64	80.00%	82.80%	84.61%	10,454	12,249	14,287	13,068	14,793	16,886
65-74	81.91%	84.78%	87.13%	11,512	13,205	14,760	14,054	15,576	16,940
Total	78.43%	81.24%	83.12%	30,292	34,822	39,288	38,622	42,861	47,268

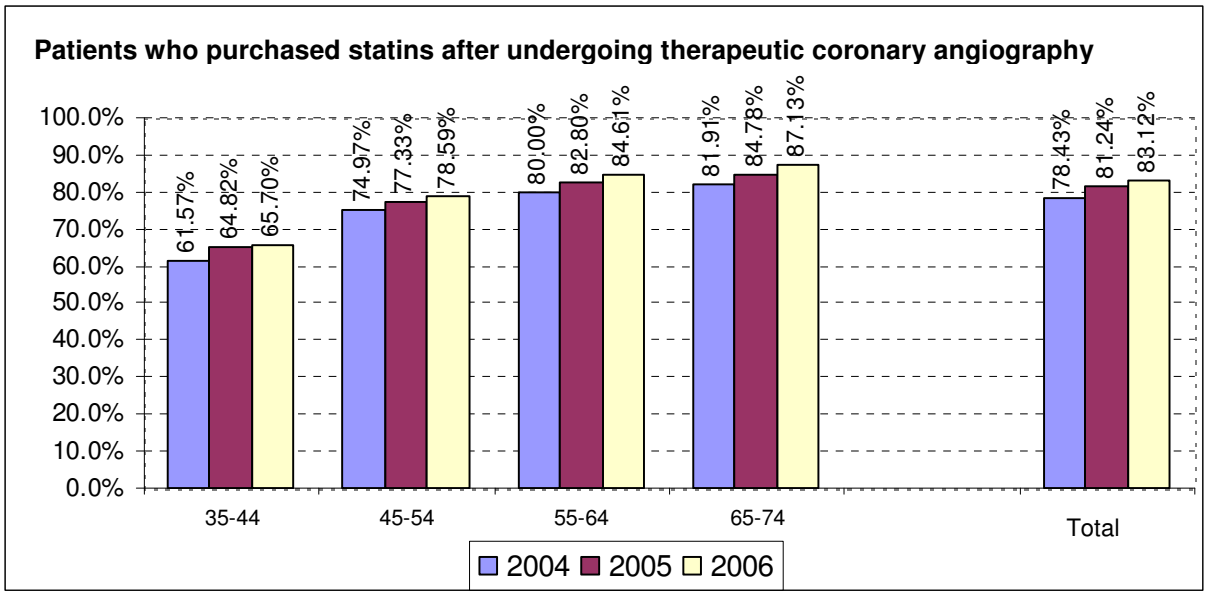


Figure 89: Rate of patients who underwent therapeutic coronary angiography and receive statins, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	71.32%	32.79%	65.70%	1,529	120	1,649	2,144	366	2,510
45-54	80.33%	66.62%	78.59%	7,670	922	8,592	9,548	1,384	10,932
55-64	84.91%	83.14%	84.61%	11,875	2,412	14,287	13,985	2,901	16,886
65-74	86.73%	88.15%	87.13%	10,542	4,218	14,760	12,155	4,785	16,940
Total	83.57%	81.31%	83.12%	31,616	7,672	39,288	37,832	9,436	47,268

