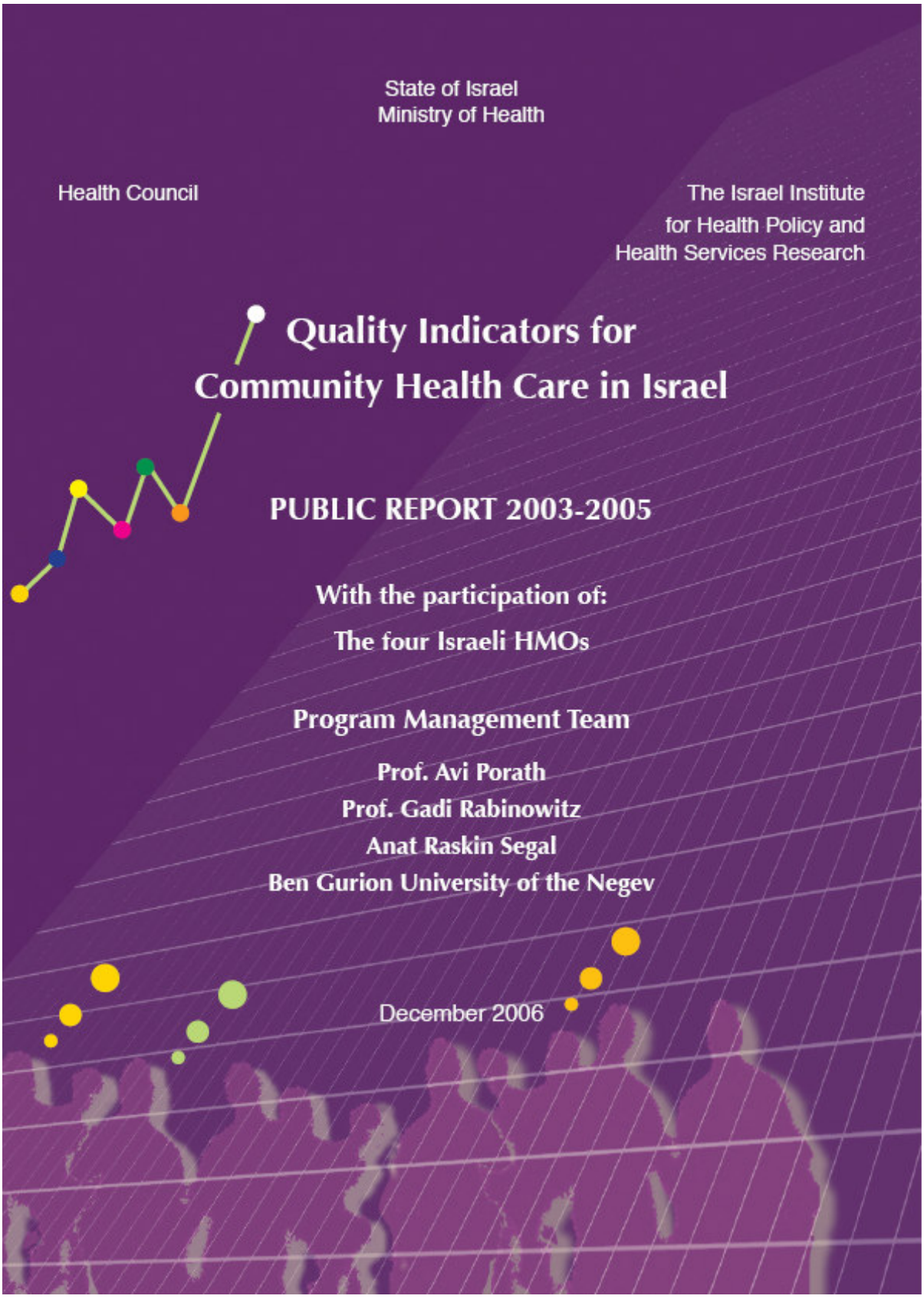
State of Israel
Ministry of Health
Health Council
The Israel Institute
for Health Policy and
Health Services Research
Quality Indicators for
Community Health Care in Israel
PUBLIC REPORT 2003-2005
With the participation of:
The four Israeli HMOs
Program Management Team
Prof. Avi Porath
Prof. Gadi Rabinowitz
Anat Raskin Segal
Ben Gurion University of the Negev
December 2006

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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 Program 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 a preventive measure 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 (2003-2005), 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. 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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Foreword

Quality Indicators for Community Health Care in Israel is an annual report (now in its third 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. The current report, for 2006, presents data for 2003-2005.

The report presents national data in five key areas of community health care and is based on data provided by four HMOs, for the entire population in Israel. The data and data processing methods 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 study is intended for the general public. A more detailed report was distributed to 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

1. 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 in Western countries.
- 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.
- This year we were also able to expand the set of indicators to include new fields. Our ability to do so reflects the steadily improving information infrastructures maintained by the HMOs and the growing recognition of the importance of measuring clinical performance.
- The improvement seen in the indicators year after year is the result of efforts invested by the four HMOs to improve their performance 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:

- 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

- This year, a new, more restrictive definition was applied for chronic persistent asthma; no change was found in the prevalence of this disease during the reporting period and it continues to affect approximately 1% of the population in the reported age groups.
- Among young adults, asthma is more prevalent among men. In adults it is more prevalent among women.
- The percentage of patients taking preventive drugs is high and continues to improve, particularly among young adults, for whom a rate of 82% was found. Among adults, that rate remained unchanged at 78%.
- The rate of people vaccinated against the flu has improved over the years, reaching an average of 31% of asthma patients. The percentage increases with age, reaching 39% among adults.
- Among adults, women were prescribed medication to prevent asthma at a somewhat lower rate than men; among children, no difference was found between the sexes.
- In terms of vaccination against the flu, no sex-related difference was found among asthma patients.
- Compared to the general population of asthma patients, prevalence among those who are exempt from NII payments was double, while the rate of vaccination against the flu was found to be 12% lower. No difference was found with respect to preventive drugs relative to exemption from NII payments.

Cancer prevention

Breast cancer screening – mammography:

- During the reporting period, the rate of mammograms performed improved each year, and in 2005, the average rate was 56%.

- In this area, a striking difference of 8% was found among those with an exemption from NII payments. The mammogram rate among women with an exemption reached 50%, compared to 58% among other insured women. This figure is somewhat lower than in the previous report.

- **Screening for colorectal cancer:**
  - This indicator, now being reported for the first time, shows a low rate of screening for colorectal cancer: Only 9% of the population between the ages of 50-74 underwent this annual exam in 2005. Another approximately 12% of the population had colonoscopies 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 NII payments relative to others.

Flu vaccination

- The impressive improvement in vaccination continued throughout the years monitored, particularly among those aged 74 and over; on average, 51% of the population over the age of 65 was vaccinated.
- No significant sex-related difference was found in the rates of vaccination, although those exempt from NII payments had a significantly lower rate of vaccination, 45% compared to 54% among the rest of the population.

Diabetes

- The prevalence of diabetes treated by medication continued to rise during the reporting period, reaching 3.8% 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 a good control of their blood sugar level (HbA1c below 7%) is 43%, while the rate of uncontrolled patients (AbA1c above 9%) fell to 16% during the reporting period (the rest achieved mid-level control).
- Approximately 18% 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 40% during the reporting period.
- The rate of testing for LDL cholesterol in diabetes patients continued to rise, reaching 87% 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 48% during the reporting period.
- The rate of patients who underwent annual testing for urine microalbumin showed continued improvement, reaching approximately 56%, as was the case for eye exams, reaching 59%.
- The rate of diabetes patients who received flu vaccinations continued to improve, reaching 47% during the reporting period; at all ages, this rate is higher among diabetes patients than among the general population.

- **Obesity**

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

  - Documentation of weight was only found for 16% of the younger age group and 20% of the older age group in the population.
  - Documentation of height was only found for 13% of the younger age group and 28% of the older age group in the population.
  - Documentation of BMI can only be calculated in 15% of the younger age group and 21% of the older age group in the population.
  - The level of BMI documentation is relatively low, and therefore the report does not discuss the values of the indicators themselves.

Cardiovascular disease

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**
  - Approximately 70% of the population underwent testing for blood cholesterol levels, based on the frequency adjusted for the age of the population.
  - In both age groups, 35-54 and 55-74, women underwent more tests than men.
  - People exempt from NII payments underwent more screening than the rest of the population.
  - The age-adjusted target was reached in 64% of the target population.
  - Differences were found in attaining the target between age groups. Some of the differences can be attributed to the impact of age on cholesterol levels (cholesterol rises with age), and some to the fact that adults receive medication to reduce cholesterol levels.
  - Sex-related differences were found in attaining the target, some as a reflection of biological difference in young adults.
  - No significant differences were found in achieving targets with respect to NII exemption status.
- **Blood pressure**

  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 50% of the younger age group and for 60% of the older age group in the target population.
  - The level of blood pressure documentation is still relatively low, and therefore the report does not discuss the values of the indicators themselves.

Secondary prevention of cardiovascular disease is measured 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 80% of patients purchased cholesterol-lowering medication in 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.
  - A slight difference was found in the purchase of statin medication with respect to exemption from NII payments; those with an exemption purchased slightly less

medication. This difference decreased relative to the findings in last year's report.

- Approximately 57% of the patients who underwent therapeutic coronary angiography or coronary bypass surgery reached the target cholesterol level of 100 mg/dl or less.
- 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: ACEI/ARB medications**
  - Approximately 59% of patients purchased ACEI/ARB medications during the measurement year.
  - 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: beta blockers**
  - Approximately 69% of the patients purchased beta blockers during the year of the test.
  - 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**

  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. The assumption is that the vast majority of patients are treated with aspirin.

2. 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. The authors of this report were appointed by the Ministry of Health to serve as the professional and organizational directors of the activity, which is guided by a steering committee of all the organizations involved. The activity is coordinated by teams of experts from the HMOs and academic circles in the fields of

medicine, computer science, statistics, organizational development, public health and health policy.

Main objectives of the National Program:

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

What data is presented in the report?

Two versions of Report No. 3 are being distributed: a report for policymakers and a report to the general public (this version). Last year 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

The current report presents a partial nationwide picture of the quality of community health care in Israel for 2003-2005. The data presented here relate to the five areas of community health care – flu vaccination, screening for detection of colorectal and 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 2005 Indicators Program to the findings of the American HEDIS system in 2005 [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 2005 Indicators Program relate to the entire population, HEDIS relates only to patients of HMOs that volunteered to provided information. 2. HEDIS distinguished 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 this report are defined as relative indicators, or in other words, the proportion (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 and data are presented in the report:

- **Morbidity data** – 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 HMOs records for 2005, approximately 682 thousand people. A partial or full exemption from NII payments was granted in the reporting period 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 2003-2205 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. For this reason, 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.

3. The Quality Indicators

A. Treatment of asthmatics

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) reported suffering from asthma. In Israel, too, the disease is twice as common among boys as girls. The prevalence of the disease is also high among adults.

Asthma is a chronic inflammatory respiratory disease that is characterized by attacks of labored breathing caused by narrowing of the respiratory airways. These attacks are characterized by shortness of breath, feeling of tightness in the chest, wheezing during exhalation and coughing. The severity of these symptoms varies, even up to the point where patients cannot breathe. In extreme cases, asthma attacks can be life threatening if not treated properly.

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

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.

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 operational 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 2005: approximately 48,803 patients, of which about 14,000 were children and adolescents. A similar rate was measured in 2004 and 2003 (Figure 1). This rate is somewhat lower than that reported in 2003, in which chronic persistent asthma was defined as purchasing 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 2005 was as follows: 1.2% for the 5-9 age group, 0.7% for the 10-17 age group, 0.8% for the 18-44 age group and 1.7% 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 insured individuals who are exempt from NII payments, 2005 showed a chronic persistent asthma rate of 2.17%, compared to only 0.93% 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 examination year (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
5-9	1.29%	1.22%	1.20%	7,550	7,231	7,213	583,495	592,893	602,309
10-17	0.84%	0.75%	0.72%	7,707	6,989	6,702	921,490	927,740	932,770
18-44	0.83%	0.82%	0.81%	19,810	19,709	19,565	2,390,574	2,395,641	2,407,045
45-56	1.76%	1.76%	1.73%	15,452	15,458	15,323	876,471	877,892	883,383
Total	1.06%	1.03%	1.01%	50,519	49,387	48,803	4,772,030	4,794,166	4,825,507

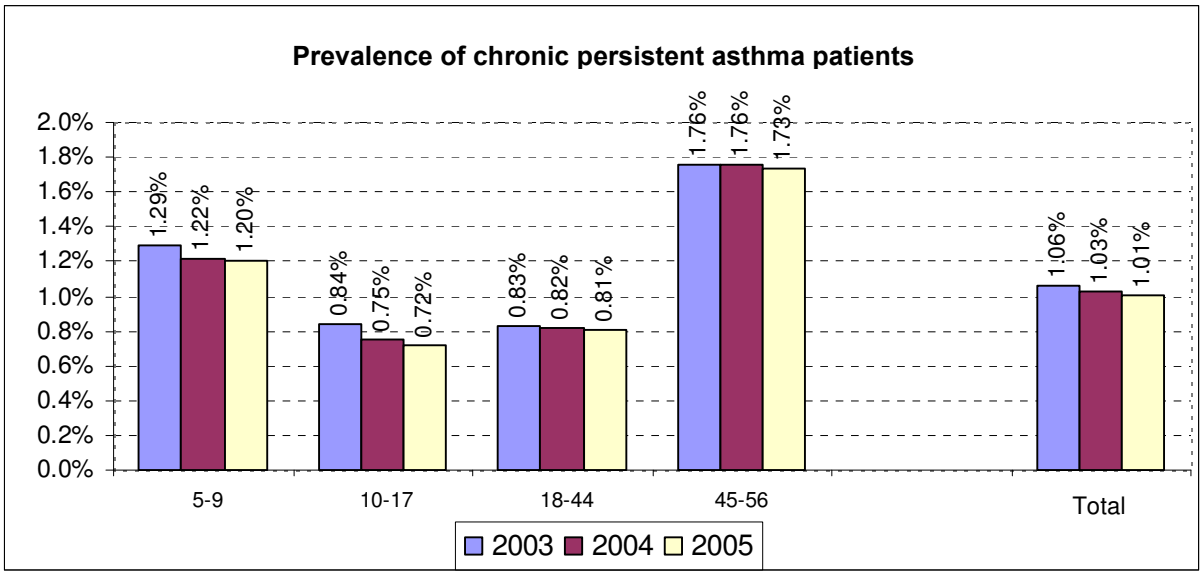
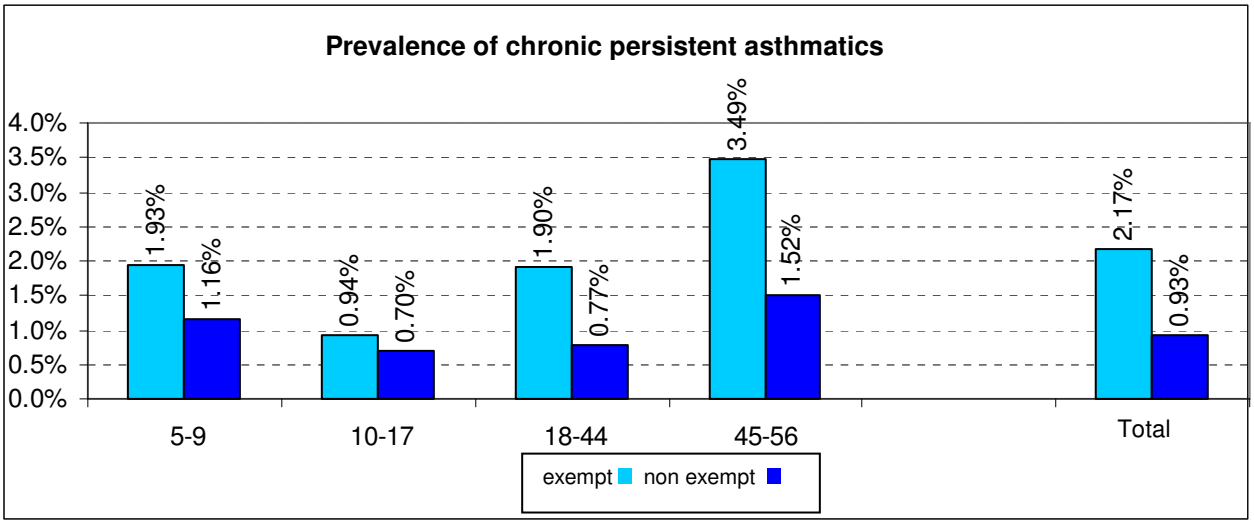


Figure 2: Morbidity rate for chronic persistent asthma among insured individuals in 2005 by socioeconomic status and age

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
5-9	1.93%	1.16%	1.20%	634	6,579	7,213	32,926	569,383	602,309
10-17	0.94%	0.70%	0.72%	709	5,993	6,702	75,767	857,003	932,770
18-44	1.90%	0.77%	0.81%	1,862	17,703	19,565	97,744	2,309,301	2,407,045
45-56	3.49%	1.52%	1.73%	3,377	11,946	15,323	96,636	786,747	883,383
Total	2.17%	0.93%	1.01%	6,582	42,221	48,803	303,073	4,522,434	4,825,507



The quality of treatment for chronic persistent asthma

1. 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 77.2% of patients in 2005. This rate is similar to those measured in 2003 and 2004 (Figure 3). Experts view this as a high and impressive rate. According to the HEDIS 2005 Report, there was a 72.9% performance rate for this indicator [1].
- Among young adults, the highest results were found in the 10-17 age group: Approximately 82.9% of them purchased preventive drugs in 2005. Among adults aged 45-56, the rate for purchase of preventive drugs in 2005 was 78.2% (Figure 3).
- In 2005, 75.4% of people exempt from NII payments purchased preventive drugs as opposed to 77.5% of other insured individuals (Figure 4).

Figure 3: Rate of chronic persistent asthma patients treated with preventive drugs, by age and examination year (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
5-9	79.92%	81.77%	82.42%	6,034	5,913	5,945	7,550	7,231	7,213
10-17	80.56%	83.00%	82.90%	6,209	5,801	5,556	7,707	6,989	6,702
18-44	71.55%	72.23%	72.65%	14,175	14,236	14,213	19,810	19,709	19,565
45-56	76.99%	77.18%	78.16%	11,896	11,930	11,976	15,452	15,458	15,323
Total	75.84%	76.70%	77.23%	38,314	37,880	37,690	50,519	49,387	48,803

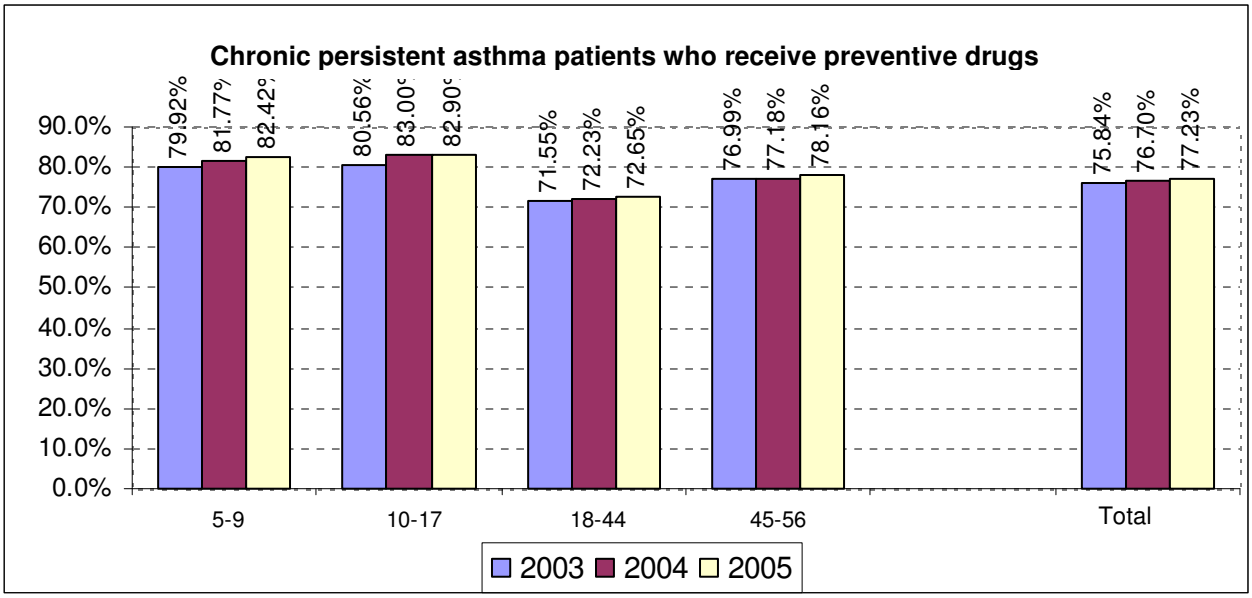
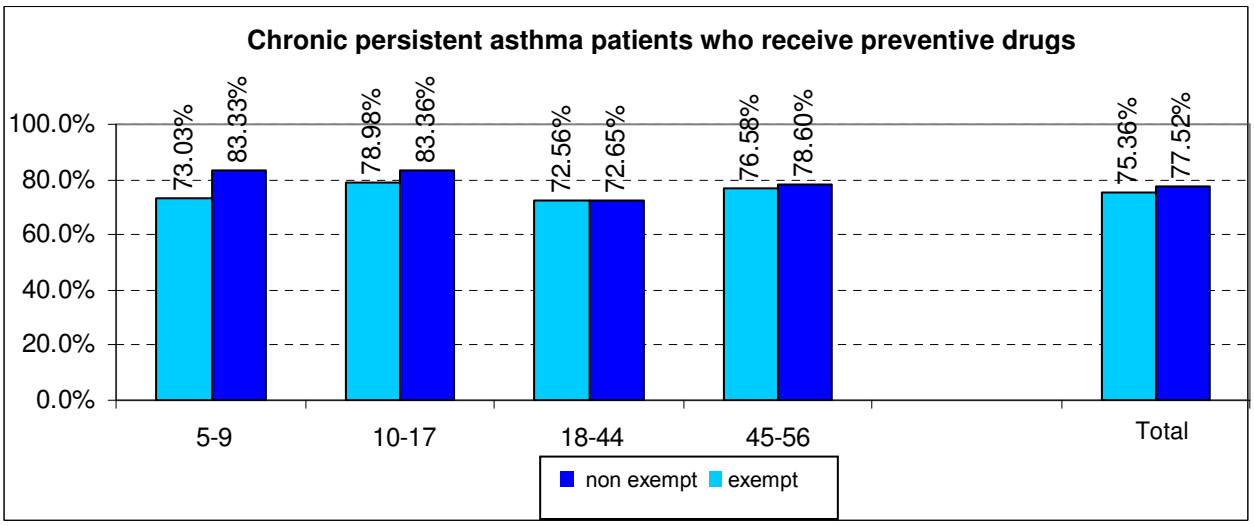


Figure 4: Rate of patients with chronic persistent asthma treated with preventive drugs in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
5-9	73.03%	83.33%	82.42%	463	5,482	5,945	634	6,579	7,213
10-17	78.98%	83.36%	82.90%	560	4,996	5,556	709	5,993	6,702
18-44	72.56%	72.65%	72.65%	1,351	12,862	14,213	1,862	17,703	19,565
45-56	76.58%	78.60%	78.16%	2,586	9,390	11,976	3,377	11,946	15,323
Total	75.36%	77.52%	77.23%	4,960	32,730	37,690	6,582	42,221	48,803



2. Flu vaccinations for asthmatics

Definition of the indicator:

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

Main Findings:

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, 31.1% of chronic persistent asthma patients were vaccinated against the flu in 2005. The rate in the 45-66 age group reached 38.7% compared to 25.2% among the younger patients. An 8% (absolute) improvement was recorded in the rate of flu vaccine recipients in the years described (Figure 5).
- No sex-related differences were found in the rate of flu vaccination (not shown on the graph).
- In 2005, patients exempt from NII payments were vaccinated against the flu at a rate significantly higher than who were not exempt, 42.0% compared to 29.2% (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 examination year (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
18-44	17.20%	20.28%	25.20%	3,408	3,996	4,931	19,810	19,709	19,565
45-56	30.64%	32.16%	38.71%	4,734	4,971	5,931	15,452	15,458	15,323
Total	23.09%	25.50%	31.13%	8,142	8,967	10,862	35,262	35,167	34,888