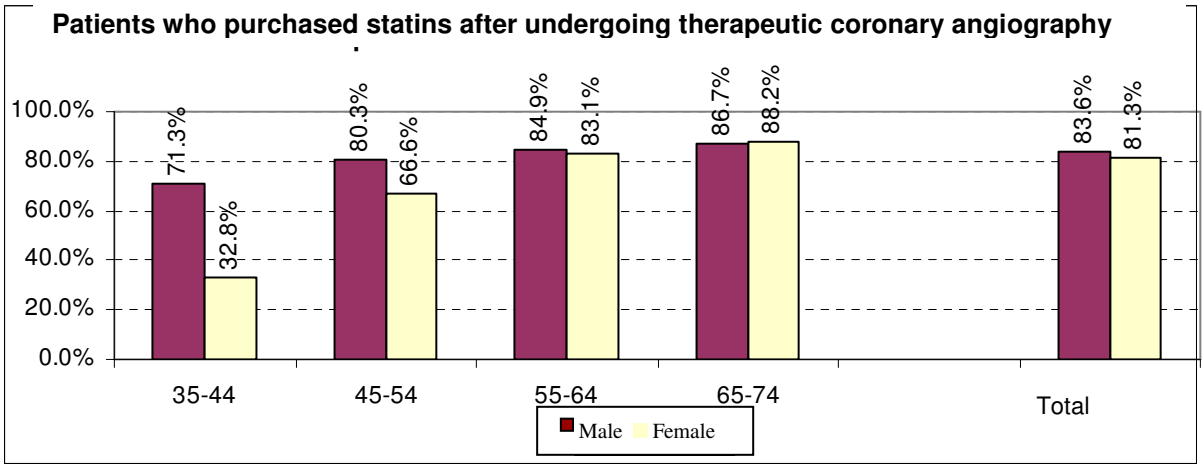
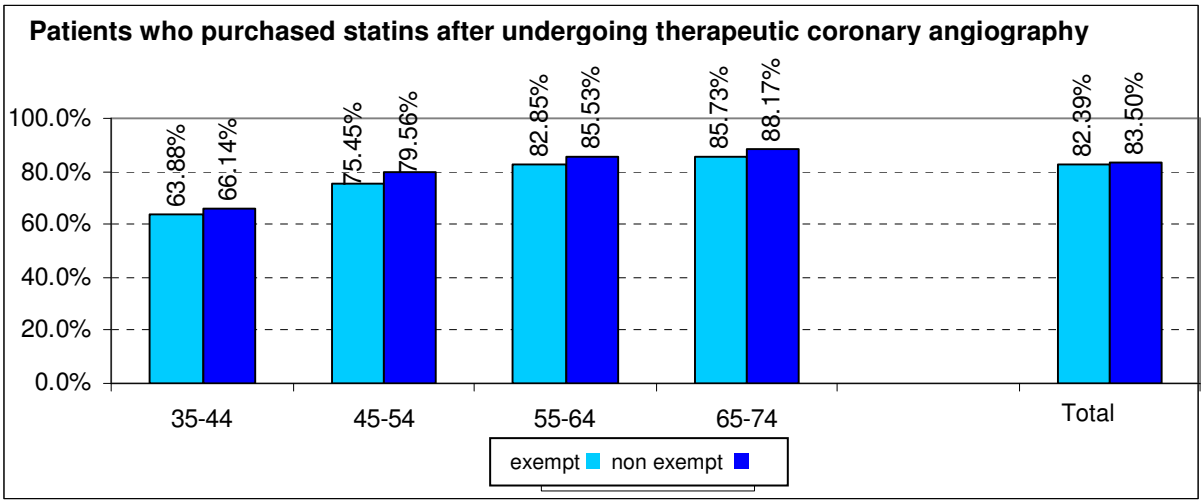


Figure 90: Rate of patients who underwent therapeutic coronary angiography and receive statins, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	63.88%	66.14%	65.70%	313	1,336	1,649	490	2,020	2,510
45-54	75.45%	79.56%	78.59%	1,936	6,656	8,592	2,566	8,366	10,932
55-64	82.85%	85.53%	84.61%	4,801	9,486	14,287	5,795	11,091	16,886
65-74	85.73%	88.17%	87.13%	6,200	8,560	14,760	7,232	9,708	16,940
Total	82.39%	83.50%	83.12%	13,250	26,038	39,288	16,083	31,185	47,268



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 2006, 61.1% of the patients who underwent therapeutic coronary angiography purchased ACEI/ARB. Only approximately 41.4% of the patients in the 35-44 age group who underwent therapeutic coronary angiography purchased these drugs, while approximately 68.6% 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 91).

- Women purchased more ACEI/ARB than men, 64.2% compared to 60.3%, respectively. The most significant difference was found in the young 35-44 age group (Figure 92).
- Patients exempt from NII payments purchased more ACEI/ARB than the rest of those who underwent therapeutic coronary angiography, 67.2% compared to 57.9%, respectively, a difference found in all age groups (Figure 93).

Figure 91: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	37.61%	40.24%	41.39%	829	938	1,039	2,204	2,331	2,510
45-54	49.46%	50.82%	52.50%	4,598	5,164	5,739	9,296	10,161	10,932
55-64	57.54%	60.36%	61.92%	7,519	8,929	10,455	13,068	14,793	16,886
65-74	64.10%	66.42%	68.63%	9,009	10,345	11,626	14,054	15,576	16,940
Total	56.85%	59.21%	61.05%	21,955	25,376	28,859	38,622	42,861	47,268

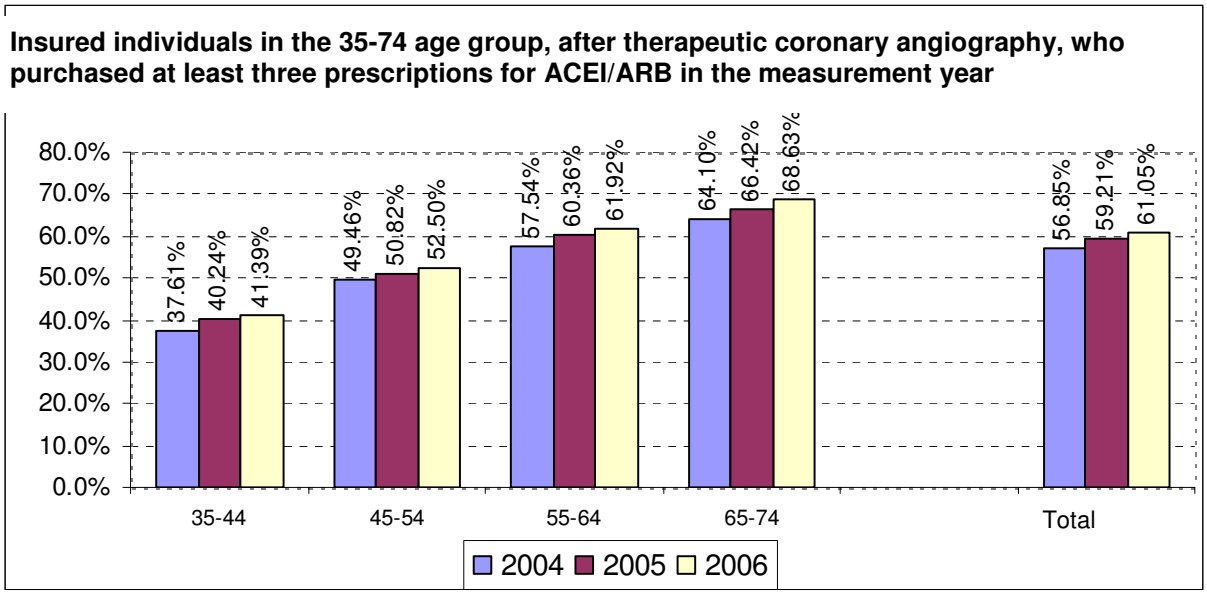


Figure 92: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	44.64%	22.40%	41.39%	957	82	1,039	2,144	366	2,510
45-54	53.04%	48.77%	52.50%	5,064	675	5,739	9,548	1,384	10,932
55-64	61.51%	63.87%	61.92%	8,602	1,853	10,455	13,985	2,901	16,886
65-74	67.26%	72.10%	68.63%	8,176	3,450	11,626	12,155	4,785	16,940
Total	60.26%	64.22%	61.05%	22,799	6,060	28,859	37,832	9,436	47,268

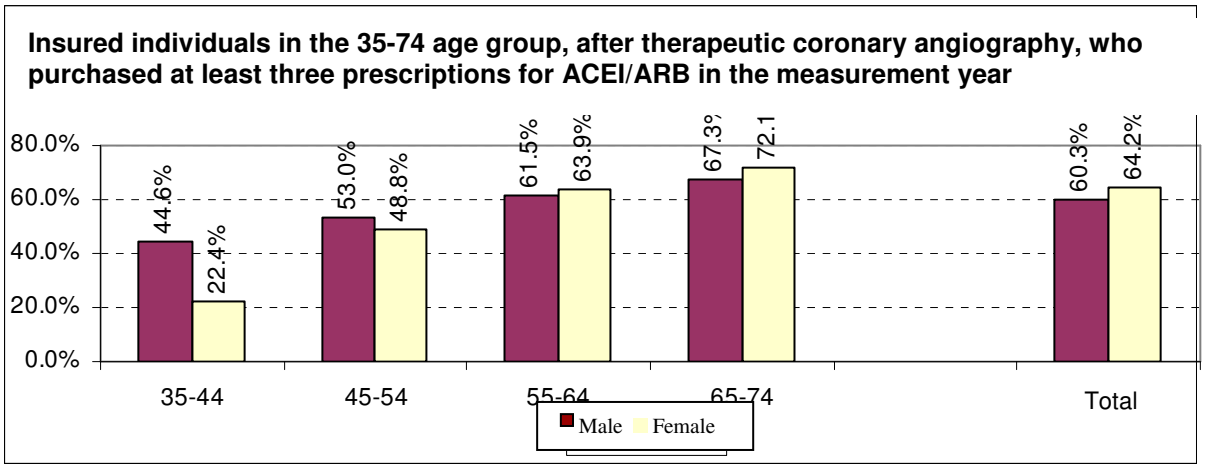
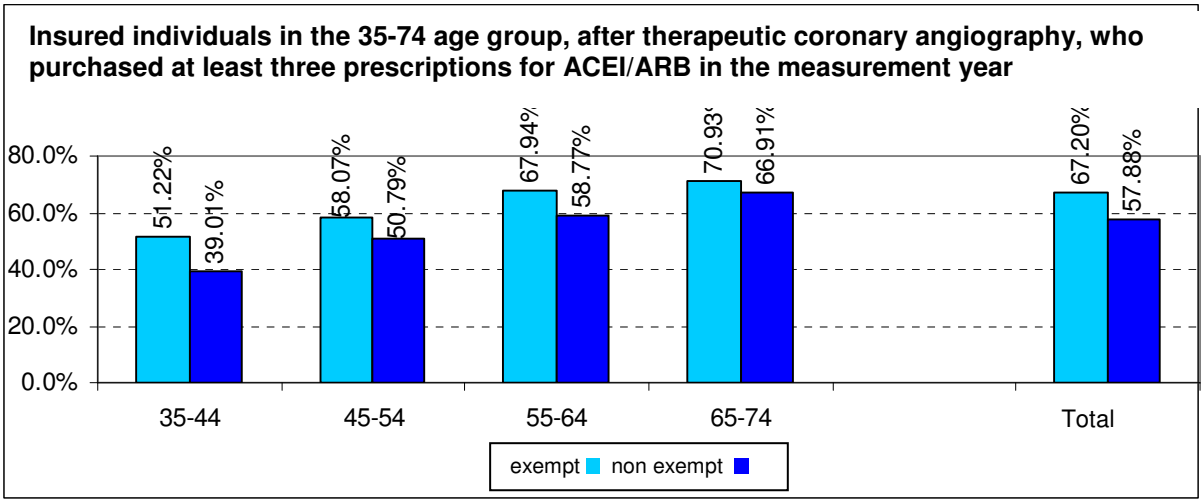