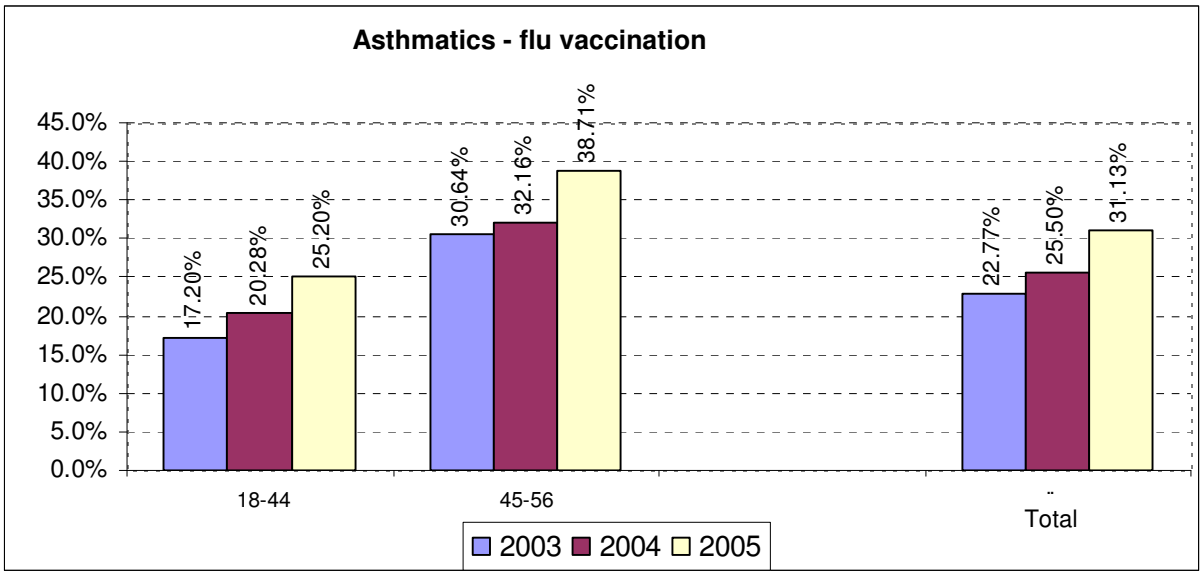
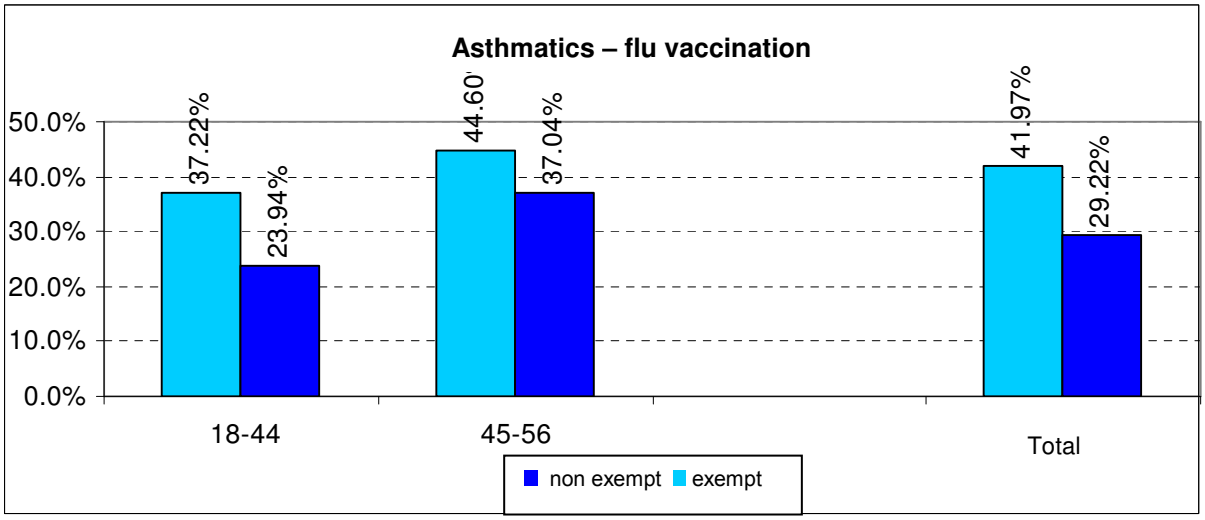


Figure 6: Rate of patients with chronic persistent asthma who received flu vaccinations in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-44	37.22%	23.94%	25.20%	693	4,238	4,931	1,862	17,703	19,565
45-56	44.60%	37.04%	38.71%	1,506	4,425	5,931	3,377	11,946	15,323
Total	41.97%	29.22%	31.13%	2,199	8,663	10,862	5,239	29,649	34,888



B.Screening for cancer

1. 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.

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.

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”.

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 above 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 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 women aged 52-74 who have had at least one mammographic screening in the course of the past two years.

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 55.7% of the target population in 2005: A total of approximately 347,566 women were examined (Figure 7). According to the HEDIS 2005 Report, there was a 73.4% performance rate for this indicator [1].
- An increase (absolute) of approximately 4% in performance of the exam was found in 2003-2005 (Figure 7).
- The rate of women examined decreases somewhat with age. 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 2005, only 50.0% of insured women exempt from NII payments underwent mammographic screening compared to 57.9% of the remaining insured women (Figure 8). In the HEDIS 2005 Report as well, the rate of performance for women on federal assistance in the US was only 54.1%.

Figure 7: Rate of women with the indicator, by age and examination year (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
52-60	53.49%	53.95%	56.94%	162,625	174,153	193,152	304,057	322,834	339,195
61-68	51.96%	53.11%	56.75%	91,403	93,140	98,907	175,905	175,367	174,288
69-74	45.63%	46.81%	50.26%	50,912	51,948	55,507	111,565	110,973	110,433
Total	51.55%	52.41%	55.71%	304,940	319,241	347,566	591,527	609,174	623,916

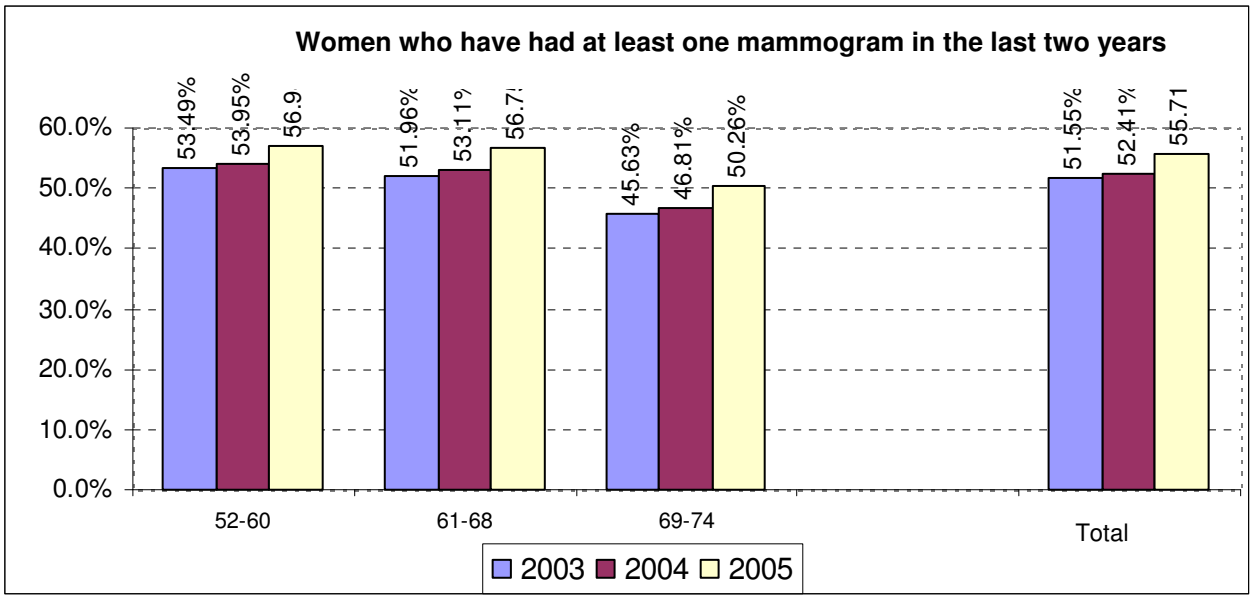
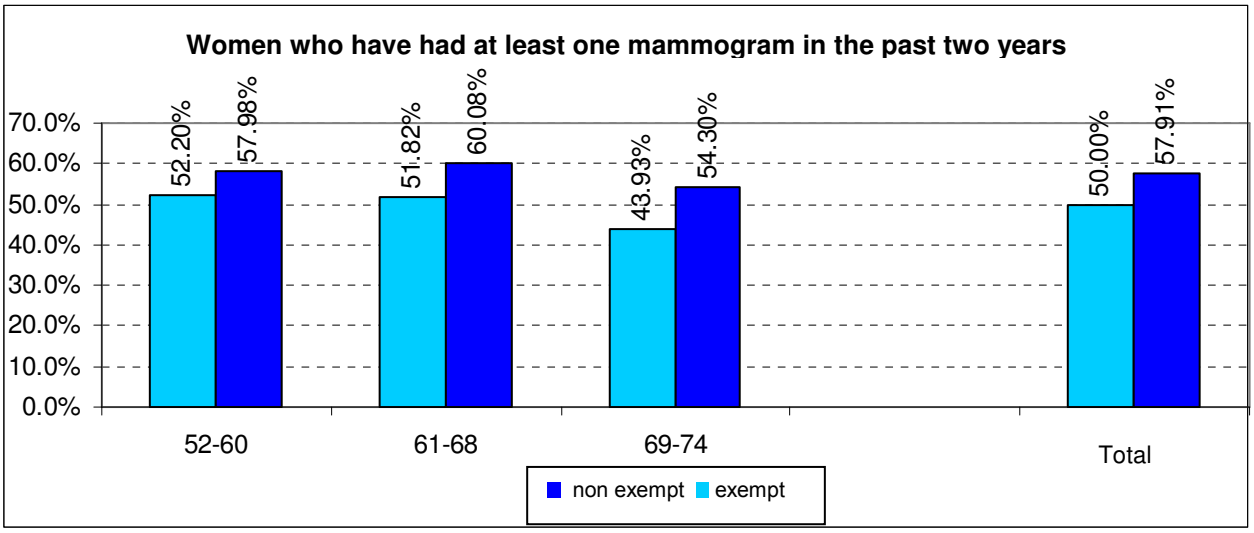


Figure 8: Rate of women with the indicator in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
52-60	52.20%	57.98%	56.94%	31,793	161,359	193,152	60,905	278,290	339,195
61-68	51.82%	60.08%	56.75%	36,392	62,515	98,907	70,231	104,057	174,288
69-74	43.93%	54.30%	50.26%	18,871	36,636	55,507	42,960	67,473	110,433
Total	50.00%	57.91%	55.71%	87,056	260,510	347,566	174,096	449,820	623,916



2. 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.

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].

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…

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 2005 was 1,081,396 individuals between the ages of 50-74.
- Approximately 9.4% of the target population underwent fecal occult blood testing in 2005. The rate of performance varies between 7.6% among individuals between the ages of 50-59 and 12.1% between the ages of 70-74 (Figure 9).
- No sex-related difference was found in the performance rate for fecal occult blood testing.
- Furthermore, approximately 12.1% 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 screening procedures for detection of colorectal cancer than the remaining population, particularly above the age of 60 (Figure 10).
- The performance rate is low, though an annual improvement in performance of the tests during the reporting period, perhaps because it was a new reportable measure.

Figure 9: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
50-59	2.83%	5.11%	7.57%	16,138	30,209	45,829	570,383	591,533	605,506
60-69	4.10%	7.95%	11.60%	13,985	27,062	39,615	340,918	340,457	341,459
70-74	4.59%	8.47%	12.12%	6,431	11,675	16,288	140,101	137,774	134,431
Total	3.48%	6.44%	9.41%	36,554	68,946	101,732	1,051,402	1,069,764	1,081,396

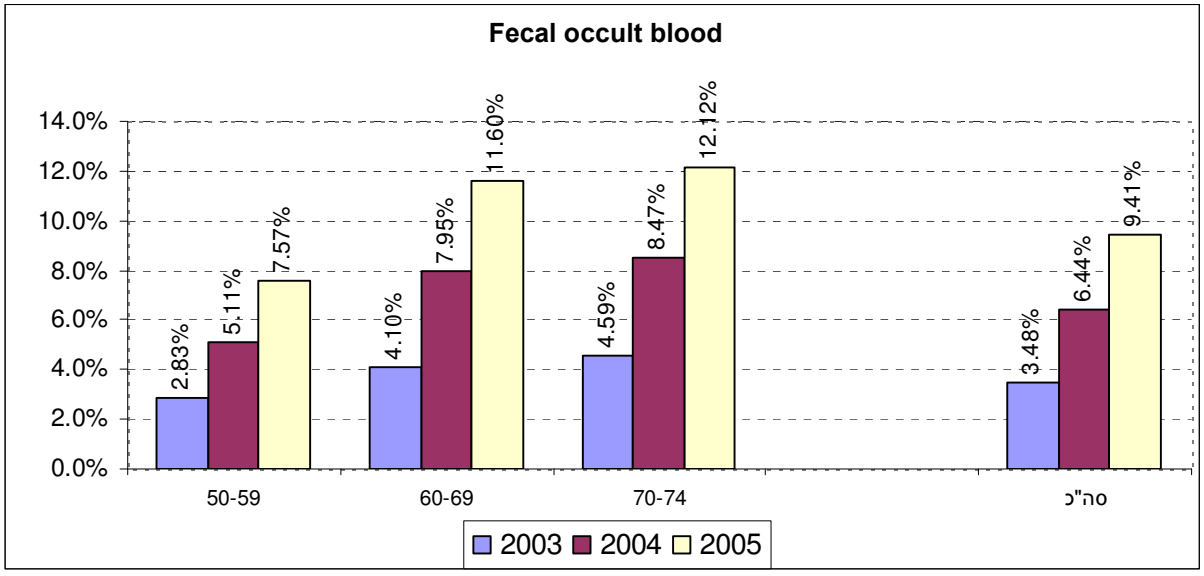


Figure 10: Rate of individuals between the ages of 50-75 who underwent fecal occult blood testing in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
50-59	6.93%	7.67%	7.57%	5,899	39,930	45,829	85,182	520,324	605,506
60-69	9.55%	12.70%	11.60%	11,406	28,209	39,615	119,403	222,056	341,459
70-74	9.25%	13.91%	12.12%	4,790	11,498	16,288	51,769	82,662	134,431
Total	8.62%	9.65%	9.41%	22,095	79,637	101,732	256,354	825,042	1,081,396

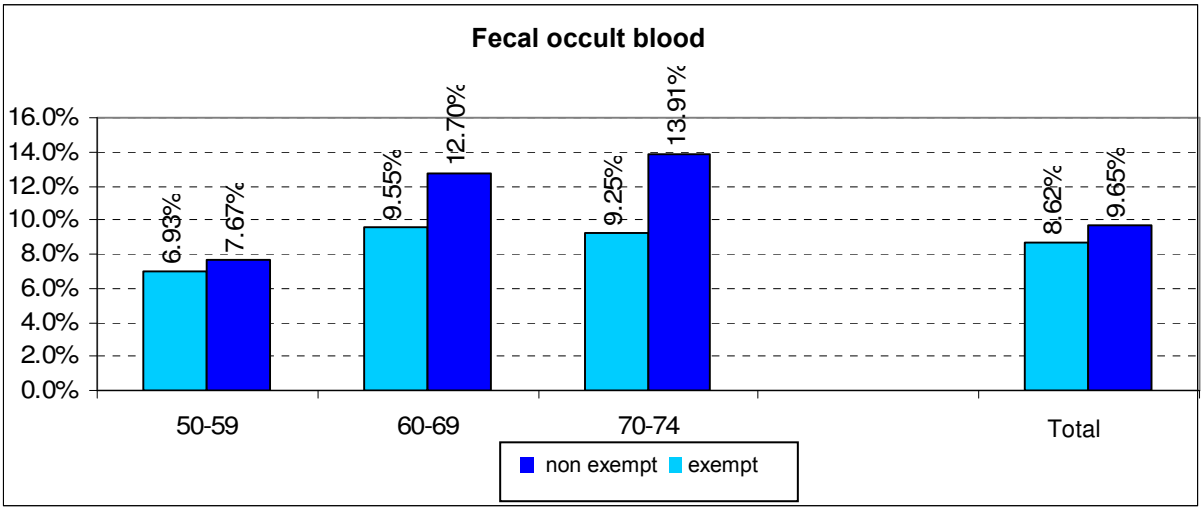


Figure 11: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
50-59	6.73%	8.28%	10.07%	41,180	53,418	67,802	611,563	644,951	673,308
60-69	9.60%	11.58%	13.93%	36,200	44,584	55,246	377,118	385,041	396,705
70-74	11.44%	13.62%	16.11%	18,093	21,722	25,818	158,194	159,496	160,249
Total	8.32%	10.07%	12.10%	95,473	119,724	148,866	1,146,875	1,189,488	1,230,262

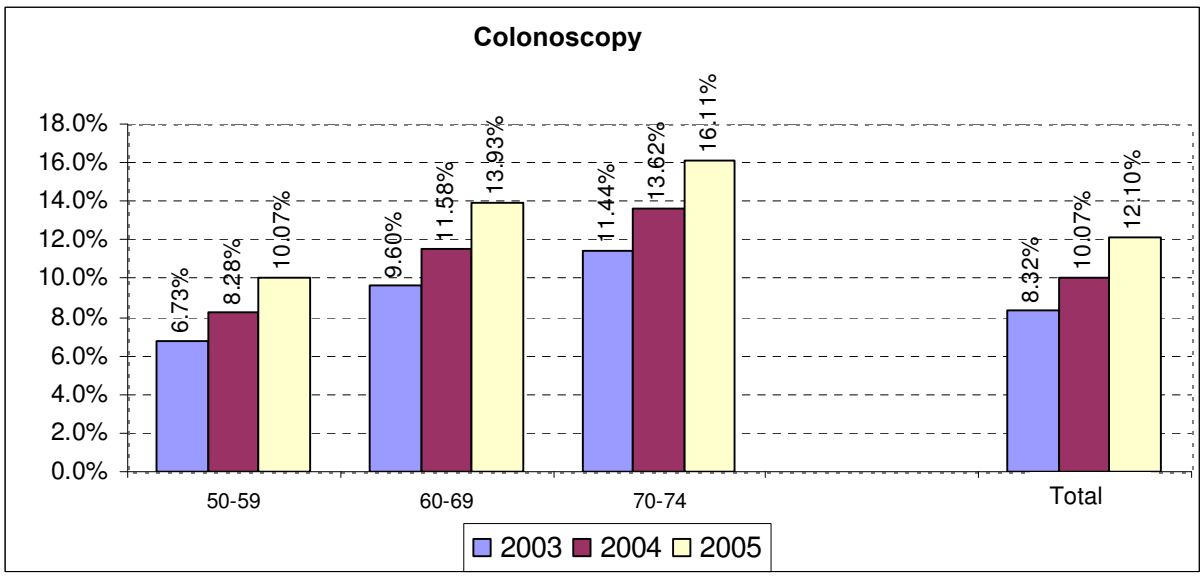
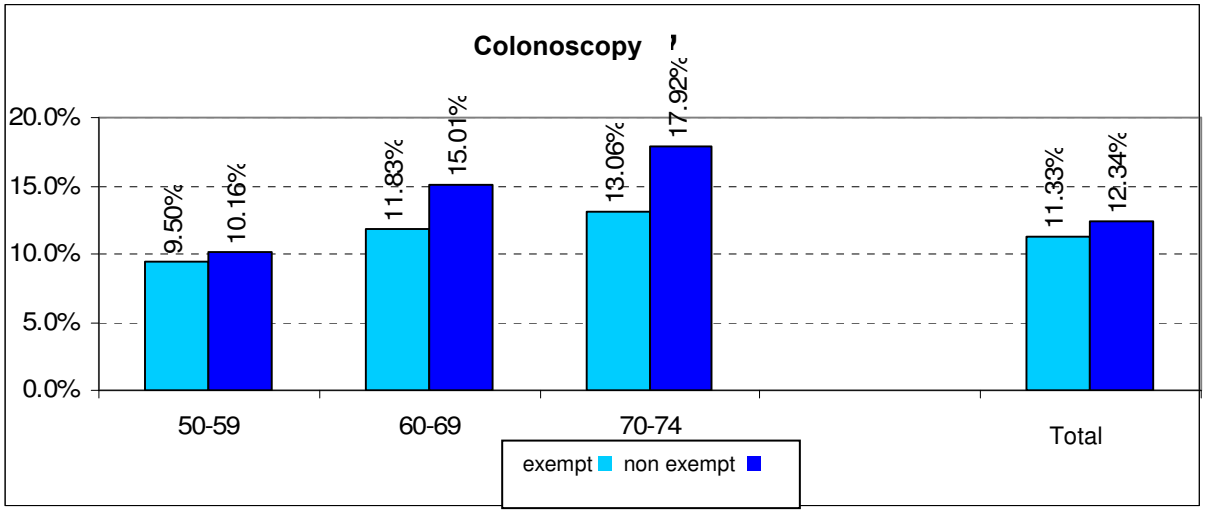


Figure 12: Rate of individuals between the ages of 50-75 who have undergone screening or diagnostic colonoscopy in the past five years, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
50-59	9.50%	10.16%	10.07%	8,944	58,858	67,802	94,126	579,182	673,308
60-69	11.83%	15.01%	13.93%	16,027	39,219	55,246	135,430	261,275	396,705
70-74	13.06%	17.92%	16.11%	7,774	18,044	25,818	59,543	100,706	160,249
Total	11.33%	12.34%	12.10%	32,745	116,121	148,866	289,099	941,163	1,230,262



C. 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 cough and sore throat. Sometimes complications such as pneumonia, sinusitis, severe 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.

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

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".

Definition of the indicator:

The percentage of 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). It should be noted that this indicator includes data provided by three of the four HMOs, for 2003. Beginning in 2004, the data from all four health funds are included.

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 2005, 51% of the insured individuals above the age of 65 were vaccinated, totaling 342,000 insured individuals. This rate continues to rise at a rate of 4% a year (Figure 13).
- The rate is higher for the elderly over the age of 74. In 2005, the percentage of vaccinations in this group reached 54%, compared to 48% in the 65-73 age group (Figure 13). According to the HEDIS 2005 Report, the rate of compliance with the indicator was 74.8% among those aged 65 and older, and 38.9% 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, 58% of men were vaccinated and 51% of women.
- Insured individuals exempt from NII payments were vaccinated less than the other insured individuals – in 2005, the rate of vaccination in this group was 45% compared to 54% 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 year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
65-73	41.60 %	45.31%	47.54%	138,176	152,219	162,025	332,160	335,921	340,840
74 and older	46.33 %	51.19%	53.72%	148,358	167,588	180,139	320,188	327,372	335,325
Total	43.92 %	48.22%	50.60%	286,534	319,807	342,164	652,348	663,293	676,165

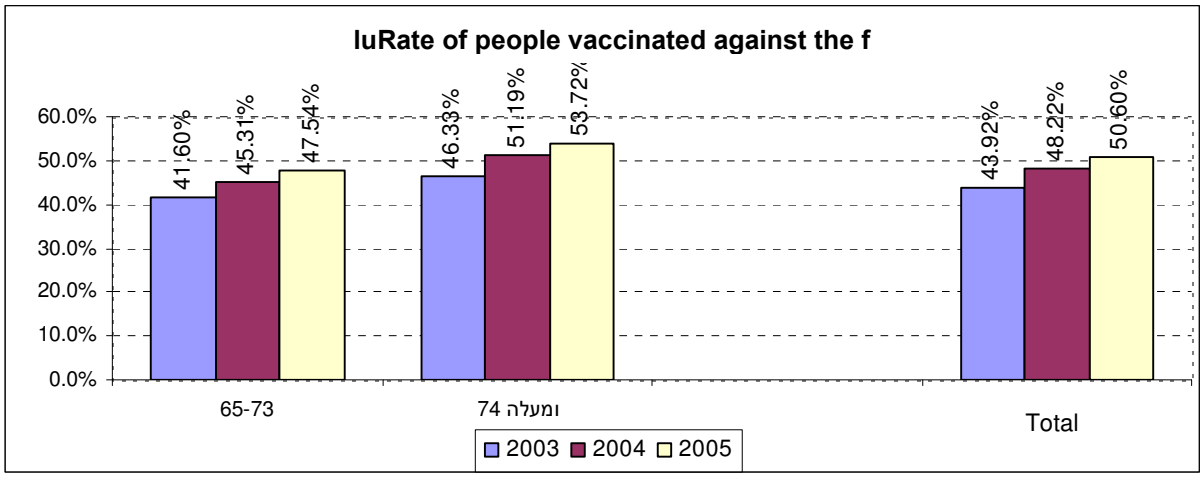
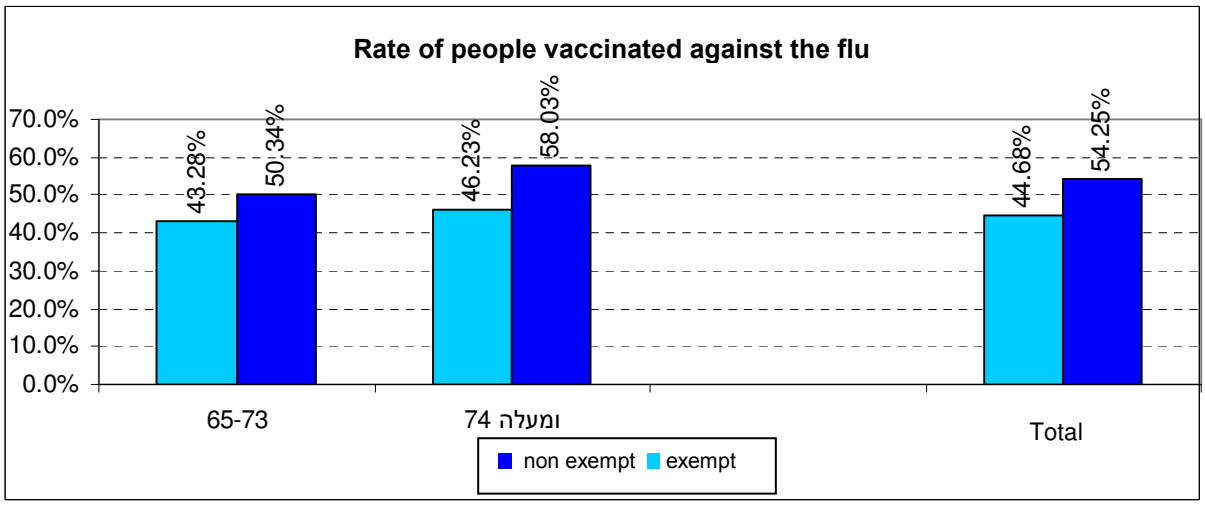


Figure 14: Rate of individuals who received flu vaccinations in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
65-73	43.28%	50.34%	47.54%	58,508	103,517	162,025	135,197	205,643	340,840
74 and older	46.23%	58.03%	53.72%	56,587	123,552	180,139	122,413	212,912	335,325
Total	44.68%	54.25%	50.60%	115,095	227,069	342,164	257,610	418,555	676,165



D. 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 permanent 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.

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.

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.”

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 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 2005 there were 253,233 diabetes patients on medication in Israel, amounting to 3.8% of the total population. 5.8% of the population over 18 suffer from diabetes. 122,400 of diabetes patients are male, in other words approximately 48%.
- The rate of diabetes patients increases with age, reaching close to 19.4% 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 2005, 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 2004 and 2003.
- Most of the differences in prevalence of diabetes based on exemption from NII payments was recorded among adults between the ages of 35 and 65.

Figure 15: Prevalence of diabetes by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	0.01%	0.01%	0.02%	84	98	114	662,326	674,710	682,660
5-17	0.10%	0.11%	0.11%	1,530	1,659	1,777	1,524,281	1,540,472	1,553,938
18-24	0.25%	0.28%	0.30%	1,465	1,646	1,723	586,852	584,464	581,182
25-34	0.39%	0.42%	0.44%	3,961	4,302	4,456	1,007,715	1,013,662	1,022,694
35-44	1.46%	1.56%	1.62%	11,638	12,467	13,042	796,243	797,886	805,496
45-54	5.13%	5.41%	5.66%	37,861	40,326	42,595	738,406	745,869	752,906
55-64	11.58%	12.05%	12.44%	56,439	60,802	65,436	487,551	504,422	525,860
65-74	17.88%	18.71%	19.42%	65,105	68,986	72,256	364,193	368,736	372,149
75-84	16.30%	17.38%	18.37%	37,233	40,826	44,157	228,372	234,867	240,339
85+	9.86%	10.70%	11.65%	6,220	6,797	7,677	63,063	63,515	65,892
Total	3.43%	3.64%	3.84%	221,536	237,909	253,233	6,459,002	6,528,603	6,603,116

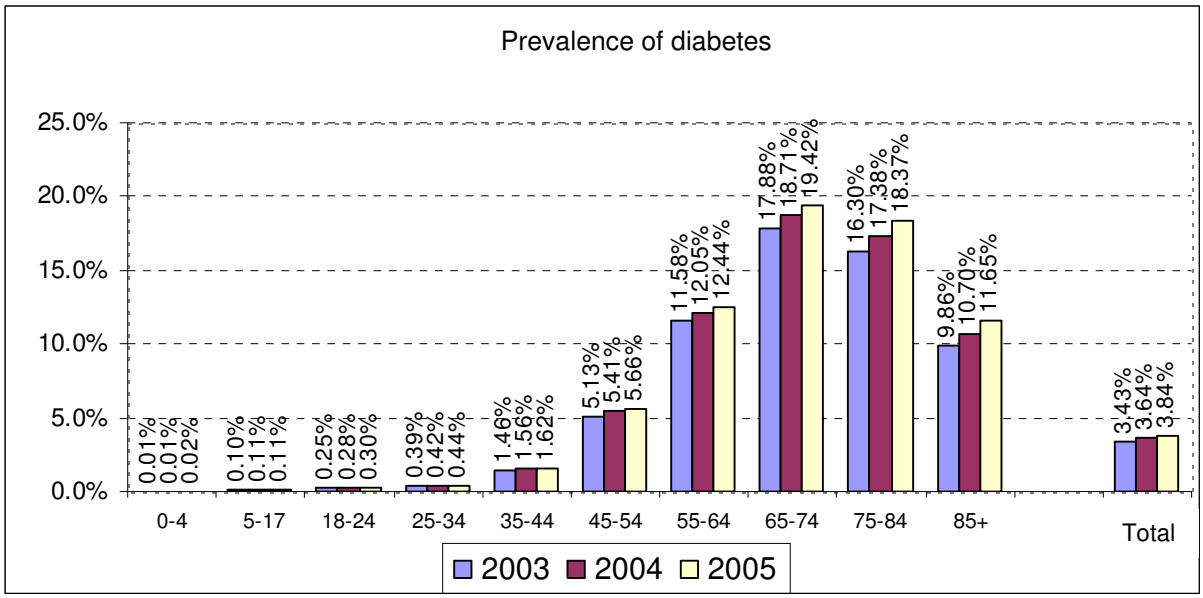
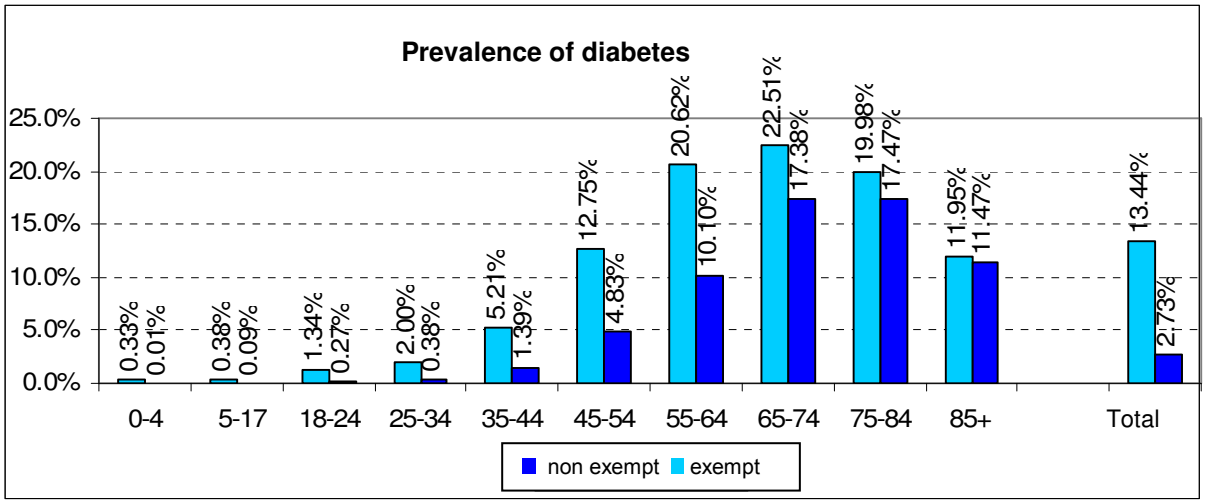


Figure 16: Prevalence of diabetes among all insured individuals, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	0.33%	0.01%	0.02%	62	52	114	19,042	663,618	682,660
5-17	0.38%	0.09%	0.11%	415	1,362	1,777	110,056	1,443,882	1,553,938
18-24	1.34%	0.27%	0.30%	218	1,505	1,723	16,256	564,926	581,182
25-34	2.00%	0.38%	0.44%	658	3,798	4,456	32,828	989,866	1,022,694
35-44	5.21%	1.39%	1.62%	2,517	10,525	13,042	48,328	757,168	805,496
45-54	12.75%	4.83%	5.66%	10,071	32,524	42,595	79,004	673,902	752,906
55-64	20.62%	10.10%	12.44%	24,188	41,248	65,436	117,311	408,549	525,860
65-74	22.51%	17.38%	19.42%	33,271	38,985	72,256	147,803	224,346	372,149
75-84	19.98%	17.47%	18.37%	17,261	26,896	44,157	86,400	153,939	240,339
85+	11.95%	11.47%	11.65%	2,937	4,740	7,677	24,579	41,313	65,892
Total	13.44%	2.73%	3.84%	91,598	161,635	253,233	681,607	5,921,509	6,603,116



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 as diabetes patients, and the HbA1c average in adult patients was 7.6%.

1. Control of blood glucose level

Background

One of the accepted methods for determining if the diabetic 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 balance, 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).

1.1 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, 89.6% of the population was tested at least once in 2005. 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 HEDIS 2005 Report, there was an 86.5% - 89.1% 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 2005, there was an 89.6% rate of compliance with the indicator, regardless of exemption or non-exemption from NII payments (Figure 18). In the HEDIS 2005 Report, the rate of performance for individuals eligible for federal assistance in the US was only 76.0%.

Figure 17: Performance rate of HbA1c test at least once a year, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	57.14%	67.35%	68.42%	48	66	78	84	98	114
5-17	70.78%	79.14%	80.81%	1,083	1,313	1,436	1,530	1,659	1,777
18-24	77.00%	79.53%	79.11%	1,128	1,309	1,363	1,465	1,646	1,723
25-34	80.08%	82.73%	81.80%	3,172	3,559	3,645	3,961	4,302	4,456
35-44	83.06%	86.23%	87.49%	9,666	10,750	11,411	11,638	12,467	13,042
45-54	85.01%	87.96%	88.90%	32,184	35,469	37,869	37,861	40,326	42,595
55-64	87.22%	89.53%	90.92%	49,225	54,437	59,495	56,439	60,802	65,436
65-74	87.50%	90.29%	91.69%	56,966	62,285	66,251	65,105	68,986	72,256
75-84	83.05%	86.21%	88.59%	30,922	35,198	39,118	37,233	40,826	44,157
85+	70.98%	75.81%	80.25%	4,415	5,153	6,161	6,220	6,797	7,677
Total	85.23%	88.08%	89.57%	188,809	209,539	226,827	221,536	237,909	253,233

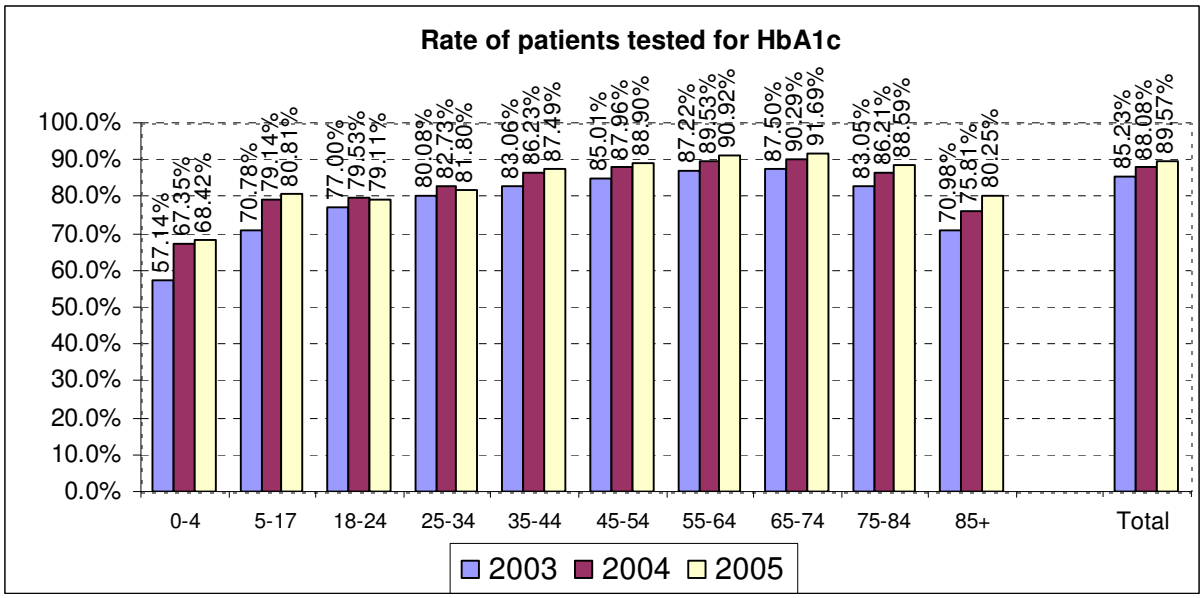
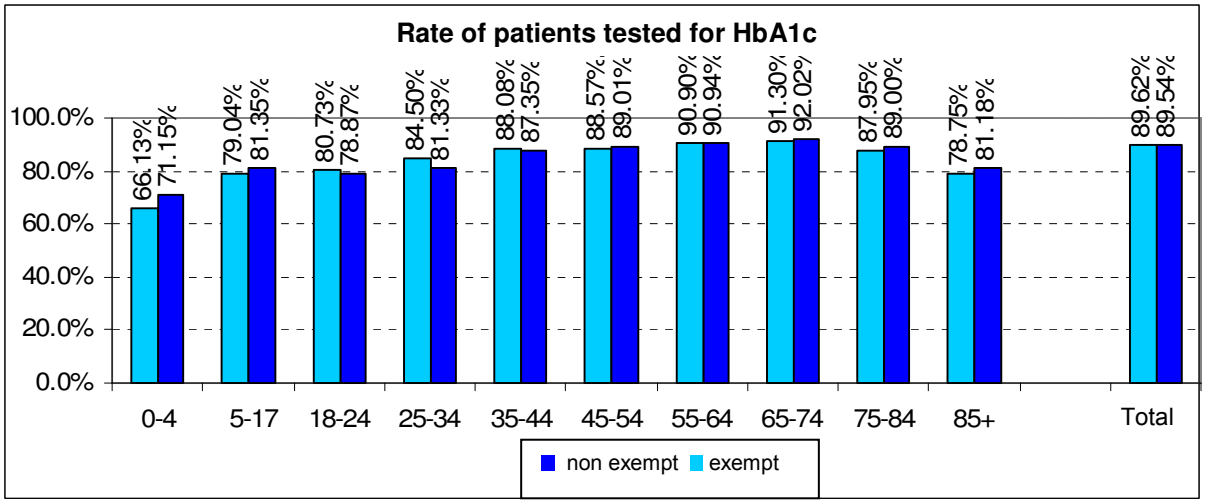


Figure 18: Performance rate of HbA1c test at least once a year, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	66.13%	71.15%	68.42%	41	37	78	62	52	114
5-17	79.04%	81.35%	80.81%	328	1,108	1,436	415	1,362	1,777
18-24	80.73%	78.87%	79.11%	176	1,187	1,363	218	1,505	1,723
25-34	84.50%	81.33%	81.80%	556	3,089	3,645	658	3,798	4,456
35-44	88.08%	87.35%	87.49%	2,217	9,194	11,411	2,517	10,525	13,042
45-54	88.57%	89.01%	88.90%	8,920	28,949	37,869	10,071	32,524	42,595
55-64	90.90%	90.94%	90.92%	21,986	37,509	59,495	24,188	41,248	65,436
65-74	91.30%	92.02%	91.69%	30,376	35,875	66,251	33,271	38,985	72,256
75-84	87.95%	89.00%	88.59%	15,181	23,937	39,118	17,261	26,896	44,157
85+	78.75%	81.18%	80.25%	2,313	3,848	6,161	2,937	4,740	7,677
Total	89.62%	89.54%	89.57%	82,094	144,733	226,827	91,598	161,635	253,233



1.2 Hemoglobin A1c level below 7%

Definition of the indicator:

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

Main Findings:

- According to HMO data in 2005, the number of diabetes patients with hemoglobin A1c levels below 7% was 42.8%, constituting a relatively slight improvement over previous years (Figure 19). In the opinion of experts, this control rate is high.
- The rate of well-controlled patients increases with age. The improvement in control begins in individuals aged 35 and older. There are two peaks in the control rate: between 25-34 and from age 75 and older (Figure 19).
- No difference was observed on the basis of sex in the rate of well-controlled patients.
- In 2005, the rate of well-controlled patients among insured individuals exempt from NII payments was 41.0% compared to 43.8% among the rest of insured individuals (Figure 20).

Figure 19: Percentage of patients with HbA1c level below 7%, by age and examination year (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	10.42%	10.61%	19.23%	5	7	15	48	66	78
5-17	16.81%	16.83%	16.09%	182	221	231	1,083	1,313	1,436
18-24	33.69%	31.25%	30.30%	380	409	413	1,128	1,309	1,363
25-34	40.42%	39.96%	39.70%	1,282	1,422	1,447	3,172	3,559	3,645
35-44	32.82%	32.41%	34.28%	3,172	3,484	3,912	9,666	10,750	11,411
45-54	33.74%	33.31%	34.53%	10,860	11,814	13,075	32,184	35,469	37,869
55-64	38.40%	37.64%	39.81%	18,904	20,492	23,686	49,225	54,437	59,495
65-74	45.61%	43.65%	46.04%	25,982	27,186	30,501	56,966	62,285	66,251
75-84	51.85%	49.37%	52.10%	16,032	17,377	20,380	30,922	35,198	39,118
85+	54.75%	51.87%	54.10%	2,417	2,673	3,333	4,415	5,153	6,161
Total	41.96%	40.61%	42.76%	79,216	85,085	96,993	188,809	209,539	226,827

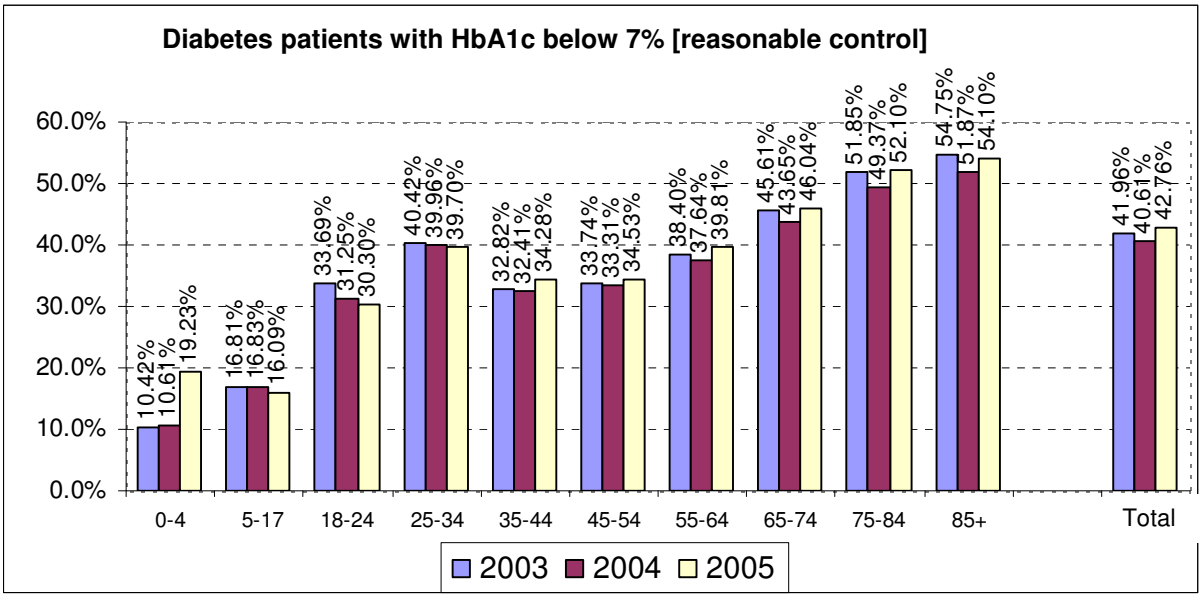
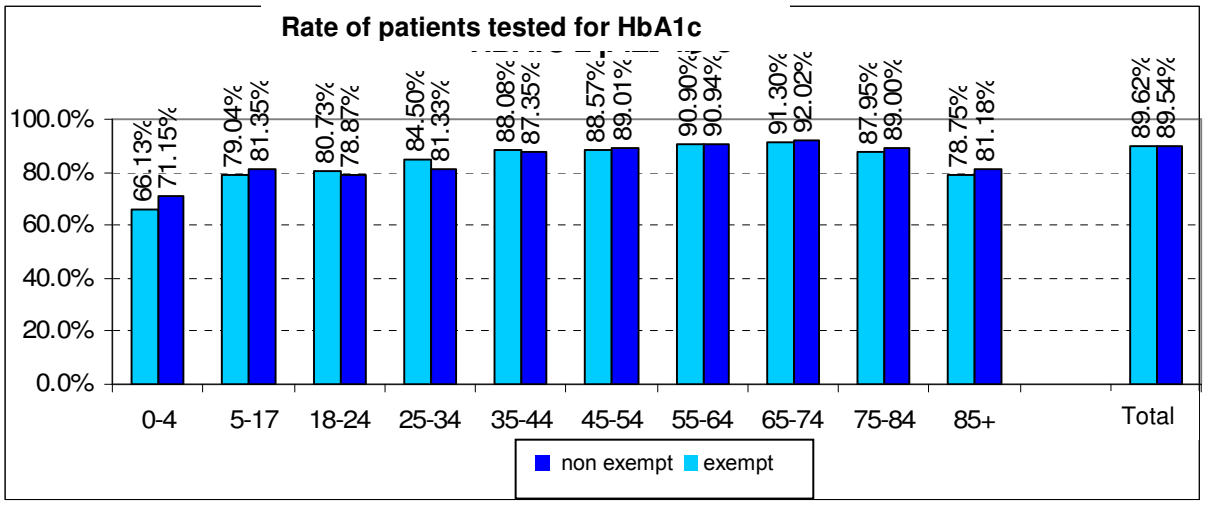


Figure 20: Percentage of patients with HbA1c level below 7%, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	14.63%	24.32%	19.23%	6	9	15	41	37	78
5-17	17.07%	15.79%	16.09%	56	175	231	328	1,108	1,436
18-24	26.14%	30.92%	30.30%	46	367	413	176	1,187	1,363
25-34	33.27%	40.85%	39.70%	185	1,262	1,447	556	3,089	3,645
35-44	33.15%	34.56%	34.28%	735	3,177	3,912	2,217	9,194	11,411
45-54	30.20%	35.86%	34.53%	2,694	10,381	13,075	8,920	28,949	37,869
55-64	35.89%	42.11%	39.81%	7,891	15,795	23,686	21,986	37,509	59,495
65-74	43.36%	48.31%	46.04%	13,170	17,331	30,501	30,376	35,875	66,251
75-84	50.50%	53.11%	52.10%	7,667	12,713	20,380	15,181	23,937	39,118
85+	52.27%	55.20%	54.10%	1,209	2,124	3,333	2,313	3,848	6,161
Total	41.00%	43.76%	42.76%	33,659	63,334	96,993	82,094	144,733	226,827



1.3 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 2005 HMO data, the percentage of uncontrolled patients with HbA1c levels above 9% was 16.4%. 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 HEDIS 2005 Report, the performance rate of the indicator was 22.5%-37.0%, 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 observed in the rate of uncontrolled patients, and the improvement covered all age groups.
- In 2005, the rate of uncontrolled patients among insured individuals exempt from NII payments was 17.7% compared to 15.7% among the rest of insured individuals (Figure 22). In the HEDIS 2005 Report, the rate of performance for individuals eligible for federal assistance was 48.6% (a very high percentage of uncontrolled patients).