Figure 93: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	51.22%	39.01%	41.39%	251	788	1,039	490	2,020	2,510
45-54	58.07%	50.79%	52.50%	1,490	4,249	5,739	2,566	8,366	10,932
55-64	67.94%	58.77%	61.92%	3,937	6,518	10,455	5,795	11,091	16,886
65-74	70.93%	66.91%	68.63%	5,130	6,496	11,626	7,232	9,708	16,940
Total	67.20%	57.88%	61.05%	10,808	18,051	28,859	16,083	31,185	47,268



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 2006, 68.0% of the patients who underwent therapeutic coronary angiography purchased beta blockers, similar to previous years. Only approximately 55.0% of the patients in the 35-44 age group who underwent therapeutic coronary angiography purchased these drugs, while approximately 71.0% of those aged 65 and older who underwent therapeutic coronary angiography purchased this treatment (Figure 94).
- Women purchased more beta blockers than men, 70.6% compared to 67.3%, respectively. The most significant difference was found in the young 35-44 age group, 55.0% compared to 36.3%, respectively (Figure 95).
- Patients exempt from NII payments purchased slightly more beta blockers than the rest of those who underwent therapeutic coronary angiography, 70.8% compared to 66.5%, respectively – a difference found in all age groups (Figure 96).

Figure 94: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, by age and measurement year (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	54.85%	55.94%	55.02%	1,209	1,304	1,381	2,204	2,331	2,510
45-54	64.29%	65.34%	63.97%	5,976	6,639	6,993	9,296	10,161	10,932
55-64	68.61%	69.96%	68.91%	8,966	10,349	11,636	13,068	14,793	16,886
65-74	70.95%	72.02%	71.53%	9,972	11,218	12,117	14,054	15,576	16,940
Total	67.64%	68.85%	67.97%	26,123	29,510	32,127	38,622	42,861	47,268

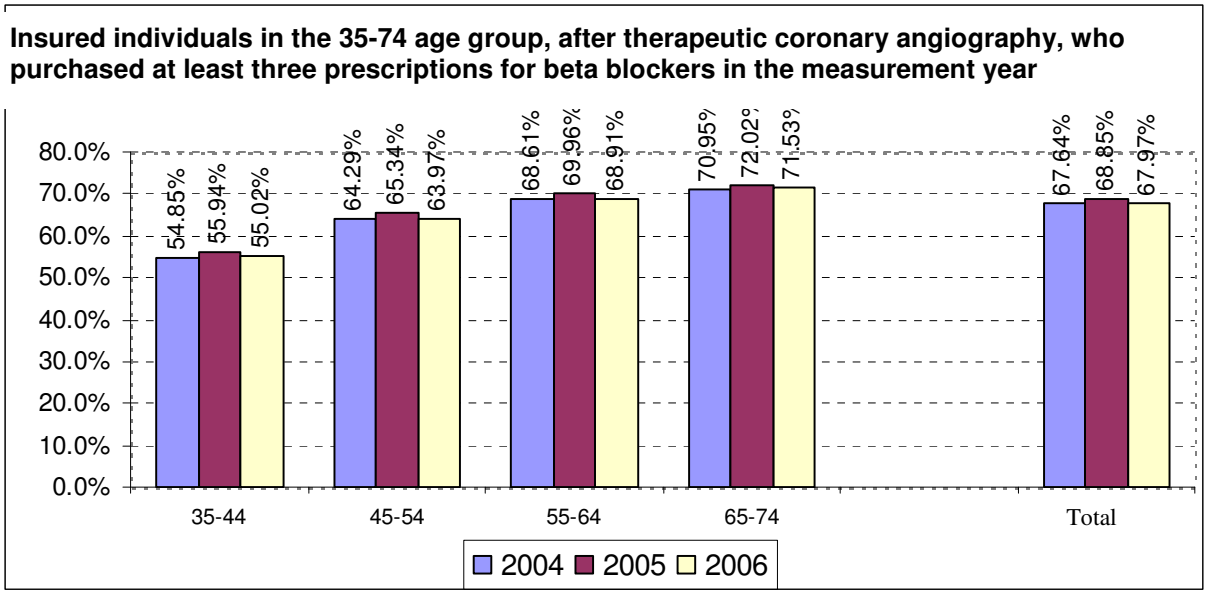


Figure 95: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	58.21%	36.34%	55.02%	1,248	133	1,381	2,144	366	2,510
45-54	64.47%	60.48%	63.97%	6,156	837	6,993	9,548	1,384	10,932
55-64	68.39%	71.42%	68.91%	9,564	2,072	11,636	13,985	2,901	16,886
65-74	69.91%	75.63%	71.53%	8,498	3,619	12,117	12,155	4,785	16,940
Total	67.31%	70.59%	67.97%	25,466	6,661	32,127	37,832	9,436	47,268