Figure 21: Percentage of patients with HbA1c level above 9%, by age and year (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	27.08%	27.27%	20.51%	13	18	16	48	66	78
5-17	39.61%	38.84%	37.05%	429	510	532	1,083	1,313	1,436
18-24	25.00%	26.28%	27.73%	282	344	378	1,128	1,309	1,363
25-34	23.36%	24.11%	23.92%	741	858	872	3,172	3,559	3,645
35-44	28.14%	29.03%	27.91%	2,720	3,121	3,185	9,666	10,750	11,411
45-54	25.91%	26.70%	24.82%	8,340	9,471	9,399	32,184	35,469	37,869
55-64	19.98%	19.64%	18.25%	9,836	10,690	10,858	49,225	54,437	59,495
65-74	13.49%	13.32%	12.05%	7,683	8,296	7,985	56,966	62,285	66,251
75-84	10.07%	10.08%	9.03%	3,113	3,547	3,533	30,922	35,198	39,118
85+	9.92%	9.31%	8.68%	438	480	535	4,415	5,153	6,161
Total	17.79%	17.82%	16.44%	33,595	37,335	37,293	188,809	209,539	226,827

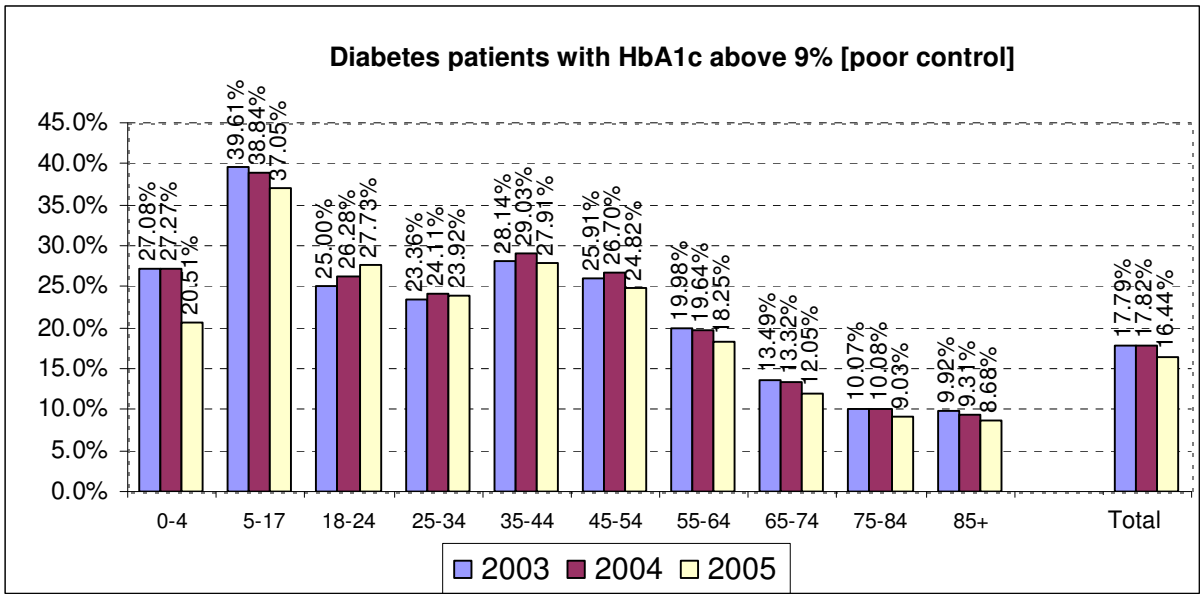
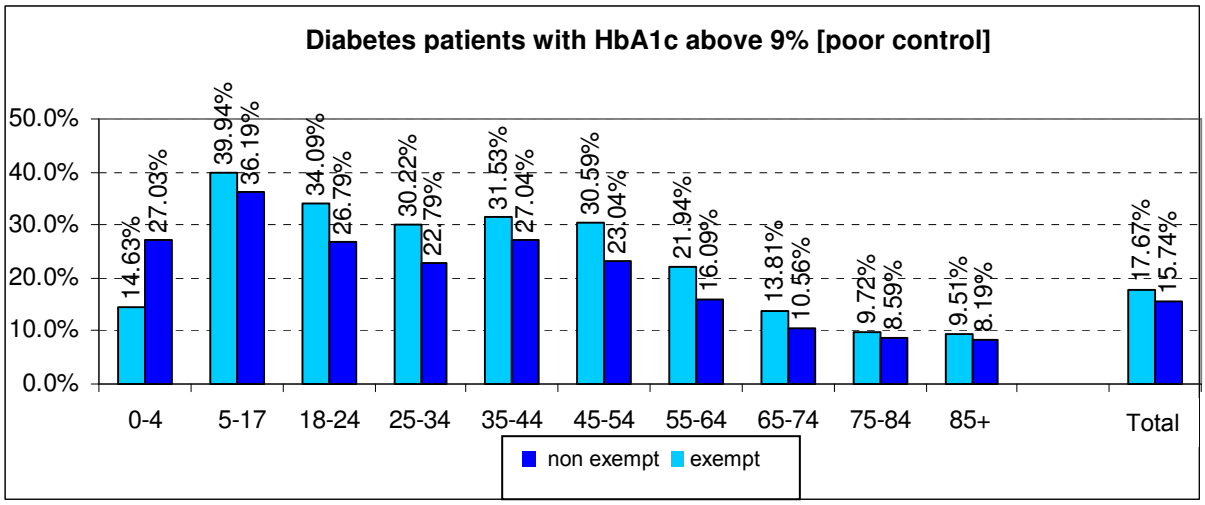


Figure 22: Percentage of patients with HbA1c level above 9%, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	14.63%	27.03%	20.51%	6	10	16	41	37	78
5-17	39.94%	36.19%	37.05%	131	401	532	328	1,108	1,436
18-24	34.09%	26.79%	27.73%	60	318	378	176	1,187	1,363
25-34	30.22%	22.79%	23.92%	168	704	872	556	3,089	3,645
35-44	31.53%	27.04%	27.91%	699	2,486	3,185	2,217	9,194	11,411
45-54	30.59%	23.04%	24.82%	2,729	6,670	9,399	8,920	28,949	37,869
55-64	21.94%	16.09%	18.25%	4,824	6,034	10,858	21,986	37,509	59,495
65-74	13.81%	10.56%	12.05%	4,195	3,790	7,985	30,376	35,875	66,251
75-84	9.72%	8.59%	9.03%	1,476	2,057	3,533	15,181	23,937	39,118
85+	9.51%	8.19%	8.68%	220	315	535	2,313	3,848	6,161
Total	17.67%	15.74%	16.44%	14,508	22,785	37,293	82,094	144,733	226,827



1.4 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.

Main Findings:

- According to the HMO data, in 2005 approximately 46,351 diabetes patients were treated with insulin (18.3% of the total number of diabetes patients). Among the patients whose HbA1c level was above 9.0%, approximately 39.6% 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 deceases with age, from approximately 100% in children to approximately 32% in the elderly (Figure 23). The rate of patients treated with insulin in this group was 36.9% for men and 42.1% for women.
- In 2005, the rate of uncontrolled patients treated with insulin among insured individuals exempt from NII payments was 45.9%, compared to 35.6% 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 examination year (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
0-4	100.00%	100.00%	100.00%	13	18	16	13	18	16
5-17	98.83%	99.61%	99.81%	424	508	531	429	510	532
18-24	95.04%	93.02%	94.44%	268	320	357	282	344	378
25-34	63.29%	63.52%	65.48%	469	545	571	741	858	872
35-44	35.74%	37.81%	41.38%	972	1,180	1,318	2,720	3,121	3,185
45-54	29.46%	31.49%	36.09%	2,457	2,982	3,392	8,340	9,471	9,399
55-64	29.86%	33.57%	36.95%	2,937	3,589	4,012	9,836	10,690	10,858
65-74	32.37%	34.80%	38.92%	2,487	2,887	3,108	7,683	8,296	7,985
75-84	32.80%	33.58%	36.48%	1,021	1,191	1,289	3,113	3,547	3,533
85+	23.52%	31.67%	31.78%	103	152	170	438	480	535
Total	33.19%	35.82%	39.59%	11,151	13,372	14,764	33,595	37,335	37,293

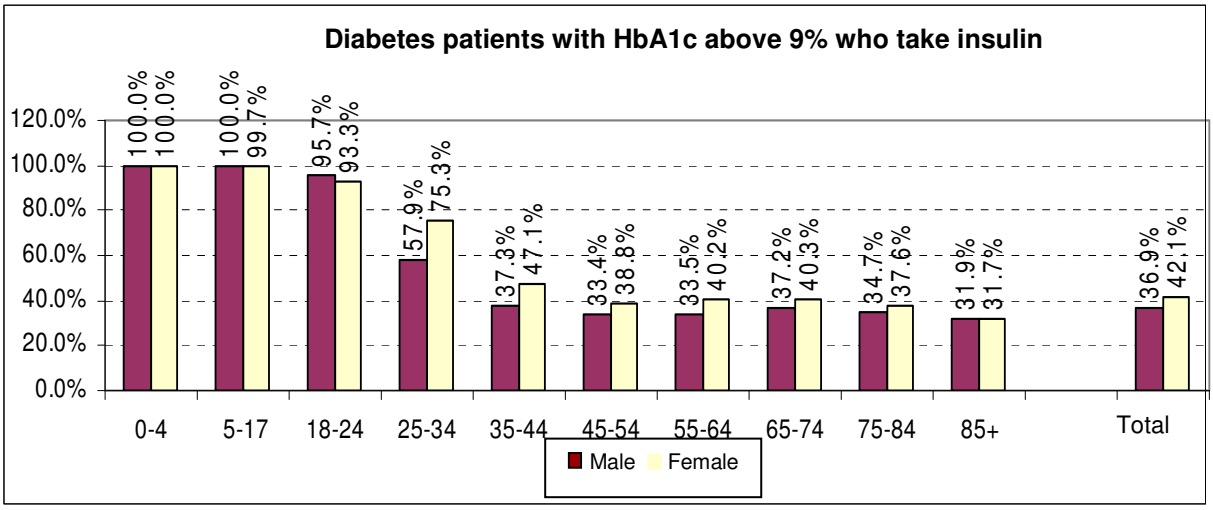
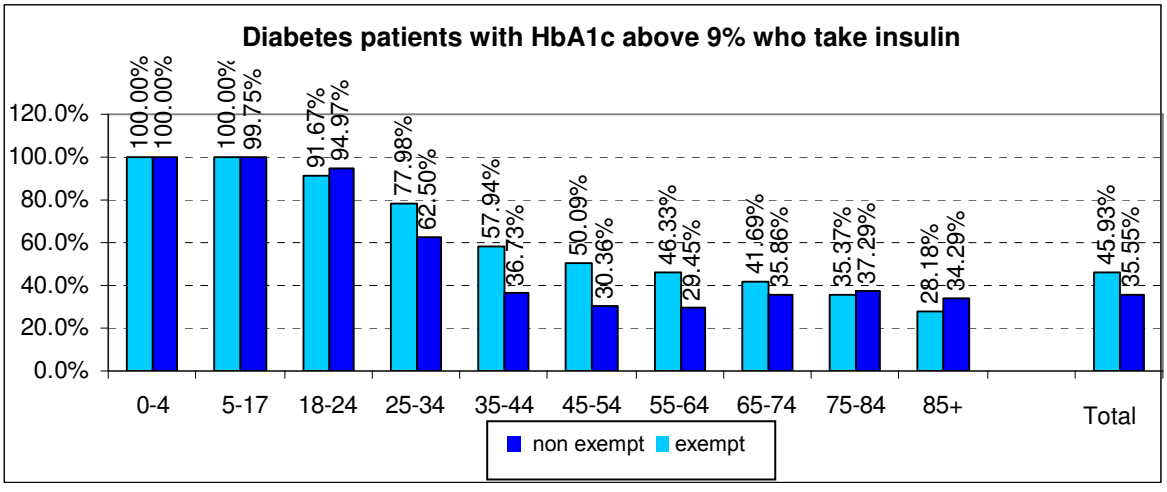


Figure 24: Percentage of patients treated with insulin among diabetes patients with HbA1c level above 9.0%, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	100.00%	100.00%	100.00%	6	10	16	6	10	16
5-17	100.00%	99.75%	99.81%	131	400	531	131	401	532
18-24	91.67%	94.97%	94.44%	55	302	357	60	318	378
25-34	77.98%	62.50%	65.48%	131	440	571	168	704	872
35-44	57.94%	36.73%	41.38%	405	913	1,318	699	2,486	3,185
45-54	50.09%	30.36%	36.09%	1,367	2,025	3,392	2,729	6,670	9,399
55-64	46.33%	29.45%	36.95%	2,235	1,777	4,012	4,824	6,034	10,858
65-74	41.69%	35.86%	38.92%	1,749	1,359	3,108	4,195	3,790	7,985
75-84	35.37%	37.29%	36.48%	522	767	1,289	1,476	2,057	3,533
85+	28.18%	34.29%	31.78%	62	108	170	220	315	535
Total	45.93%	35.55%	39.59%	6,663	8,101	14,764	14,508	22,785	37,293



2. 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 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].

2.1 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 2005, lipidograms were performed on 86.9% 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 HEDIS 2005 Report found a 91.0% - 93.5% 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 year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
0-4	25.00%	32.65%	28.07%	21	32	32	84	98	114
5-17	43.66%	57.81%	61.06%	668	959	1,085	1,530	1,659	1,777
18-24	60.41%	68.77%	67.79%	885	1,132	1,168	1,465	1,646	1,723
25-34	69.10%	75.06%	74.28%	2,737	3,229	3,310	3,961	4,302	4,456
35-44	76.54%	79.82%	80.36%	8,908	9,951	10,480	11,638	12,467	13,042
45-54	81.38%	84.36%	84.35%	30,810	34,021	35,927	37,861	40,326	42,595
55-64	85.49%	87.88%	88.23%	48,248	53,430	57,734	56,439	60,802	65,436
65-74	87.50%	89.92%	90.30%	56,969	62,031	65,250	65,105	68,986	72,256
75-84	84.05%	86.66%	88.08%	31,296	35,380	38,894	37,233	40,826	44,157
85+	72.96%	76.40%	80.02%	4,538	5,193	6,143	6,220	6,797	7,677
Total	83.54%	86.32%	86.89%	185,080	205,358	220,023	221,536	237,909	253,233

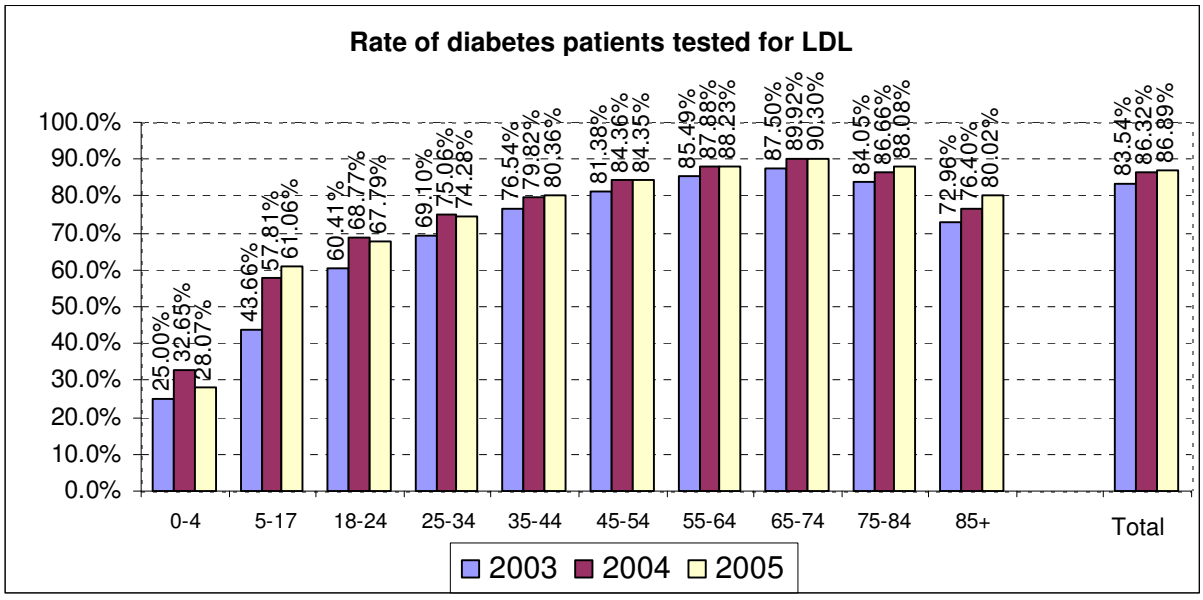
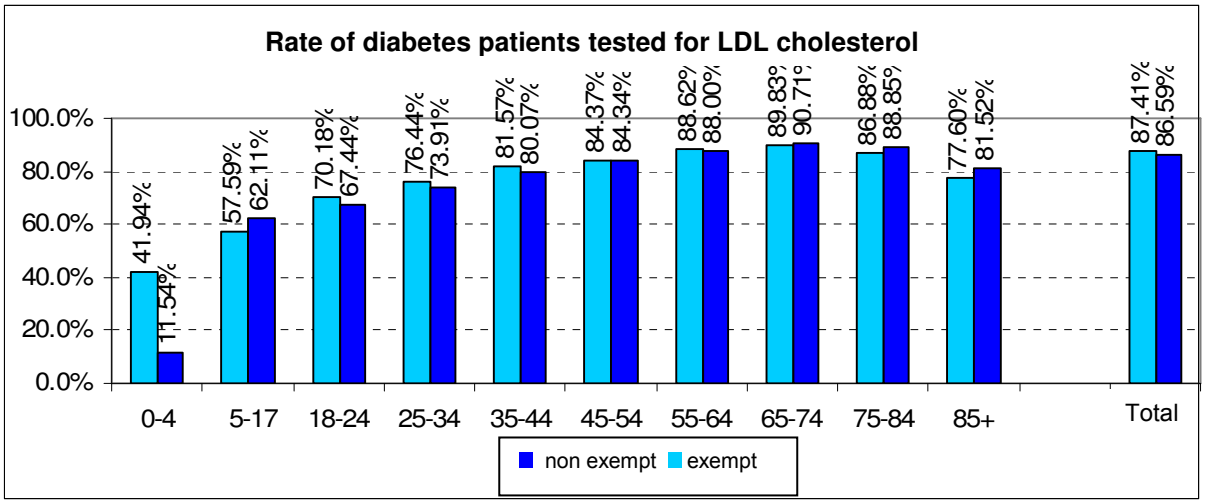


Figure 26: Rate of lipidograms performed at least once a year, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	41.94%	11.54%	28.07%	26	6	32	62	52	114
5-17	57.59%	62.11%	61.06%	239	846	1,085	415	1,362	1,777
18-24	70.18%	67.44%	67.79%	153	1,015	1,168	218	1,505	1,723
25-34	76.44%	73.91%	74.28%	503	2,807	3,310	658	3,798	4,456
35-44	81.57%	80.07%	80.36%	2,053	8,427	10,480	2,517	10,525	13,042
45-54	84.37%	84.34%	84.35%	8,497	27,430	35,927	10,071	32,524	42,595
55-64	88.62%	88.00%	88.23%	21,435	36,299	57,734	24,188	41,248	65,436
65-74	89.83%	90.71%	90.30%	29,887	35,363	65,250	33,271	38,985	72,256
75-84	86.88%	88.85%	88.08%	14,997	23,897	38,894	17,261	26,896	44,157
85+	77.60%	81.52%	80.02%	2,279	3,864	6,143	2,937	4,740	7,677
Total	87.41%	86.59%	86.89%	80,069	139,954	220,023	91,598	161,635	253,233



2.2 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 2005, the rate of patients with an LDL cholesterol level below 130 mg/dl was 79.8%. 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 (82.4%) than women (77.5%). According to the HEDIS 2005 Report, there was a 64.8% - 71.4% performance rate for this indicator, depending on the type of insurance and age of the insured [1].
- In 2005, the rate of patients with an LDL cholesterol level below 130 mg/dl among insured individuals exempt from NII payments was 78.2%, compared to 80.7% among the rest of the Insured (Figure 28). In the HEDIS 2005 Report, the rate of performance for individuals eligible for federal assistance in the US was only 51.0%.