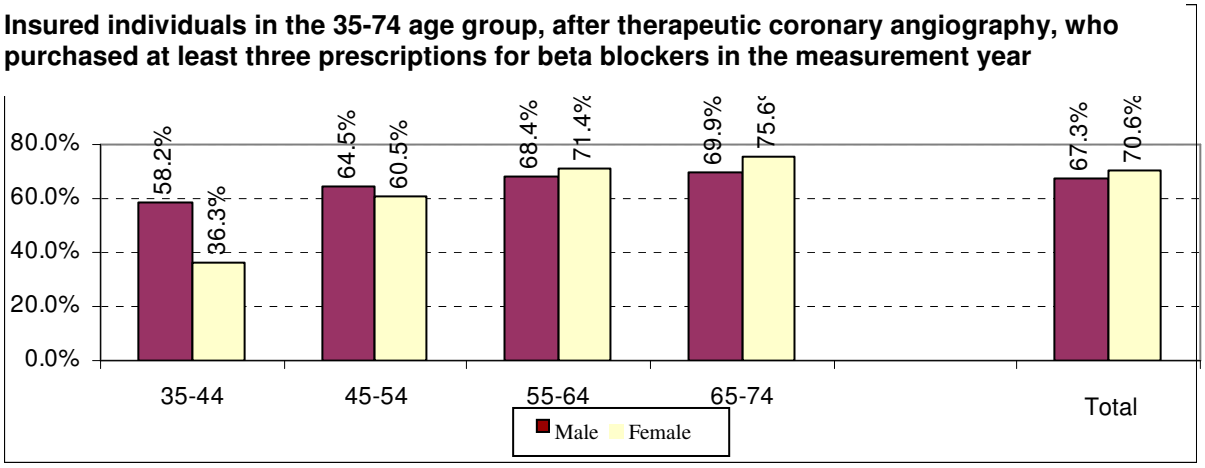
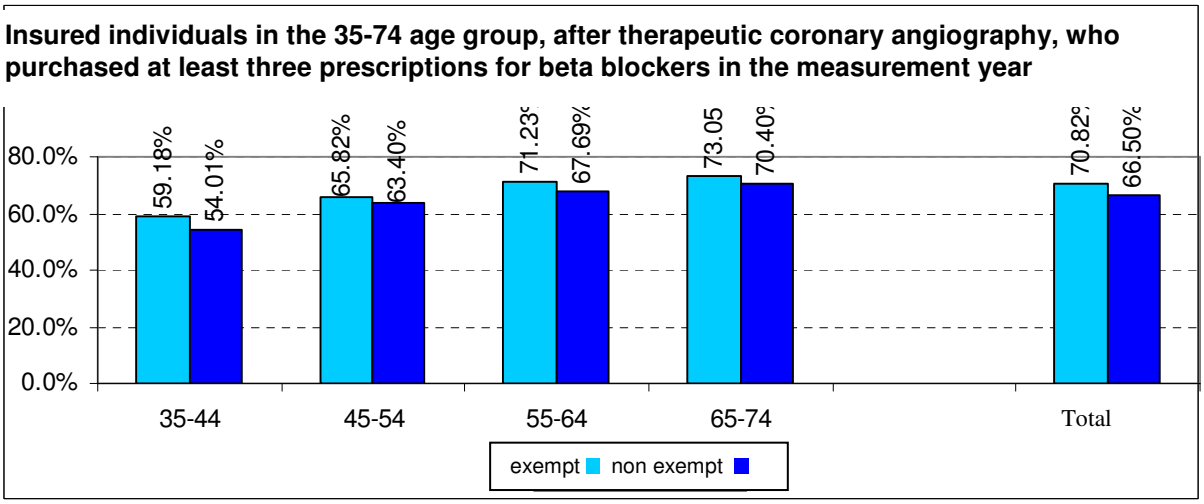


Figure 96: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	59.18%	54.01%	55.02%	290	1,091	1,381	490	2,020	2,510
45-54	65.82%	63.40%	63.97%	1,689	5,304	6,993	2,566	8,366	10,932
55-64	71.23%	67.69%	68.91%	4,128	7,508	11,636	5,795	11,091	16,886
65-74	73.05%	70.40%	71.53%	5,283	6,834	12,117	7,232	9,708	16,940
Total	70.82%	66.50%	67.97%	11,390	20,737	32,127	16,083	31,185	47,268



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 2006, the target population for this indicator was 12,566 individuals, or 85.5% 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 2006, 63.1% of patients following coronary bypass surgery 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, 67.4% and 50.4%, respectively (Figure 97).
- A 12% increase (absolute) was recorded in performance of the indicator during the reporting period.
- The rate for achieving the control target was higher for men than women, 65.3% compared to 56.6%, respectively. This difference was maintained in all age groups (Figure 98).
- A slightly lower rate of patients exempt from NII payments achieved the control target compared to the other patients, 60.3% compared to 65.4%, respectively (Figure 99).

Figure 97: 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 (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	41.45%	46.70%	50.42%	143	163	178	345	349	353
45-54	44.56%	49.60%	54.95%	917	997	1,111	2,058	2,010	2,022
55-64	51.75%	56.28%	62.24%	2,205	2,411	2,726	4,261	4,284	4,380
65-74	54.58%	59.99%	67.44%	3,362	3,617	3,919	6,160	6,029	5,811
Total	51.68%	56.72%	63.14%	6,627	7,188	7,934	12,824	12,672	12,566

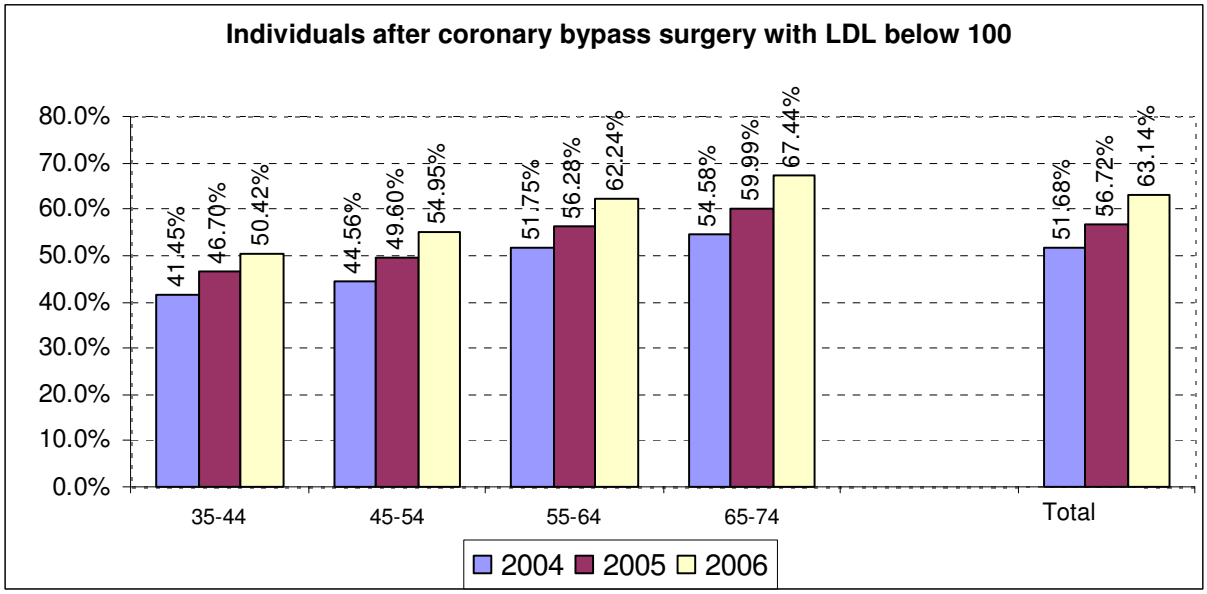


Figure 98: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	52.44%	45.79%	50.42%	129	49	178	246	107	353
45-54	56.79%	46.97%	54.95%	933	178	1,111	1,643	379	2,022
55-64	64.20%	54.66%	62.24%	2,233	493	2,726	3,478	902	4,380
65-74	70.35%	60.43%	67.44%	2,888	1,031	3,919	4,105	1,706	5,811
Total	65.28%	56.59%	63.14%	6,183	1,751	7,934	9,472	3,094	12,566

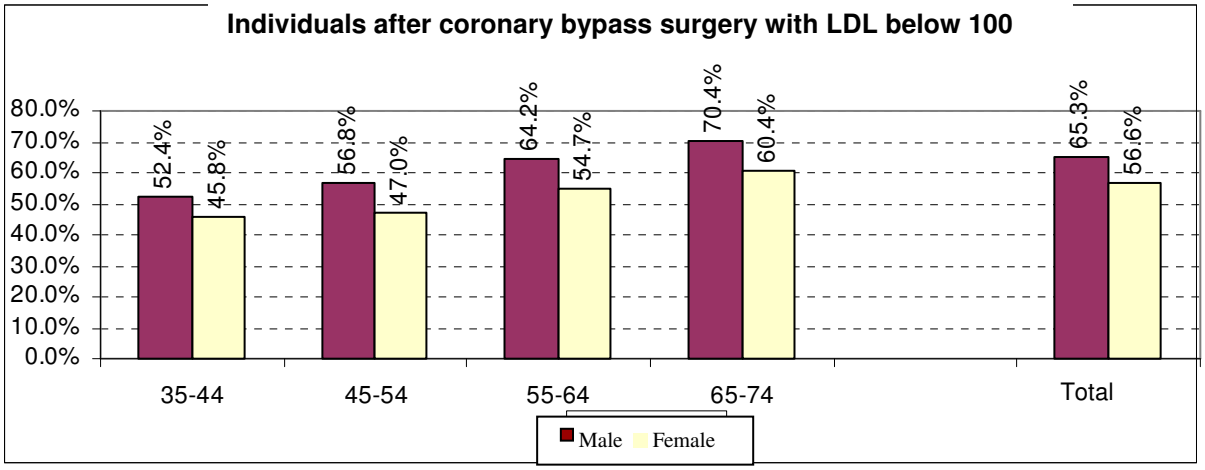
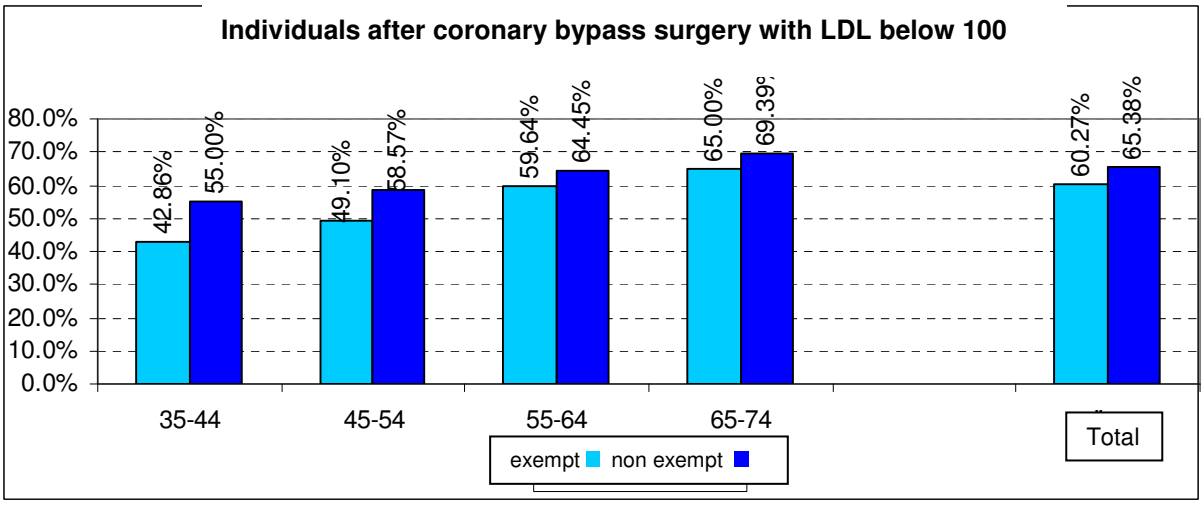