Figure 27: Percentage of diabetes patients with LDL cholesterol level below 130 mg/dl, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
0-4	90.48%	96.88%	90.63%	19	31	29	21	32	32
5-17	87.87%	88.22%	88.11%	587	846	956	668	959	1,085
18-24	84.86%	85.42%	85.19%	751	967	995	885	1,132	1,168
25-34	77.20%	77.58%	77.55%	2,113	2,505	2,567	2,737	3,229	3,310
35-44	72.22%	72.40%	75.37%	6,433	7,205	7,899	8,908	9,951	10,480
45-54	70.98%	73.25%	76.16%	21,868	24,921	27,361	30,810	34,021	35,927
55-64	73.62%	76.75%	79.58%	35,522	41,005	45,945	48,248	53,430	57,734
65-74	76.17%	79.45%	82.31%	43,394	49,284	53,710	56,969	62,031	65,250
75-84	74.31%	78.29%	80.98%	23,255	27,700	31,495	31,296	35,380	38,894
85+	70.60%	73.31%	76.23%	3,204	3,807	4,683	4,538	5,193	6,143
Total	74.10%	77.07%	79.83%	137,146	158,271	175,640	185,080	205,358	220,023

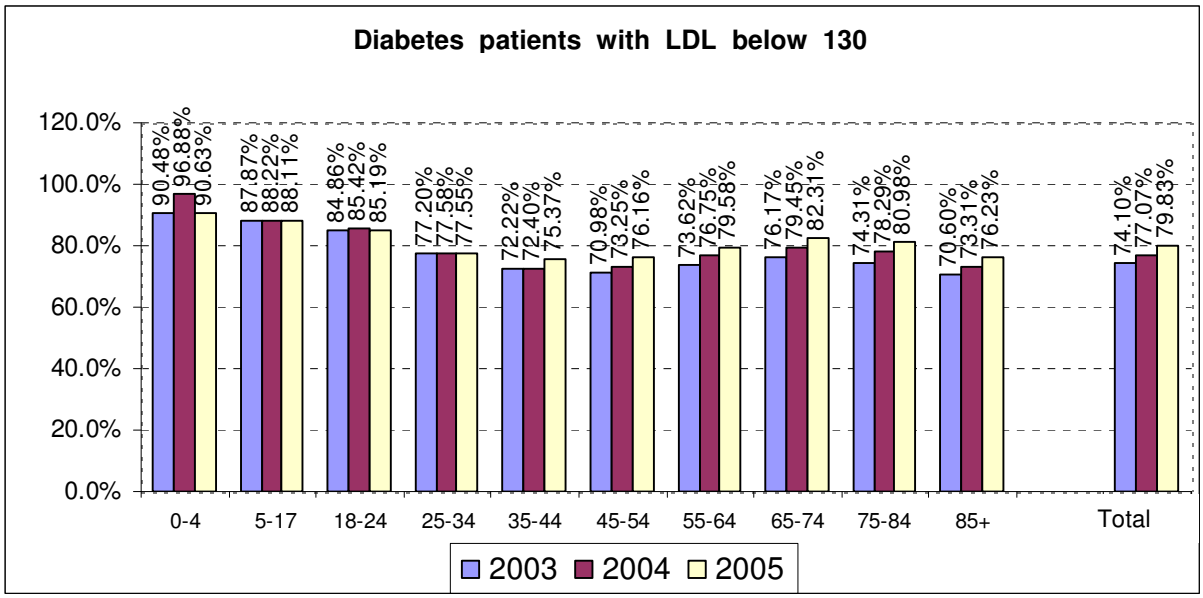
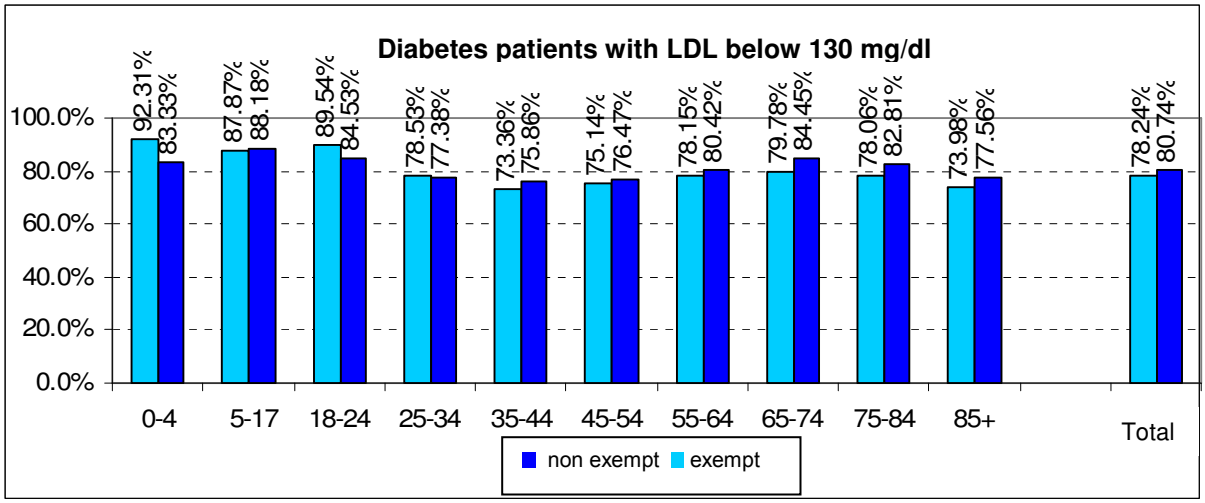


Figure 28: Percentage of diabetes patients with LDL cholesterol level below 130 mg/dl, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	92.31%	83.33%	90.63%	24	5	29	26	6	32
5-17	87.87%	88.18%	88.11%	210	746	956	239	846	1,085
18-24	89.54%	84.53%	85.19%	137	858	995	153	1,015	1,168
25-34	78.53%	77.38%	77.55%	395	2,172	2,567	503	2,807	3,310
35-44	73.36%	75.86%	75.37%	1,506	6,393	7,899	2,053	8,427	10,480
45-54	75.14%	76.47%	76.16%	6,385	20,976	27,361	8,497	27,430	35,927
55-64	78.15%	80.42%	79.58%	16,752	29,193	45,945	21,435	36,299	57,734
65-74	79.78%	84.45%	82.31%	23,845	29,865	53,710	29,887	35,363	65,250
75-84	78.06%	82.81%	80.98%	11,707	19,788	31,495	14,997	23,897	38,894
85+	73.98%	77.56%	76.23%	1,686	2,997	4,683	2,279	3,864	6,143
Total	78.24%	80.74%	79.83%	62,647	112,993	175,640	80,069	139,954	220,023



3.3 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 2005, the rate of patients with an LDL cholesterol level below 100 mg/dl was 47.8%. This reflects continued improvement, at an impressive annual rate of 4% (absolute). 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. According to the HEDIS 2005 Report, there was a 40.2% - 47.5% 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, 51.3% compared to 44.6%, respectively. In the opinion of experts, this difference is significant.
- In 2005, no significant difference was found in the control of LDL cholesterol levels below 100 mg/dl among insured individuals exempt from NII payments. 46.8% among insured individuals exempt from payments were controlled as opposed to 48.3% among the rest of the patients (Figure 30). In the HEDIS 2005 Report, the rate of performance for individuals eligible for federal assistance in the US was only 30.5%.

Figure 29: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	52.38%	68.75%	50.00%	11	22	16	21	32	32
5-17	60.18%	62.98%	57.60%	402	604	625	668	959	1,085
18-24	58.31%	56.71%	56.93%	516	642	665	885	1,132	1,168
25-34	42.49%	41.44%	42.66%	1,163	1,338	1,412	2,737	3,229	3,310
35-44	37.29%	38.45%	40.22%	3,322	3,826	4,215	8,908	9,951	10,480
45-54	35.63%	39.13%	42.43%	10,977	13,312	15,245	30,810	34,021	35,927
55-64	38.54%	42.78%	47.35%	18,596	22,855	27,335	48,248	53,430	57,734
65-74	41.12%	46.01%	51.38%	23,424	28,540	33,524	56,969	62,031	65,250
75-84	40.20%	44.69%	50.11%	12,581	15,811	19,491	31,296	35,380	38,894
85+	35.43%	39.26%	42.63%	1,608	2,039	2,619	4,538	5,193	6,143
Total	39.23%	43.33%	47.79%	72,600	88,989	105,147	185,080	205,358	220,023

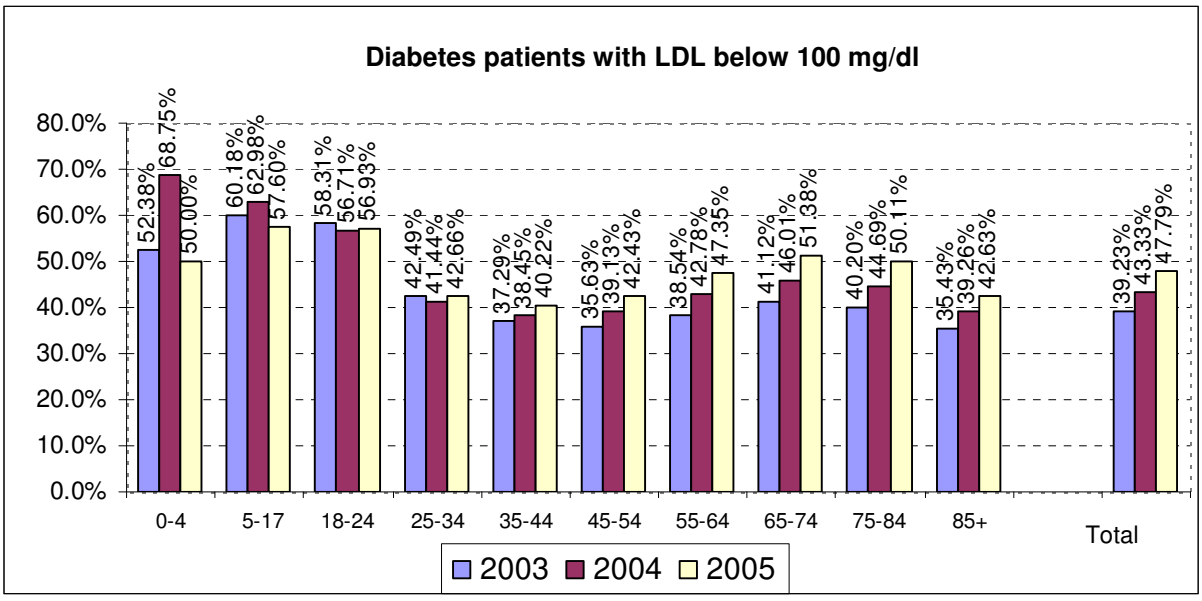
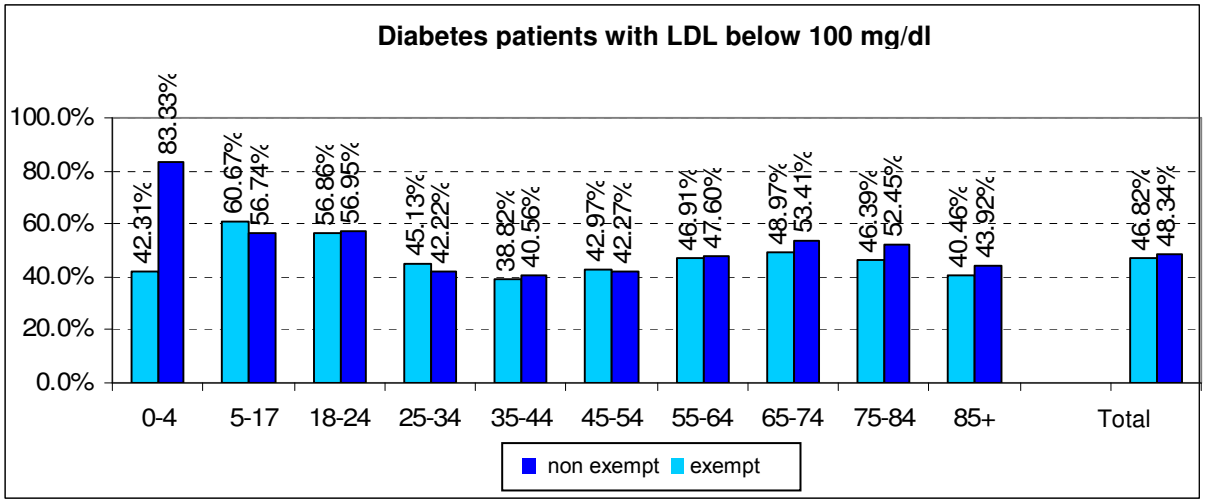


Figure 30: Percentage of diabetes patients with LDL cholesterol level below 100 mg/dl, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	42.31%	83.33%	50.00%	11	5	16	26	6	32
5-17	60.67%	56.74%	57.60%	145	480	625	239	846	1,085
18-24	56.86%	56.95%	56.93%	87	578	665	153	1,015	1,168
25-34	45.13%	42.22%	42.66%	227	1,185	1,412	503	2,807	3,310
35-44	38.82%	40.56%	40.22%	797	3,418	4,215	2,053	8,427	10,480
45-54	42.97%	42.27%	42.43%	3,651	11,594	15,245	8,497	27,430	35,927
55-64	46.91%	47.60%	47.35%	10,055	17,280	27,335	21,435	36,299	57,734
65-74	48.97%	53.41%	51.38%	14,635	18,889	33,524	29,887	35,363	65,250
75-84	46.39%	52.45%	50.11%	6,957	12,534	19,491	14,997	23,897	38,894
85+	40.46%	43.92%	42.63%	922	1,697	2,619	2,279	3,864	6,143
Total	46.82%	48.34%	47.79%	37,487	67,660	105,147	80,069	139,954	220,023



3. 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 periodic 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, 59.1% of patients had an eye examination in 2005. This rate is a slight improvement over previous years (Figure 31). According to the HEDIS 2005 Report, there was a 51.0% - 67.1% performance rate for this indicator, depending on the type of insurance and age of the insured [1].
- The rate of examination for men was somewhat lower than for women. 57.2% compared to 60.9%, respectively.
- In 2005, the rate of patients who had an eye examination among the insured individuals exempt from NII payments was 60.4% compared to 58.4% among the rest of insured individuals (Figure 32). In the HEDIS 2005 Report, the rate of performance for individuals eligible for federal assistance in the US was only 44.9%.

Figure 31: Rate of eye examinations performed at least once a year, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	32.14%	30.61%	31.58%	27	30	36	84	98	114
5-17	54.18%	53.16%	55.77%	829	882	991	1,530	1,659	1,777
18-24	48.74%	51.52%	49.68%	714	848	856	1,465	1,646	1,723
25-34	47.66%	48.54%	48.59%	1,888	2,088	2,165	3,961	4,302	4,456
35-44	47.41%	48.55%	49.98%	5,517	6,053	6,518	11,638	12,467	13,042
45-54	50.27%	50.83%	52.76%	19,031	20,499	22,475	37,861	40,326	42,595
55-64	56.61%	57.67%	58.90%	31,952	35,064	38,545	56,439	60,802	65,436
65-74	62.50%	64.02%	65.52%	40,693	44,163	47,340	65,105	68,986	72,256
75-84	58.26%	60.07%	61.47%	21,693	24,526	27,144	37,233	40,826	44,157
85+	45.16%	45.42%	46.79%	2,809	3,087	3,592	6,220	6,797	7,677
Total	56.49%	57.69%	59.10%	125,153	137,240	149,662	221,536	237,909	253,233

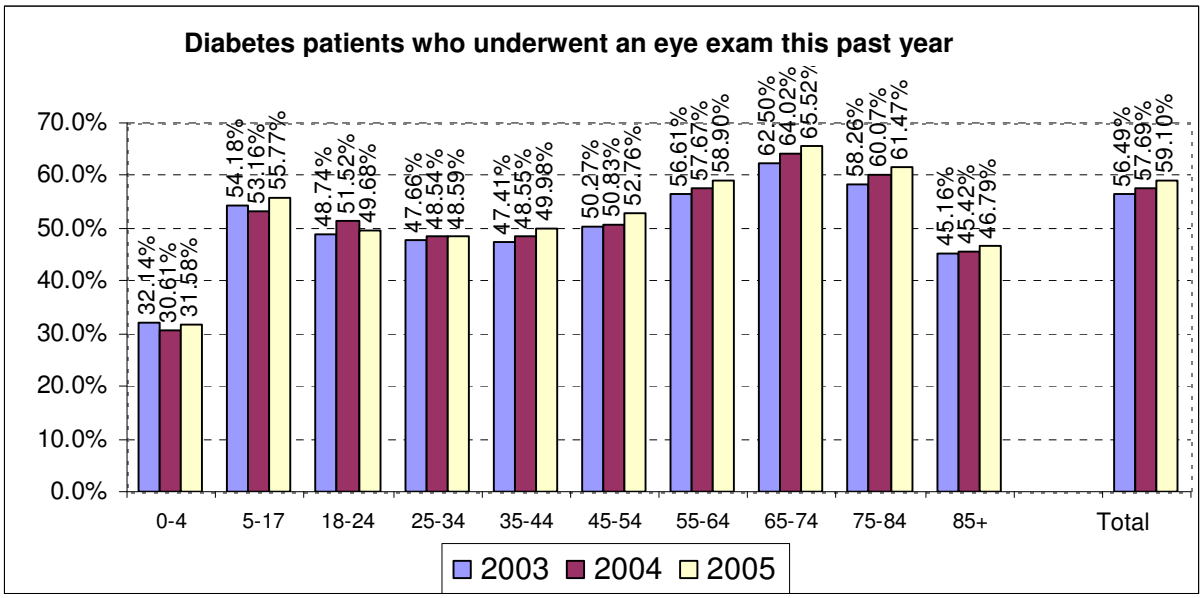
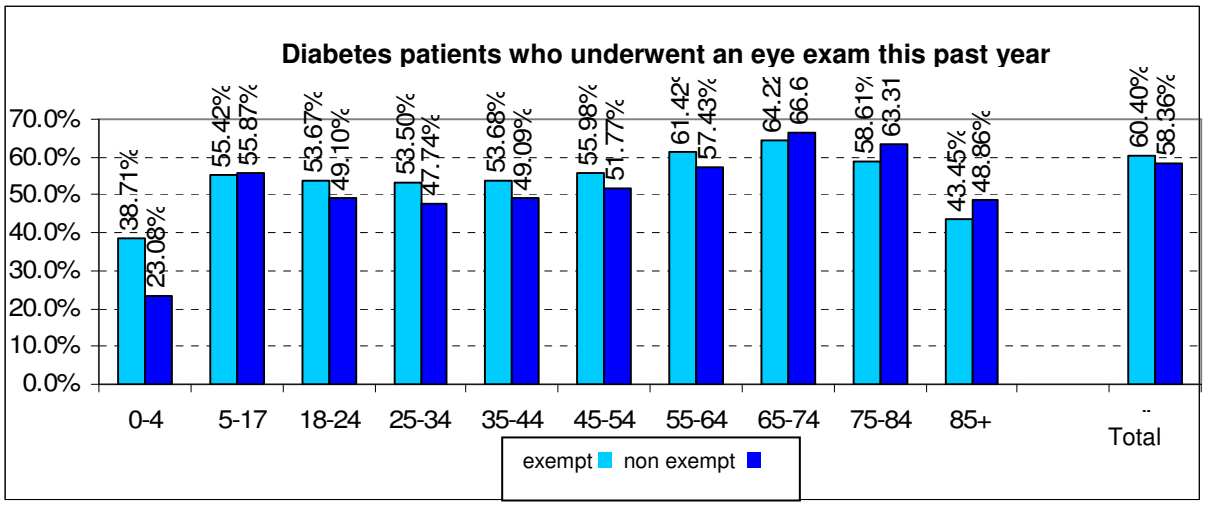


Figure 32: Rate of eye examinations performed at least once a year, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	38.71%	23.08%	31.58%	24	12	36	62	52	114
5-17	55.42%	55.87%	55.77%	230	761	991	415	1,362	1,777
18-24	53.67%	49.10%	49.68%	117	739	856	218	1,505	1,723
25-34	53.50%	47.74%	48.59%	352	1,813	2,165	658	3,798	4,456
35-44	53.68%	49.09%	49.98%	1,351	5,167	6,518	2,517	10,525	13,042
45-54	55.98%	51.77%	52.76%	5,638	16,837	22,475	10,071	32,524	42,595
55-64	61.42%	57.43%	58.90%	14,857	23,688	38,545	24,188	41,248	65,436
65-74	64.22%	66.63%	65.52%	21,365	25,975	47,340	33,271	38,985	72,256
75-84	58.61%	63.31%	61.47%	10,117	17,027	27,144	17,261	26,896	44,157
85+	43.45%	48.86%	46.79%	1,276	2,316	3,592	2,937	4,740	7,677
Total	60.40%	58.36%	59.10%	55,327	94,335	149,662	91,598	161,635	253,233



4. 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, 55.7% of patients were tested in 2005. This figure indicates 43% improvement over 2003 in all age groups (Figure 33). According to the HEDIS 2005 Report, there was a 52.0% - 58.5% 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 year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
0-4	21.43%	19.39%	21.93%	18	19	25	84	98	114
5-17	34.71%	42.68%	47.10%	531	708	837	1,530	1,659	1,777
18-24	34.74%	43.80%	50.49%	509	721	870	1,465	1,646	1,723
25-34	39.69%	48.84%	52.33%	1,572	2,101	2,332	3,961	4,302	4,456
35-44	41.87%	51.14%	55.98%	4,873	6,376	7,301	11,638	12,467	13,042
45-54	41.89%	51.95%	57.49%	15,860	20,951	24,488	37,861	40,326	42,595
55-64	42.73%	53.37%	59.41%	24,117	32,450	38,873	56,439	60,802	65,436
65-74	39.56%	50.47%	57.89%	25,754	34,818	41,830	65,105	68,986	72,256
75-84	30.96%	41.18%	49.32%	11,528	16,812	21,778	37,233	40,826	44,157
85+	20.21%	27.01%	34.26%	1,257	1,836	2,630	6,220	6,797	7,677
Total	38.83%	49.09%	55.67%	86,019	116,792	140,964	221,536	237,909	253,233

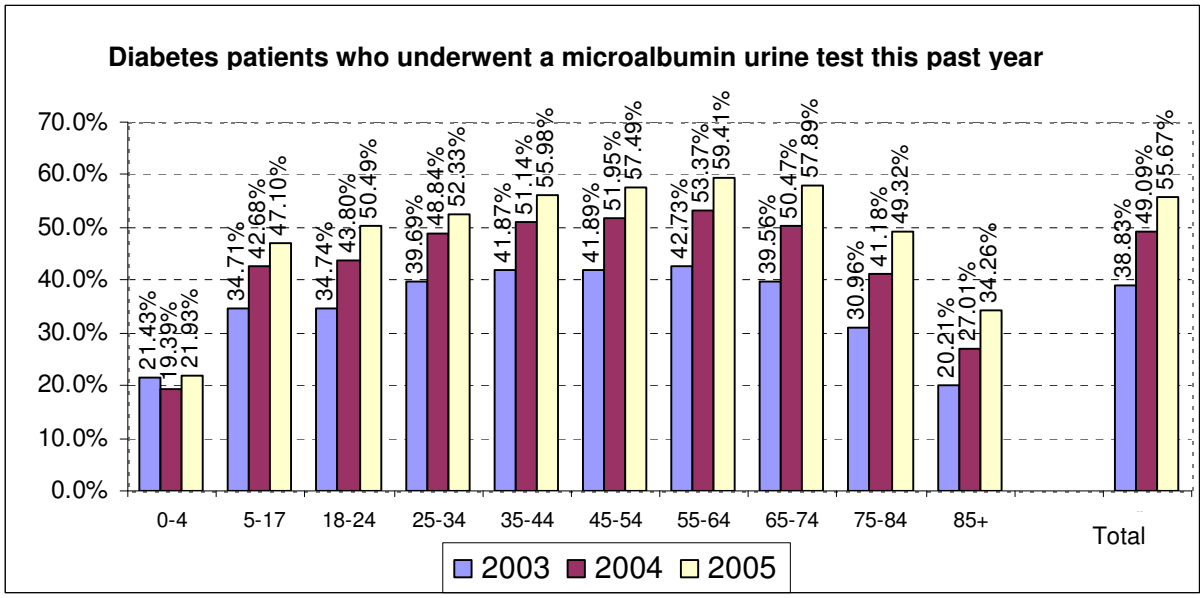
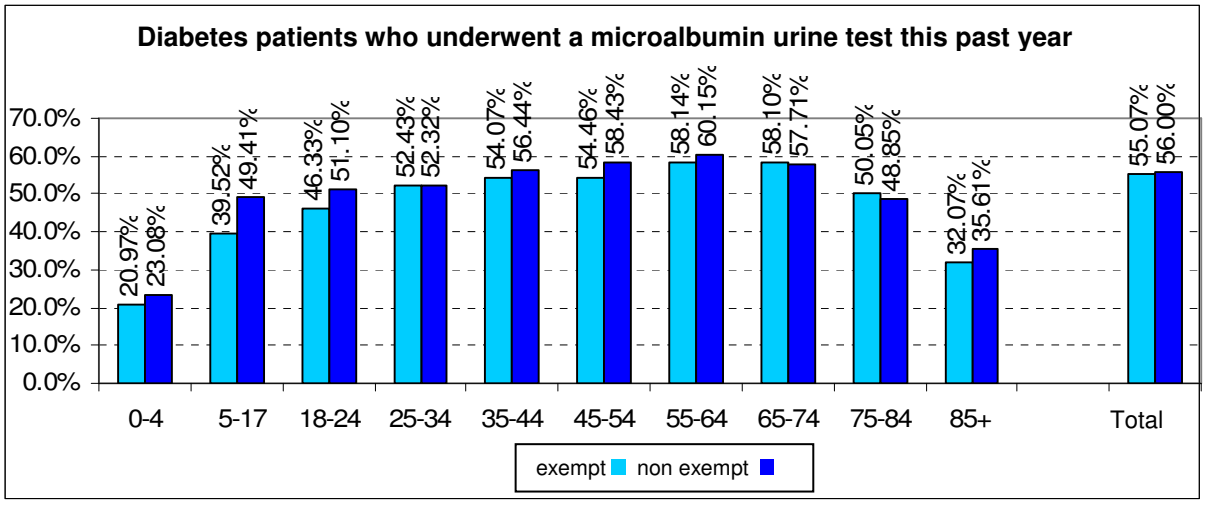


Figure 34: Rate of performance of albumin/microalbumin in urine test at least once a year, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
0-4	20.97%	23.08%	21.93%	13	12	25	62	52	114
5-17	39.52%	49.41%	47.10%	164	673	837	415	1,362	1,777
18-24	46.33%	51.10%	50.49%	101	769	870	218	1,505	1,723
25-34	52.43%	52.32%	52.33%	345	1,987	2,332	658	3,798	4,456
35-44	54.07%	56.44%	55.98%	1,361	5,940	7,301	2,517	10,525	13,042
45-54	54.46%	58.43%	57.49%	5,485	19,003	24,488	10,071	32,524	42,595
55-64	58.14%	60.15%	59.41%	14,063	24,810	38,873	24,188	41,248	65,436
65-74	58.10%	57.71%	57.89%	19,331	22,499	41,830	33,271	38,985	72,256
75-84	50.05%	48.85%	49.32%	8,639	13,139	21,778	17,261	26,896	44,157
85+	32.07%	35.61%	34.26%	942	1,688	2,630	2,937	4,740	7,677
Total	55.07%	56.00%	55.67%	50,444	90,520	140,964	91,598	161,635	253,233



5. Rate of flu vaccination for diabetes patients

Definition of the indicator:

The percentage of 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, 46.9% of diabetes patients were vaccinated against the flu in 2005. This finding continues the improvement trend we have seen each year and in each age group (Figure 35) and without sex-related differences.
- The rate of flu vaccination among diabetes patients increases with age, reaching its peak at 75+ - 58%.
- In 2005, the number of patients up to the age of 65 exempt from NII payments who received flu shots was greater than that among patients without an exemption, while after the age of 65 the trend reversed itself and fewer exempt patients were vaccinated, although the differences were minor. In total, 48.3% of those exempt from NII payments were vaccinated compared to 46.1% of the other insured individuals (Figure 36).

Figure 35: Rate of flu vaccination among diabetes patients by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
18-24	16.72%	21.39%	25.77%	245	352	444	1,465	1,646	1,723
25-34	16.26%	20.60%	26.73%	644	886	1,191	3,961	4,302	4,456
35-44	17.79%	23.21%	28.41%	2,070	2,894	3,705	11,638	12,467	13,042
45-54	23.60%	26.77%	32.87%	8,937	10,794	14,003	37,861	40,326	42,595
55-64	34.35%	38.14%	43.82%	19,388	23,191	28,677	56,439	60,802	65,436
65-74	47.90%	52.11%	54.86%	31,183	35,951	39,640	65,105	68,986	72,256
75-84	51.89%	56.08%	58.49%	19,319	22,894	25,827	37,233	40,826	44,157
85+	49.23%	55.02%	57.59%	3,062	3,740	4,421	6,220	6,797	7,677
Total	38.58%	42.64%	46.91%	84,848	100,702	117,908	219,922	236,152	251,342

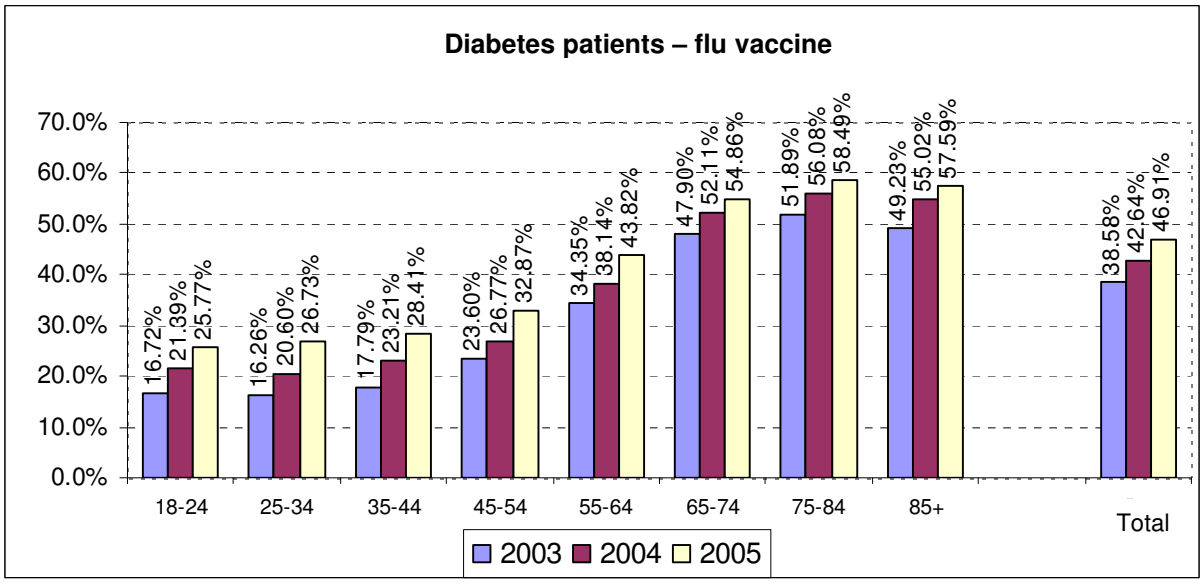
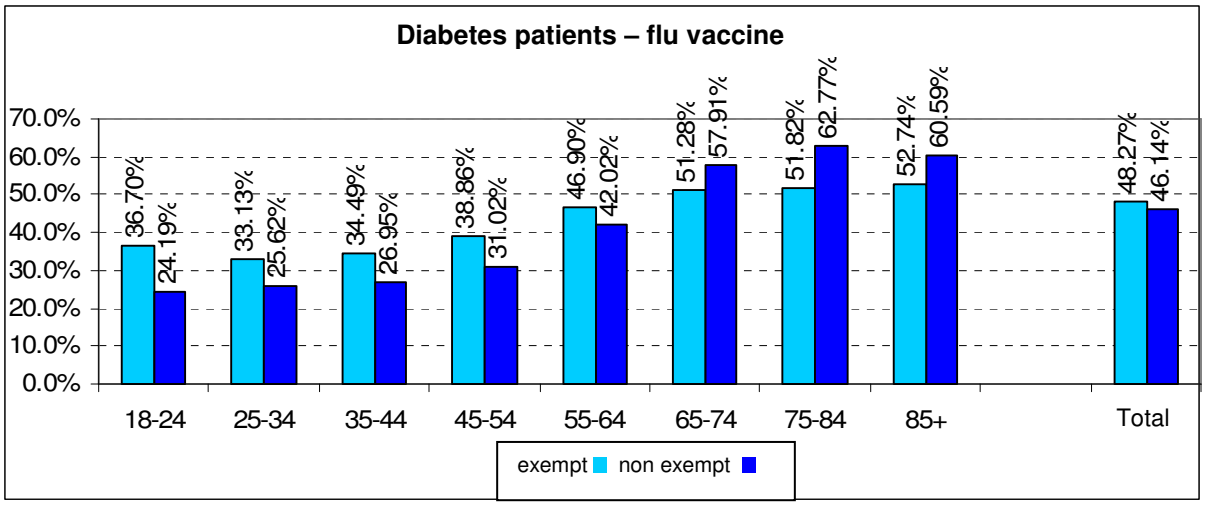


Figure 36: Rate of flu vaccination among diabetes patients in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	36.70%	24.19%	25.77%	80	364	444	218	1,505	1,723
25-34	33.13%	25.62%	26.73%	218	973	1,191	658	3,798	4,456
35-44	34.49%	26.95%	28.41%	868	2,837	3,705	2,517	10,525	13,042
45-54	38.86%	31.02%	32.87%	3,914	10,089	14,003	10,071	32,524	42,595
55-64	46.90%	42.02%	43.82%	11,344	17,333	28,677	24,188	41,248	65,436
65-74	51.28%	57.91%	54.86%	17,063	22,577	39,640	33,271	38,985	72,256
75-84	51.82%	62.77%	58.49%	8,945	16,882	25,827	17,261	26,896	44,157
85+	52.74%	60.59%	57.59%	1,549	2,872	4,421	2,937	4,740	7,677
Total	48.27%	46.14%	46.91%	43,981	73,927	117,908	91,121	160,221	251,342



6. Weight gain in diabetes: Documentation of height and weight

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. At this stage of the Indicators Program, we decided to report only on the level of documentation, hoping that the improvement over the next year or two will facilitate this calculation and reporting on obesity among diabetes patients.

6.1 Documentation of weight

Definition of the indicator:

Diabetes patients aged 18-85 who were weighed at least once a year.

Main Findings:

- In 2005, weight was documented for 44.4% 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 35-44 and increases with age (Figure 37).

- Documentation of weight is higher for women (45.7%) than for men (43.1%), with no difference by status of exemption from NII payments (Figure 38).
- The current level of documentation is insufficient to calculate overall obesity among diabetes patients.

Figure 37: Rate of weight documentation, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
18-24	22.73%	28.01%	35.75%	333	461	616	1,465	1,646	1,723
25-34	31.28%	37.28%	43.42%	1,239	1,604	1,935	3,961	4,302	4,456
35-44	36.12%	41.46%	47.22%	4,204	5,169	6,159	11,638	12,467	13,042
45-54	36.19%	40.08%	46.07%	13,701	16,162	19,622	37,861	40,326	42,595
55-64	38.04%	41.24%	46.83%	21,471	25,076	30,644	56,439	60,802	65,436
65-74	37.71%	40.52%	46.21%	24,548	27,950	33,388	65,105	68,986	72,256
75-84	31.74%	34.29%	39.11%	11,816	13,999	17,268	37,233	40,826	44,157
85+	19.66%	22.26%	26.14%	1,223	1,513	2,007	6,220	6,797	7,677
Total	35.71%	38.93%	44.42%	78,535	91,934	111,639	219,922	236,152	251,342

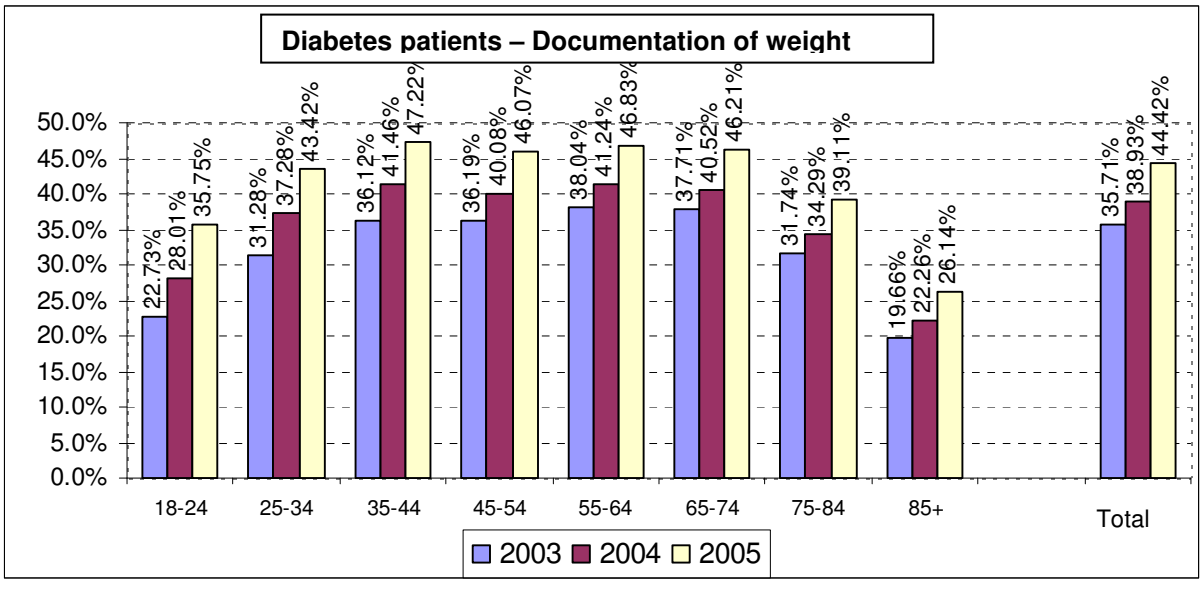
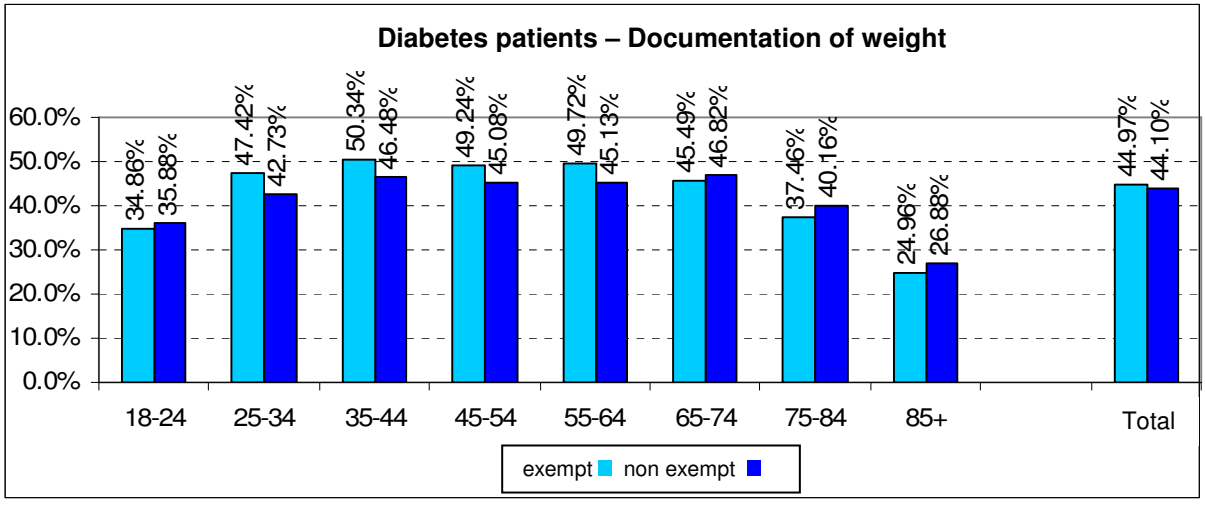


Figure 38: Rate of weight documentation in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	34.86%	35.88%	35.75%	76	540	616	218	1,505	1,723
25-34	47.42%	42.73%	43.42%	312	1,623	1,935	658	3,798	4,456
35-44	50.34%	46.48%	47.22%	1,267	4,892	6,159	2,517	10,525	13,042
45-54	49.24%	45.08%	46.07%	4,959	14,663	19,622	10,071	32,524	42,595
55-64	49.72%	45.13%	46.83%	12,027	18,617	30,644	24,188	41,248	65,436
65-74	45.49%	46.82%	46.21%	15,136	18,252	33,388	33,271	38,985	72,256
75-84	37.46%	40.16%	39.11%	6,466	10,802	17,268	17,261	26,896	44,157
85+	24.96%	26.88%	26.14%	733	1,274	2,007	2,937	4,740	7,677
Total	44.97%	44.10%	44.42%	40,976	70,663	111,639	91,121	160,221	251,342



6.2 Documentation of height

Definition of the indicator:

Diabetes patients aged 18-85 whose height has been documented at least once in the past five years.

Main Findings:

- In 2005, height, as defined above, was documented for 55.0% 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 35-44 and decreased with age (Figure 39).
- No significant difference in performance rate was found by the sex of the patients or status of exemption from NII payments (Figure 40).
- The current documentation level is insufficient for calculating addition indicators for diabetes patients.

Figure 39: Rate of height documentation, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
18-24	19.60%	28.80%	43.50%	237	402	653	1,209	1,396	1,501
25-34	25.74%	39.68%	52.06%	931	1,576	2,152	3,617	3,972	4,134
35-44	30.29%	44.99%	58.22%	3,299	5,302	7,242	10,892	11,786	12,440
45-54	29.90%	43.88%	57.41%	10,770	16,947	23,542	36,024	38,619	41,010
55-64	30.63%	44.24%	57.56%	16,439	25,828	36,445	53,670	58,375	63,313
65-74	29.56%	43.30%	56.48%	18,335	28,719	39,621	62,021	66,329	70,156
75-84	24.79%	37.48%	49.55%	8,911	14,878	21,423	35,952	39,695	43,239
85+	15.21%	24.85%	35.43%	921	1,655	2,674	6,054	6,659	7,548
Total	28.57%	42.02%	54.96%	59,843	95,307	133,752	209,439	226,831	243,341

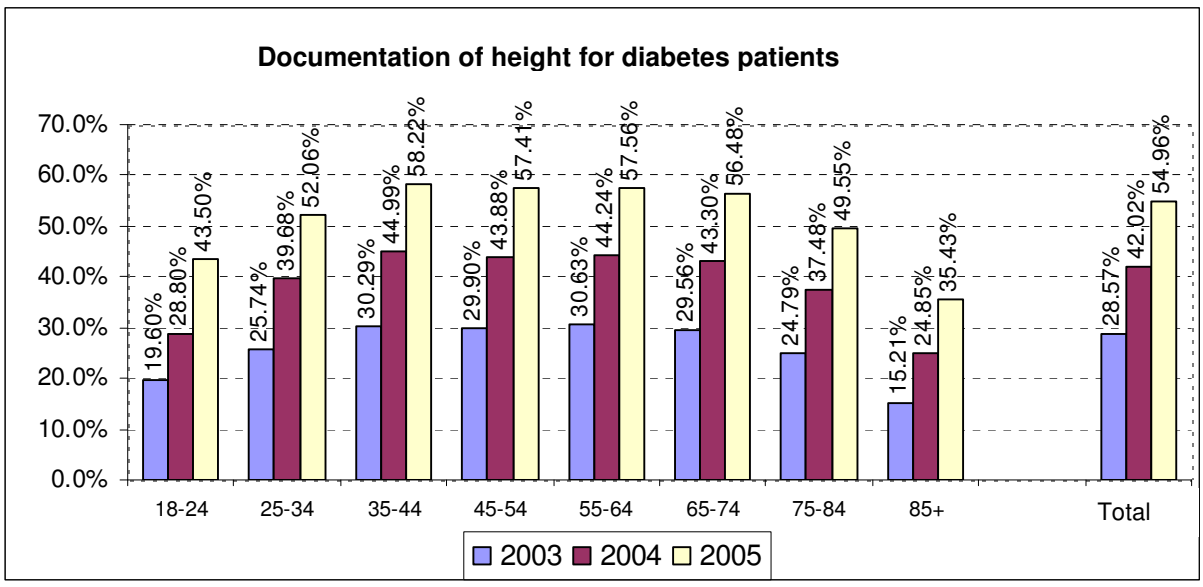
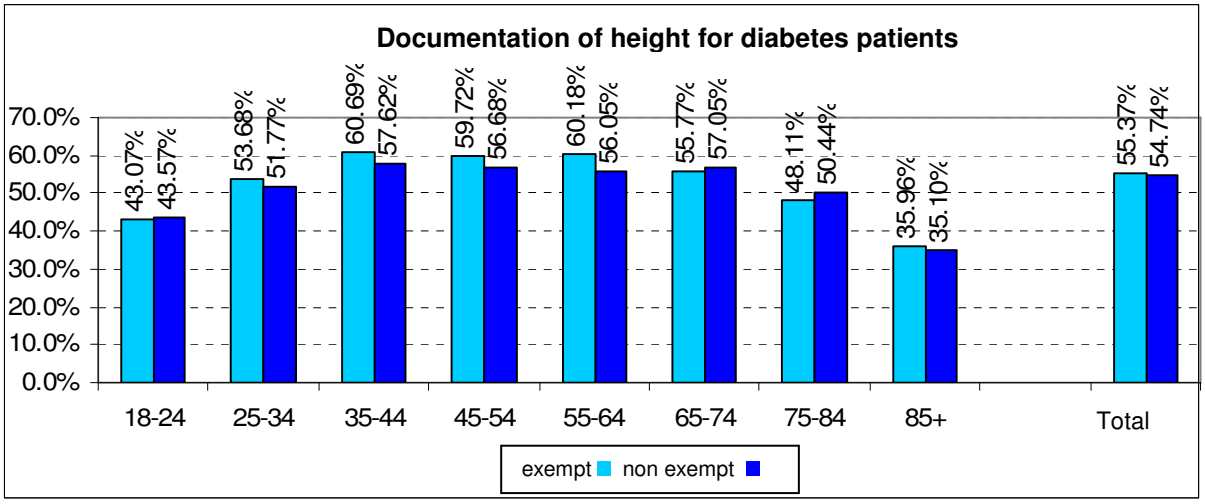


Figure 40: Rate of height documentation, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	43.07%	43.57%	43.50%	87	566	653	202	1,299	1,501
25-34	53.68%	51.77%	52.06%	328	1,824	2,152	611	3,523	4,134
35-44	60.69%	57.62%	58.22%	1,470	5,772	7,242	2,422	10,018	12,440
45-54	59.72%	56.68%	57.41%	5,826	17,716	23,542	9,756	31,254	41,010
55-64	60.18%	56.05%	57.56%	13,963	22,482	36,445	23,202	40,111	63,313
65-74	55.77%	57.05%	56.48%	17,684	21,937	39,621	31,706	38,450	70,156
75-84	48.11%	50.44%	49.55%	8,009	13,414	21,423	16,646	26,593	43,239
85+	35.96%	35.10%	35.43%	1,030	1,644	2,674	2,864	4,684	7,548
Total	55.37%	54.74%	54.96%	48,397	85,355	133,752	87,409	155,932	243,341



7. 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. 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 and documented at least once a year.

Main Findings:

- In 2005, blood pressure values were documented for 75.2% 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 41).
- The level of documentation increases with age, reaching close to 80% documentation in patients aged 65-74.
- The rate of documentation is higher for women (77.0%) than for men (73.2%), but the difference is dependent on the age group.
- The level of documentation is higher among individuals exempt from NII payments (79.1%) than for other patients (73.0%) (Figure 42).