Figure 99: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	42.86%	55.00%	50.42%	57	121	178	133	220	353
45-54	49.10%	58.57%	54.95%	380	731	1,111	774	1,248	2,022
55-64	59.64%	64.45%	62.24%	1,203	1,523	2,726	2,017	2,363	4,380
65-74	65.00%	69.39%	67.44%	1,679	2,240	3,919	2,583	3,228	5,811
Total	60.27%	65.38%	63.14%	3,319	4,615	7,934	5,507	7,059	12,566



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 test of blood fat levels in the measurement year shows an LDL cholesterol level below 100 mg/dl. In 2005, the target population for this indicator was 35,261 individuals, or 83.4% 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 2006, 64.5% 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, 69.4% and 51.9%, respectively (Figure 100).
- A 12% increase (absolute) was recorded in performance of the indicator during the reporting period.
- The rate for achieving the control target was higher for men than women, 65.8% compared to 59.3%, respectively. This difference was maintained in all age groups (Figure 101).
- Fewer patients exempt from NII payments achieved the control target compared to the other patients, 62.0% compared to 65.8%, respectively (Figure 102).

Figure 100: 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 (2004-2006)

	Ratio			Numerator			Population		
Age	2004	2005	2006	2004	2005	2006	2004	2005	2006
35-44	42.62%	50.61%	51.87%	629	784	916	1,476	1,549	1,766
45-54	47.46%	52.42%	58.13%	3,403	4,154	5,037	7,170	7,925	8,665
55-64	51.74%	57.30%	64.52%	5,672	7,119	9,379	10,963	12,424	14,537
65-74	57.25%	62.29%	69.44%	7,091	8,575	10,634	12,385	13,767	15,313
Total	52.49%	57.85%	64.46%	16,795	20,632	25,966	31,994	35,665	40,281