Figure 41: Rate of blood pressure readings among diabetes patients, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
18-24	19.32%	40.34%	44.11%	283	664	760	1,465	1,646	1,723
25-34	28.91%	54.00%	57.27%	1,145	2,323	2,552	3,961	4,302	4,456
35-44	34.16%	63.64%	67.41%	3,976	7,934	8,792	11,638	12,467	13,042
45-54	36.71%	67.58%	71.54%	13,899	27,254	30,473	37,861	40,326	42,595
55-64	39.24%	71.35%	75.32%	22,144	43,380	49,288	56,439	60,802	65,436
65-74	41.57%	75.82%	79.73%	27,062	52,306	57,608	65,105	68,986	72,256
75-84	39.37%	73.88%	77.77%	14,660	30,162	34,340	37,233	40,826	44,157
85+	30.82%	61.60%	67.42%	1,917	4,187	5,176	6,220	6,797	7,677
Total	38.69%	71.23%	75.19%	85,086	168,210	188,989	219,922	236,152	251,342

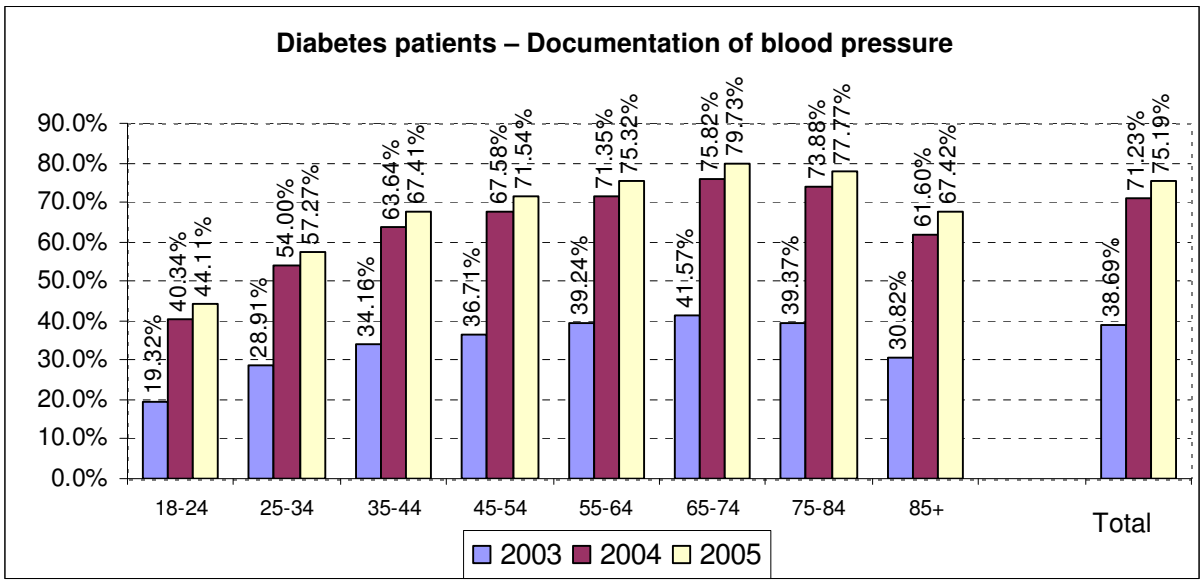
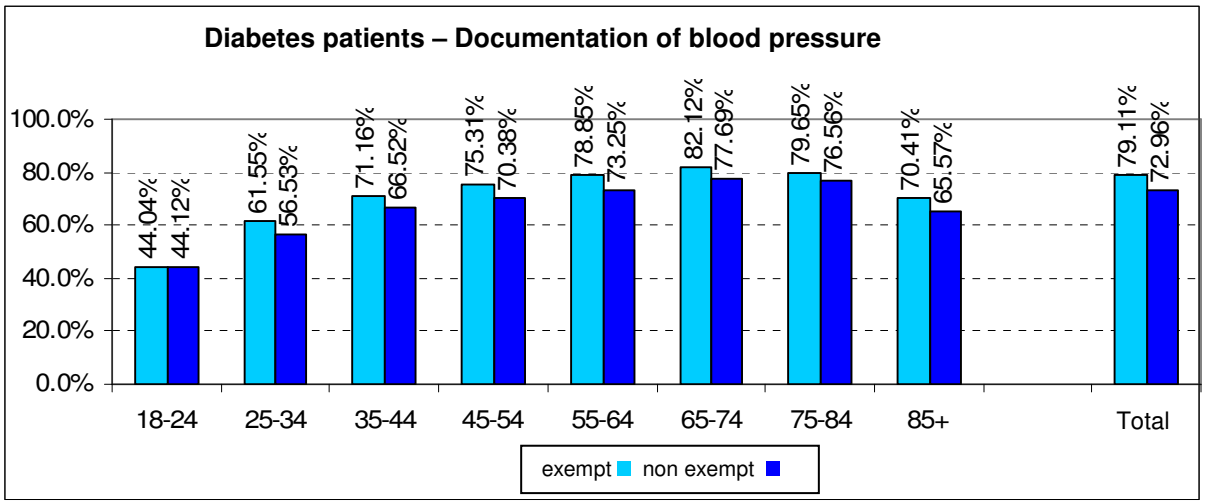


Figure 42: Rate of blood pressure readings among diabetes patients, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	44.04%	44.12%	44.11%	96	664	760	218	1,505	1,723
25-34	61.55%	56.53%	57.27%	405	2,147	2,552	658	3,798	4,456
35-44	71.16%	66.52%	67.41%	1,791	7,001	8,792	2,517	10,525	13,042
45-54	75.31%	70.38%	71.54%	7,584	22,889	30,473	10,071	32,524	42,595
55-64	78.85%	73.25%	75.32%	19,073	30,215	49,288	24,188	41,248	65,436
65-74	82.12%	77.69%	79.73%	27,322	30,286	57,608	33,271	38,985	72,256
75-84	79.65%	76.56%	77.77%	13,748	20,592	34,340	17,261	26,896	44,157
85+	70.41%	65.57%	67.42%	2,068	3,108	5,176	2,937	4,740	7,677
Total	79.11%	72.96%	75.19%	72,087	116,902	188,989	91,121	160,221	251,342



8. 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 2005 blood pressure control targets were achieved in 58.2% of diabetes patients, for whom blood pressure readings are documented (Figure 43). This value is slightly higher than in 2004, a year in which the documentation level of blood pressure enabled us to relate to blood pressure values for the first time.
- No difference was found in the rate of control for men and women.
- The blood pressure control target was achieved in 56.8% of individuals exempt from NII payments and in 59.1% of other patients (Figure 44).

Figure 43: Rate of blood pressure control among diabetes patients, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
18-24	83.39%	86.60%	86.84%	236	575	660	283	664	760
25-34	75.98%	76.54%	75.98%	870	1,778	1,939	1,145	2,323	2,552
35-44	58.43%	66.45%	67.05%	2,323	5,272	5,895	3,976	7,934	8,792
45-54	50.69%	58.51%	59.68%	7,046	15,946	18,187	13,899	27,254	30,473
55-64	44.60%	54.76%	56.80%	9,876	23,755	27,998	22,144	43,380	49,288
65-74	40.44%	53.57%	56.18%	10,944	28,022	32,362	27,062	52,306	57,608
75-84	39.30%	54.18%	57.89%	5,761	16,343	19,881	14,660	30,162	34,340
85+	41.00%	56.72%	59.35%	786	2,375	3,072	1,917	4,187	5,176
Total	44.48%	55.92%	58.20%	37,842	94,066	109,994	85,086	168,210	188,989

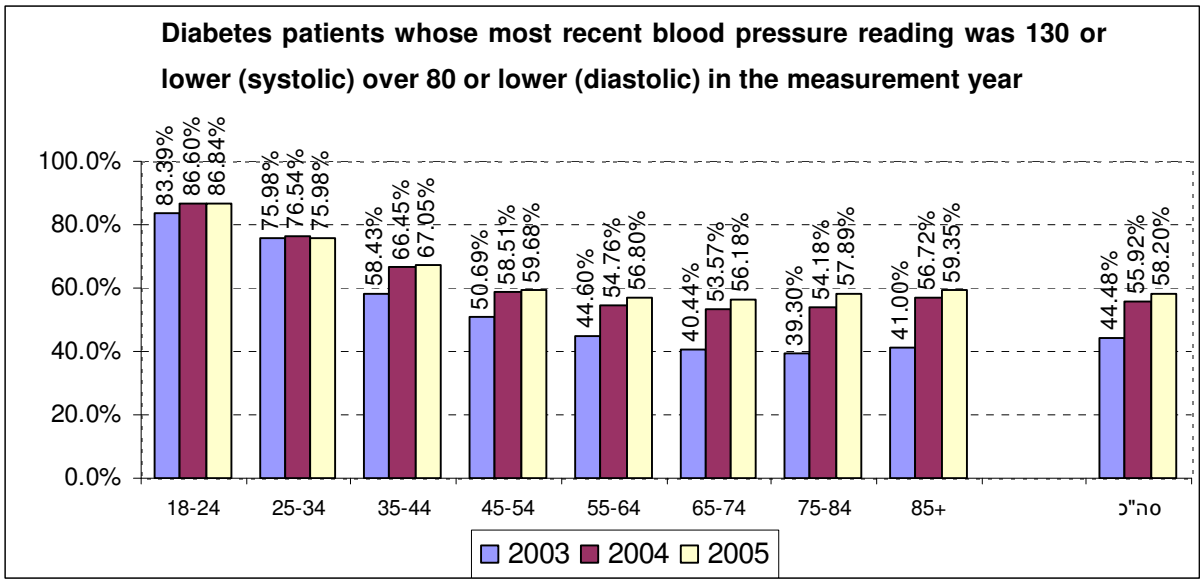
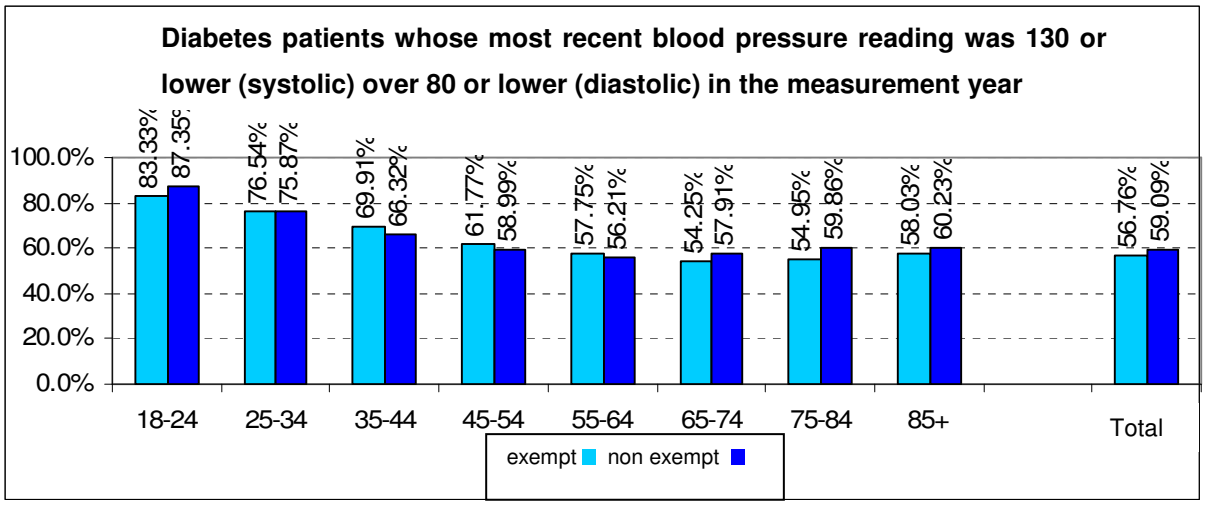


Figure 44: Rate of blood pressure control among diabetes patients, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
18-24	83.33%	87.35%	86.84%	80	580	660	96	664	760
25-34	76.54%	75.87%	75.98%	310	1,629	1,939	405	2,147	2,552
35-44	69.91%	66.32%	67.05%	1,252	4,643	5,895	1,791	7,001	8,792
45-54	61.77%	58.99%	59.68%	4,685	13,502	18,187	7,584	22,889	30,473
55-64	57.75%	56.21%	56.80%	11,015	16,983	27,998	19,073	30,215	49,288
65-74	54.25%	57.91%	56.18%	14,823	17,539	32,362	27,322	30,286	57,608
75-84	54.95%	59.86%	57.89%	7,555	12,326	19,881	13,748	20,592	34,340
85+	58.03%	60.23%	59.35%	1,200	1,872	3,072	2,068	3,108	5,176
Total	56.76%	59.09%	58.20%	40,920	69,074	109,994	72,087	116,902	188,989



E. 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.

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.

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.

- 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 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 heat 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.

1. Cholesterol testing for the general population

1.1 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 1,472,527 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 2005, 1,058,916 people underwent tests for LDL cholesterol level, as defined by the indicator, meaning 71.9%. The percentage increased with age, from 64.6% of the 35-44 age group to 79.6% of the 45-54 age group (Figure 45). These values show continued improvement in performance of the indicator.
- Women were tested than men – 77.4% compared to 66.0%, respectively (Figure 46).
- A significant difference was found in performance of the test, in favor of individuals exempt from NII payments in the group examined: 79.5% compared to 71.2% for the rest of the population (Figure 47).

Figure 45: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	51.88%	59.11%	64.60%	379,512	438,154	487,674	731,494	741,298	754,910
45-54	68.91%	75.25%	79.60%	476,522	530,870	571,242	691,499	705,439	717,617
Total	60.16%	66.98%	71.91%	856,034	969,024	1,058,916	1,422,993	1,446,737	1,472,527

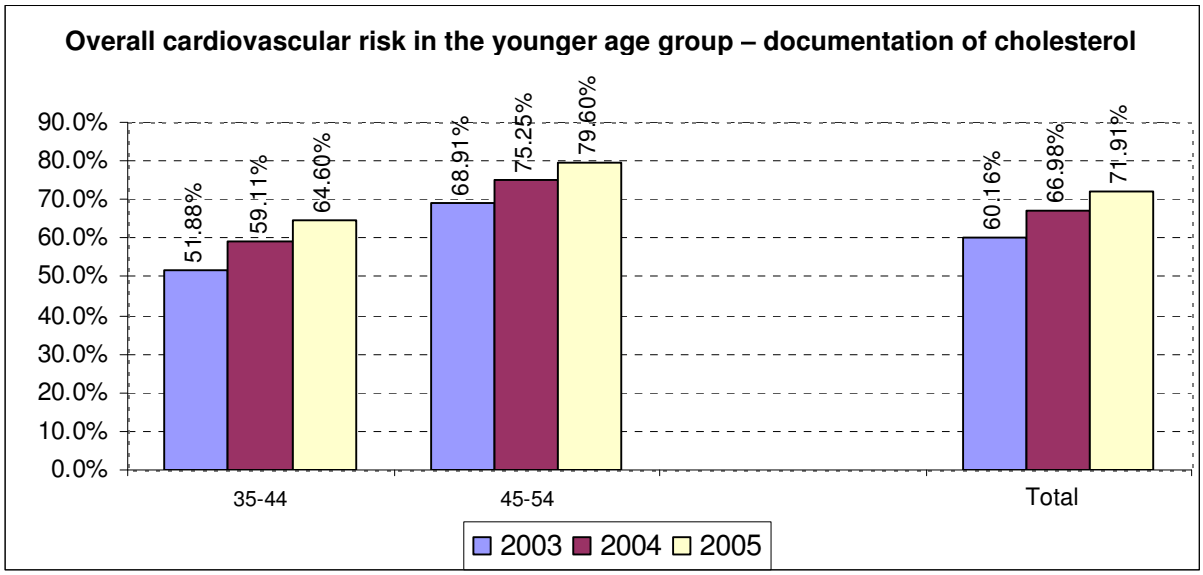


Figure 46: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	58.18%	70.58%	64.60%	211,712	275,962	487,674	363,912	390,998	754,910
45-54	74.19%	84.60%	79.60%	255,409	315,833	571,242	344,275	373,342	717,617
Total	65.96%	77.43%	71.91%	467,121	591,795	1,058,916	708,187	764,340	1,472,527

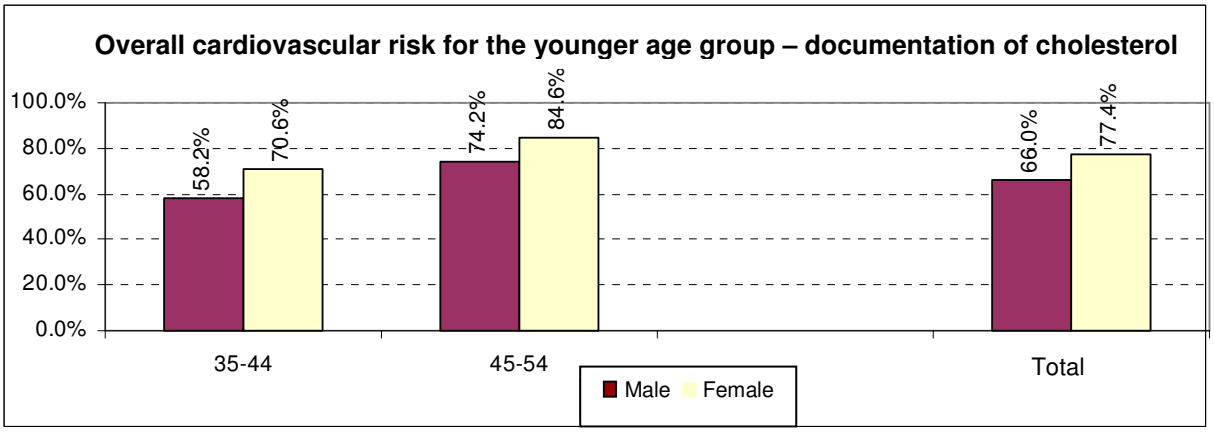
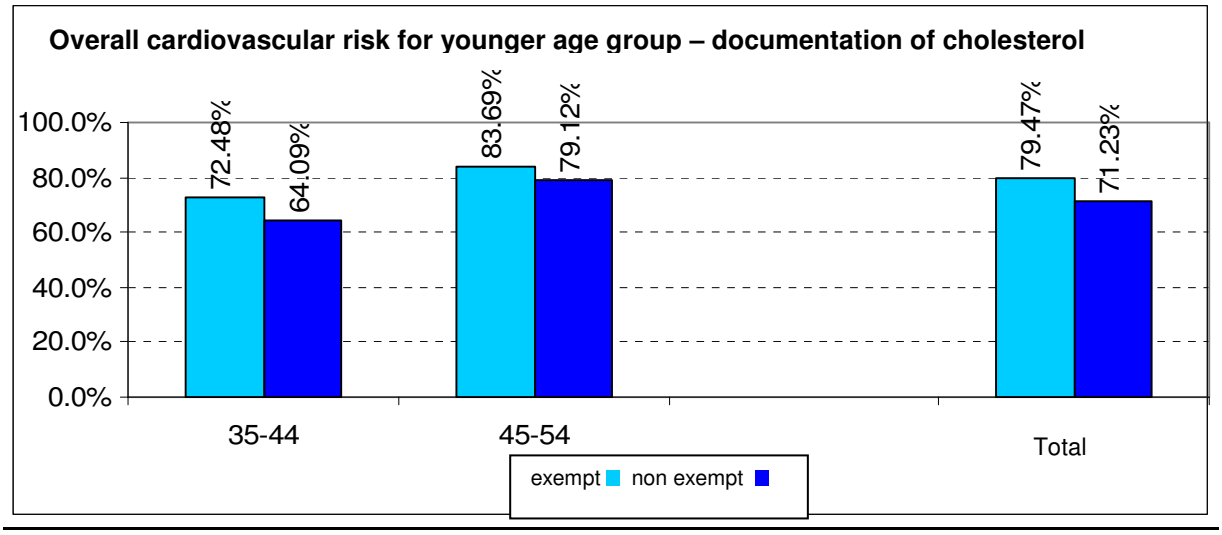


Figure 47: Rate of insured individuals aged 35-54 who had at least one LDL cholesterol test in the past five years, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	72.48%	64.09%	64.60%	33,116	454,558	487,674	45,689	709,221	754,910
45-54	83.69%	79.12%	79.60%	63,333	507,909	571,242	75,674	641,943	717,617
Total	79.47%	71.23%	71.91%	96,449	962,467	1,058,916	121,363	1,351,164	1,472,527



1.2 Performance of cholesterol testing for the general population – older age group

Definition of the indicator:

The percentage of 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 891,238 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 2005, 612,872 people underwent tests for LDL cholesterol level in the relevant age group, meaning 68.8%. The percentage increased with age, from 64.6% of the 55-64 age group to 74.8% of the 65-74 age group (Figure 48).
- Women were tested more than men, 72.0% compared to 65.0%, respectively (Figure 49).
- A difference was found in the rate of tests performed, in favor of individuals exempt from NII payments, 71.6% compared to 67.6% for other insured individuals (Figure 50).

Figure 48: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2005, by sex

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
55-64	58.49%	62.93%	64.56%	285,189	317,419	339,486	487,551	504,422	525,860
65-74	69.51%	73.57%	74.82%	248,770	266,609	273,386	357,884	362,397	365,378
Total	63.16%	67.38%	68.77%	533,959	584,028	612,872	845,435	866,819	891,238

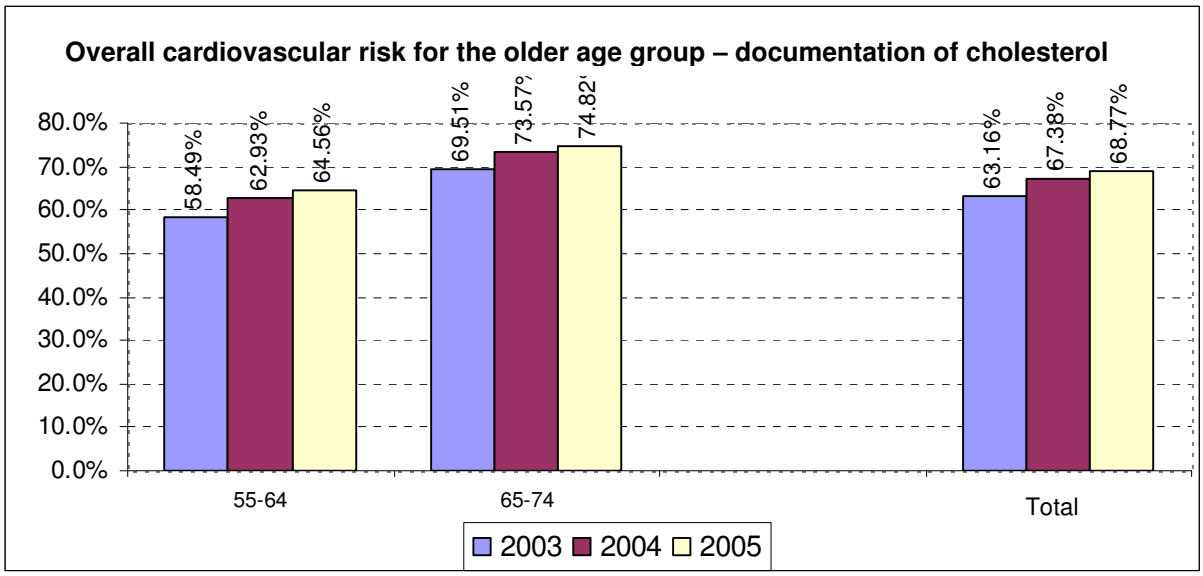


Figure 49: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	60.29%	68.44%	64.56%	151,054	188,432	339,486	250,533	275,327	525,860
65-74	72.23%	76.92%	74.82%	118,041	155,345	273,386	163,430	201,948	365,378
Total	65.00%	72.03%	68.77%	269,095	343,777	612,872	413,963	477,275	891,238

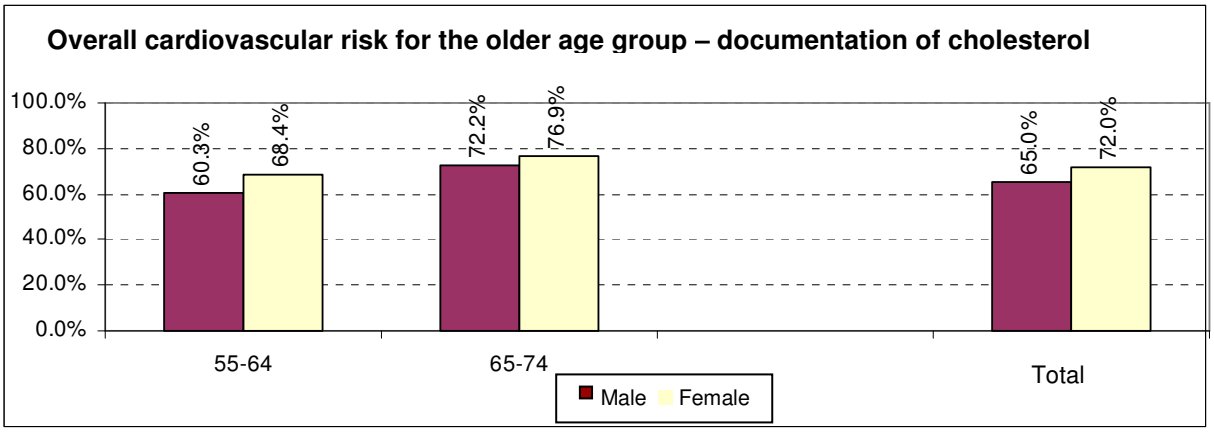
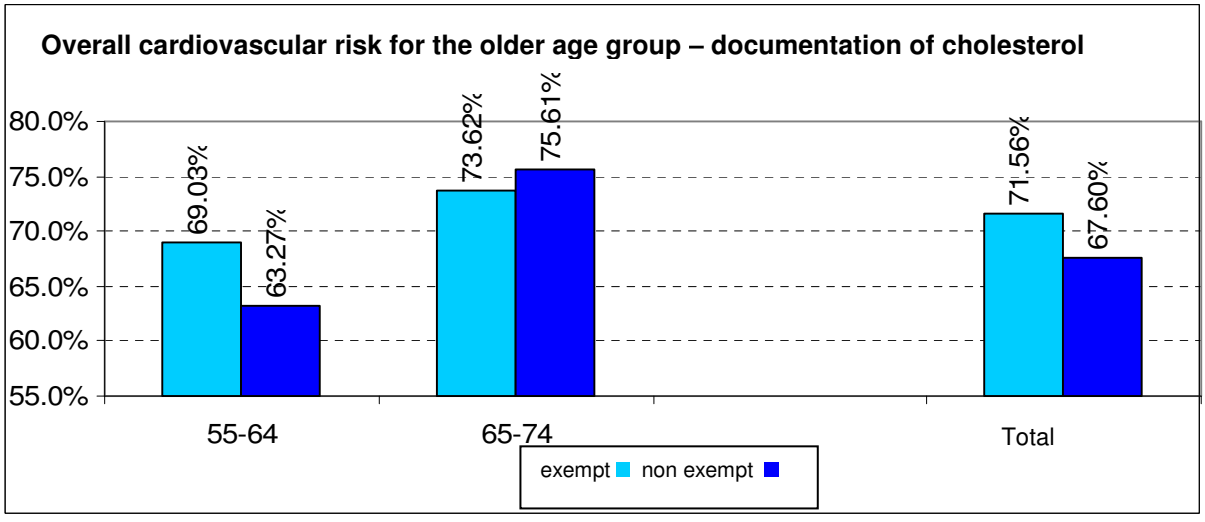


Figure 50: Rate of insured individuals aged 55-74 who had at least one LDL cholesterol test in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	69.03%	63.27%	64.56%	80,980	258,506	339,486	117,311	408,549	525,860
65-74	73.62%	75.61%	74.82%	106,327	167,059	273,386	144,426	220,952	365,378
Total	71.56%	67.60%	68.77%	187,307	425,565	612,872	261,737	629,501	891,238



2. Cholesterol control in the general population

2.1 *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 1,058,916 subjects.