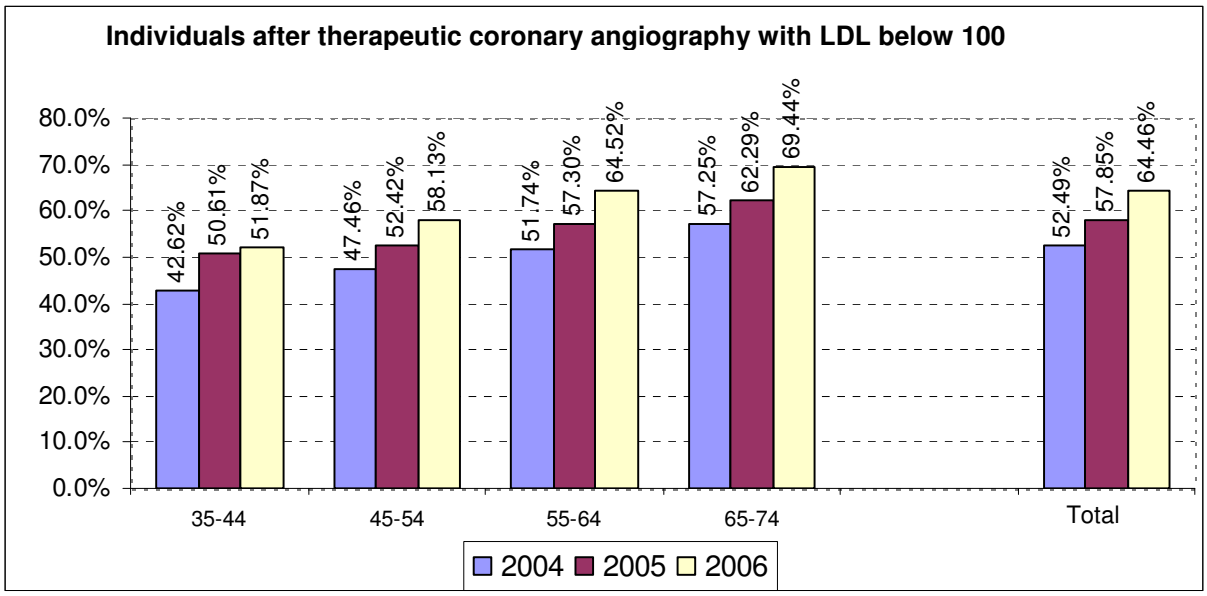


Figure 101: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, in 2006, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	53.58%	41.22%	51.87%	815	101	916	1,521	245	1,766
45-54	59.26%	50.57%	58.13%	4,465	572	5,037	7,534	1,131	8,665
55-64	65.90%	58.12%	64.52%	7,879	1,500	9,379	11,956	2,581	14,537
65-74	71.89%	63.33%	69.44%	7,860	2,774	10,634	10,933	4,380	15,313
Total	65.80%	59.34%	64.46%	21,019	4,947	25,966	31,944	8,337	40,281

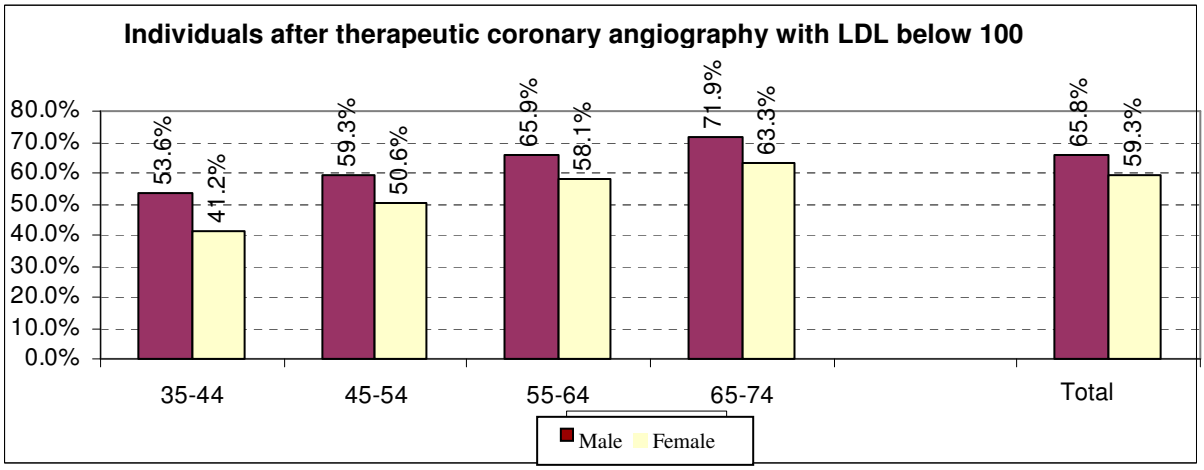
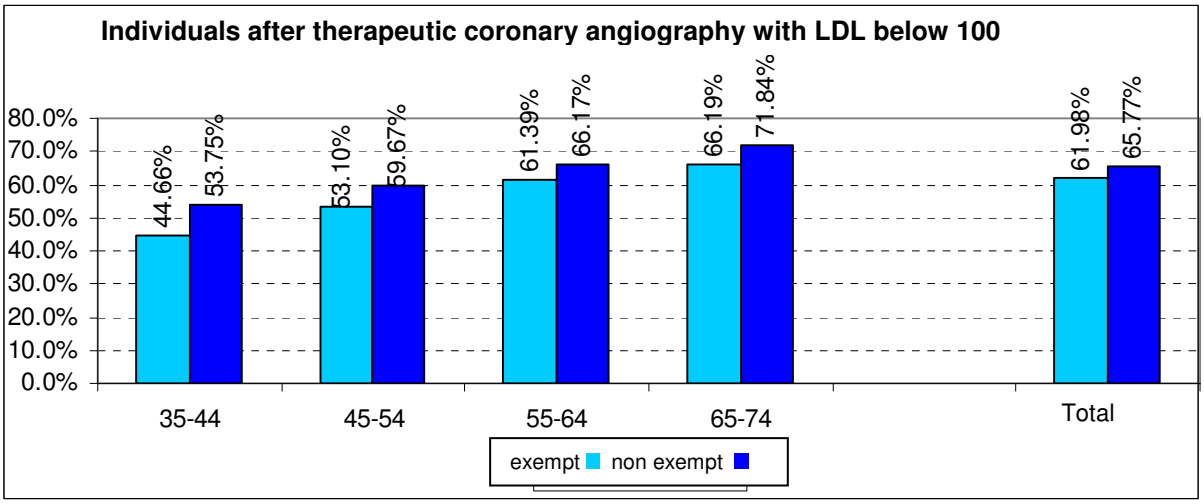


Figure 102: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, in 2006, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	44.66%	53.75%	51.87%	163	753	916	365	1,401	1,766
45-54	53.10%	59.67%	58.13%	1,080	3,957	5,037	2,034	6,631	8,665
55-64	61.39%	66.17%	64.52%	3,086	6,293	9,379	5,027	9,510	14,537
65-74	66.19%	71.84%	69.44%	4,293	6,341	10,634	6,486	8,827	15,313
Total	61.98%	65.77%	64.46%	8,622	17,344	25,966	13,912	26,369	40,281



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