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

Main Findings:

- In 2005, 669,834 individuals met the target level, that is 63.3%. The rate of control decreased with age, from 68.4% in the 35-44 age group to 58.9% 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, 66.0% compared to 59.7%, respectively (Figure 52). 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 53).

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, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	67.80%	67.73%	68.36%	257,319	296,742	333,361	379,512	438,154	487,674
45-54	57.15%	57.50%	58.90%	272,332	305,235	336,473	476,522	530,870	571,242
Total	61.87%	62.12%	63.26%	529,651	601,977	669,834	856,034	969,024	1,058,916

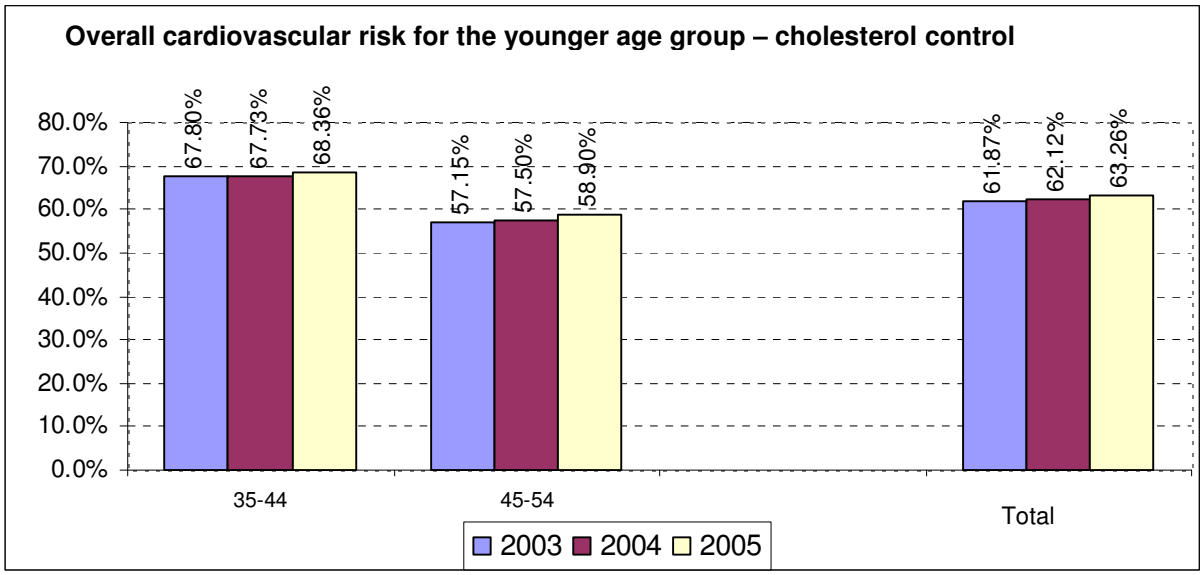


Figure 52: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	61.33%	73.75%	68.36%	129,850	203,511	333,361	211,712	275,962	487,674
45-54	58.40%	59.31%	58.90%	149,168	187,305	336,473	255,409	315,833	571,242
Total	59.73%	66.04%	63.26%	279,018	390,816	669,834	467,121	591,795	1,058,916

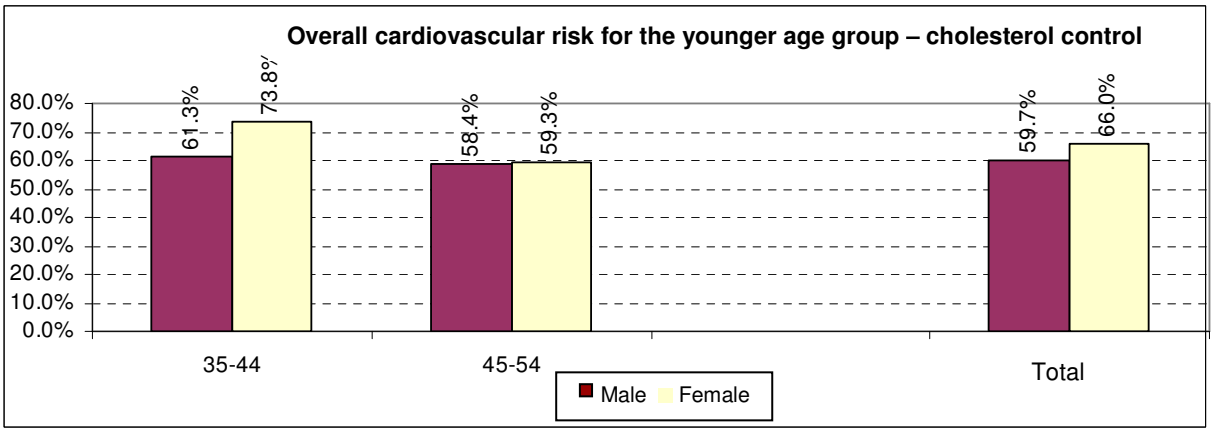
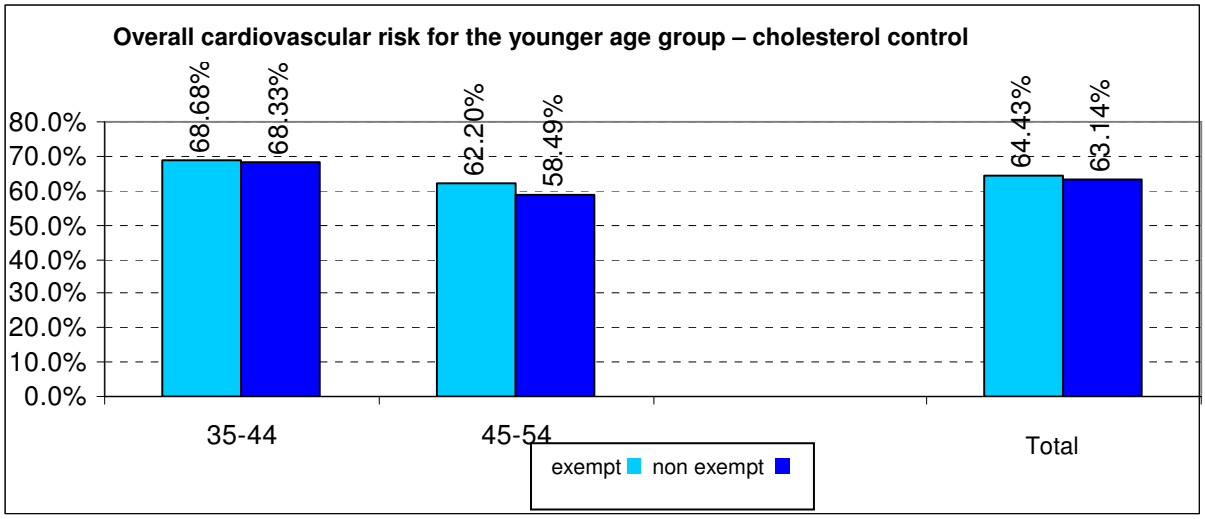


Figure 53: Rate of insured individuals aged 35-54 with an LDL cholesterol level lower than 130 mg/dl in the most recent test taken in the past five years, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	68.68%	68.33%	68.36%	22,745	310,616	333,361	33,116	454,558	487,674
45-54	62.20%	58.49%	58.90%	39,395	297,078	336,473	63,333	507,909	571,242
Total	64.43%	63.14%	63.26%	62,140	607,694	669,834	96,449	962,467	1,058,916



2.2 *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 past year showed a level below 130 mg/dl (the target value). The target population for this indicator includes 612,872 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 2005, 394,954 individuals met the target level, that is 64.4%. The rate of control increased with age, from 60.7% in the 55-64 age group to 69.1% of the 65-74 age group (Figure 54). This increase is evidently attributable to treatment with statin drugs, which increases with age, to reduce the level of cholesterol in the blood. A 5% improvement was found for this indicator in the reporting period.
- More men met the target than women, 69.6% compared to 60.4%, respectively (Figure 55).
- 65.8% of individuals exempt from NII payments reached the target level compared to 63.8% of the remaining population (Figure 56).

Figure 54: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
55-64	55.85%	57.86%	60.71%	159,276	183,673	206,114	285,189	317,419	339,486
65-74	62.54%	65.66%	69.07%	155,570	175,050	188,840	248,770	266,609	273,386
Total	58.96%	61.42%	64.44%	314,846	358,723	394,954	533,959	584,028	612,872

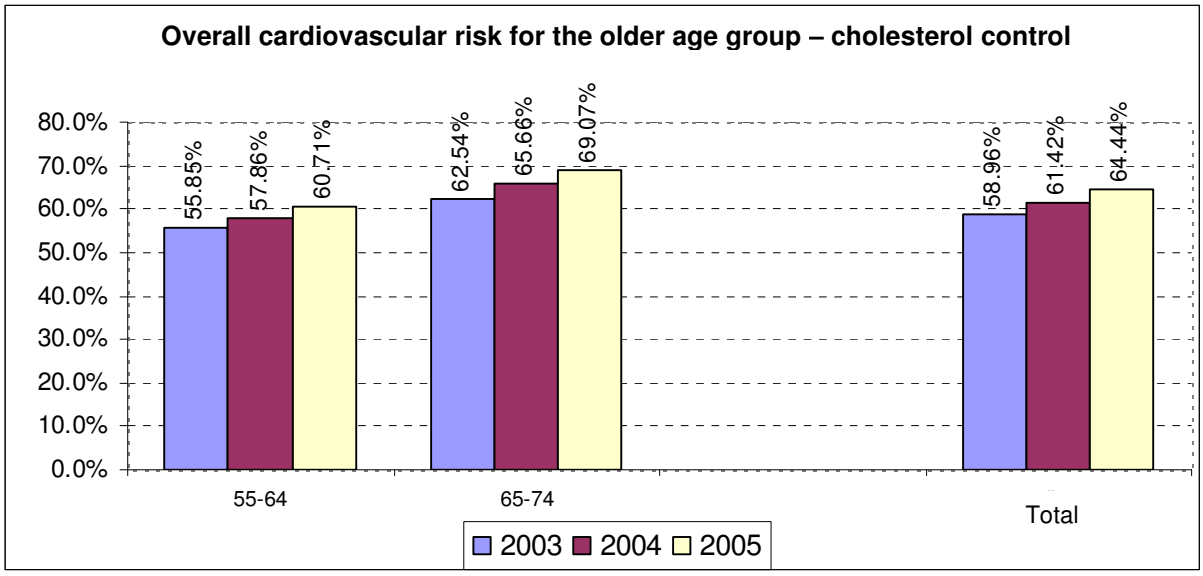


Figure 55: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	66.10%	56.39%	60.71%	99,851	106,263	206,114	151,054	188,432	339,486
65-74	74.04%	65.30%	69.07%	87,392	101,448	188,840	118,041	155,345	273,386
Total	69.58%	60.42%	64.44%	187,243	207,711	394,954	269,095	343,777	612,872

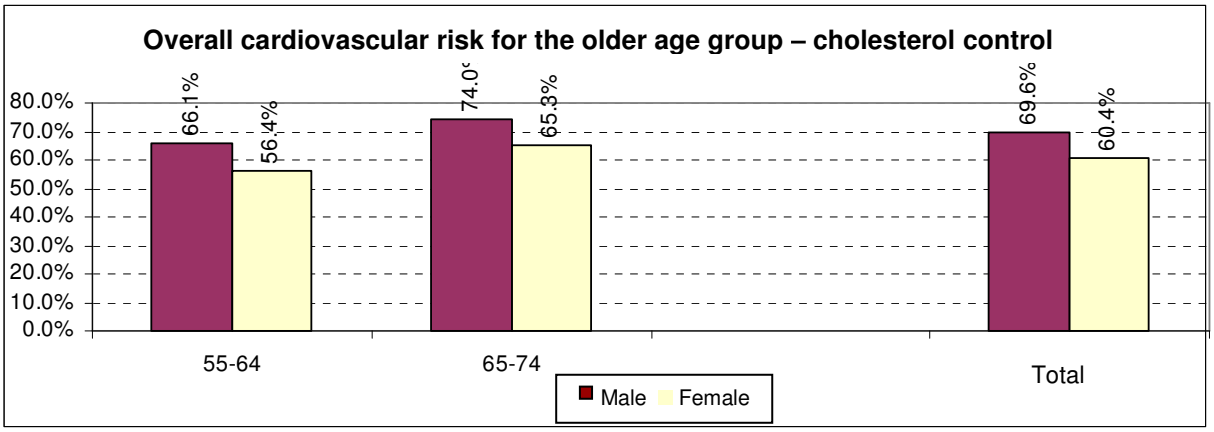
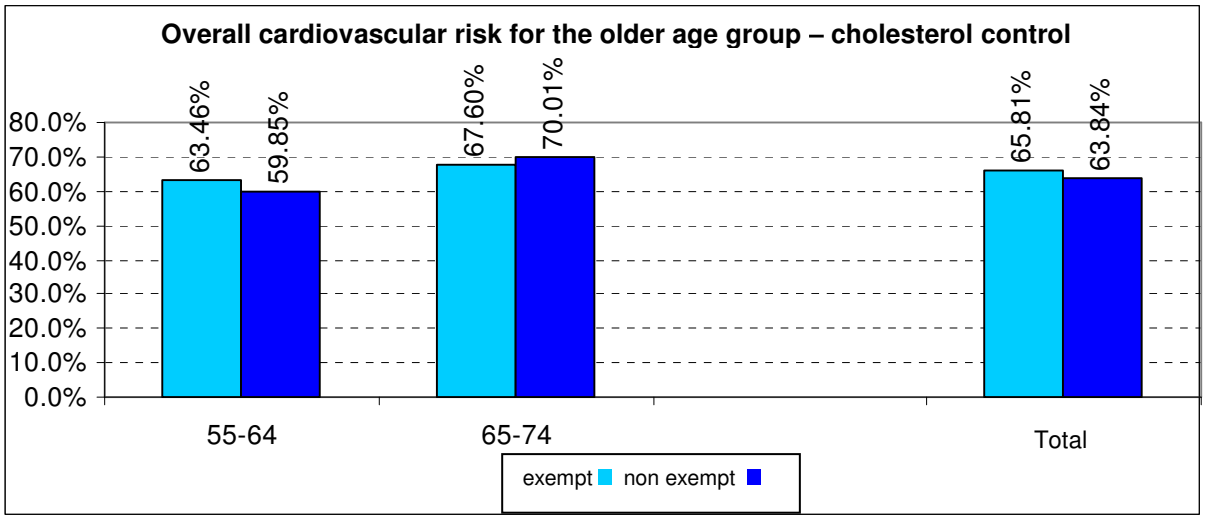


Figure 56: Rate of insured individuals aged 55-74 with an LDL cholesterol level lower than 130 mg/dl in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	63.46%	59.85%	60.71%	51,386	154,728	206,114	80,980	258,506	339,486
65-74	67.60%	70.01%	69.07%	71,875	116,965	188,840	106,327	167,059	273,386
Total	65.81%	63.84%	64.44%	123,261	271,693	394,954	187,307	425,565	612,872



3. 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.

3.1 *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 16.1% of the population, though an impressive improvement in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 57).
- Among women, weight documentation is slightly better than for men, 19.2% compared to 12.7% (Figure 58).
- Individuals exempt from NII payments had better weight documentation than insured individuals who are not exempt, 22.5% compared to 15.7% (Figure 59).

Figure 57: Rate of individuals aged 20-54 who were weighed at least once in the past five years, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
20-34	5.58%	9.00%	13.13%	62,349	102,216	151,893	1,118,128	1,136,284	1,157,257
35-44	6.20%	10.26%	15.42%	45,363	76,034	116,365	731,308	740,983	754,495
45-54	9.12%	14.90%	21.63%	63,063	105,114	155,166	691,396	705,266	717,429
Total	6.72%	10.97%	16.10%	170,775	283,364	423,424	2,540,832	2,582,533	2,629,181

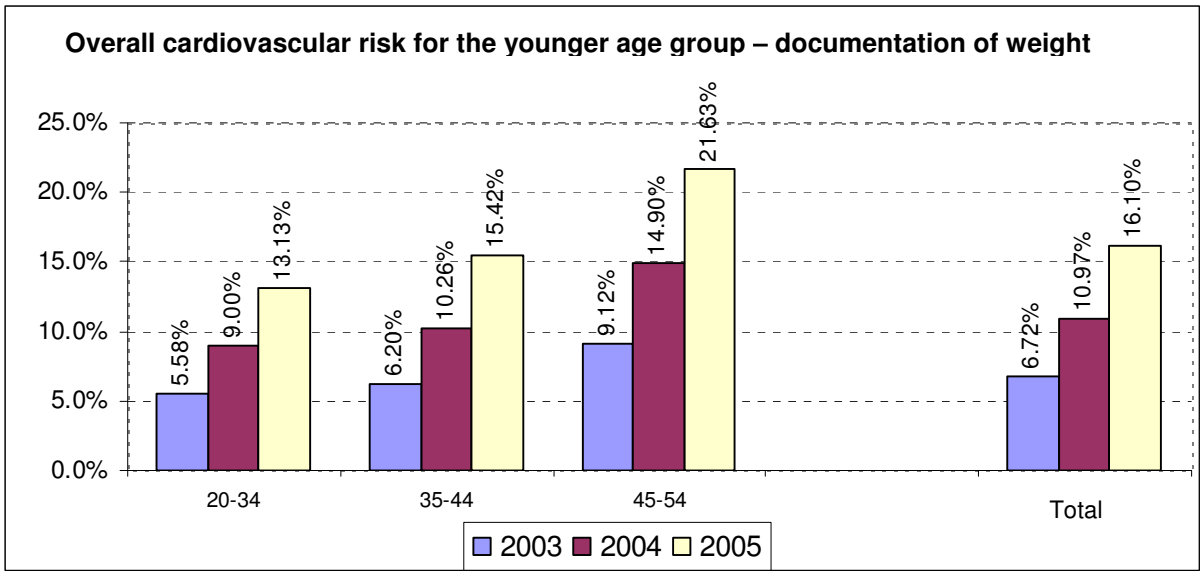


Figure 58: Rate of individuals aged 20-54 who were weighed at least once in the past five years, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
20-34	7.84%	17.70%	13.13%	42,039	109,854	151,893	536,492	620,765	1,157,257
35-44	12.80%	17.86%	15.42%	46,548	69,817	116,365	363,580	390,915	754,495
45-54	20.23%	22.91%	21.63%	69,630	85,536	155,166	344,124	373,305	717,429
Total	12.72%	19.15%	16.10%	158,217	265,207	423,424	1,244,196	1,384,985	2,629,181

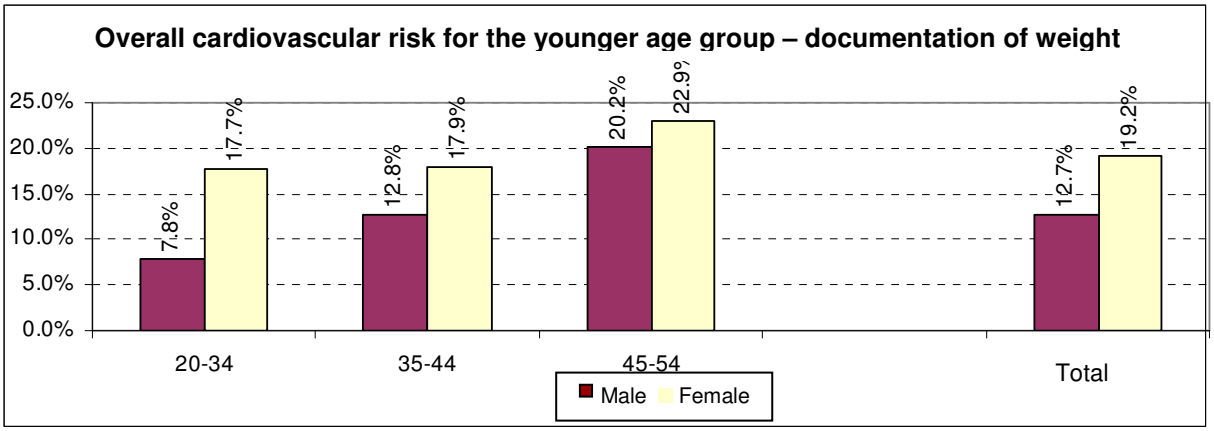
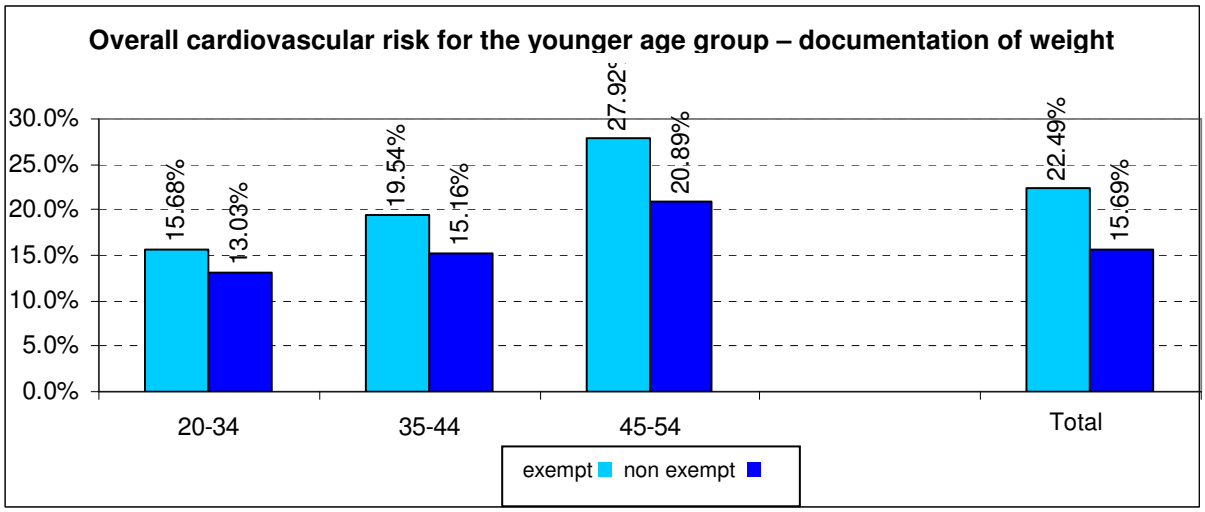


Figure 59: Rate of individuals aged 20-54 who were weighed at least once in the past five years, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	15.68%	13.03%	13.13%	6,356	145,537	151,893	40,534	1,116,723	1,157,257
35-44	19.54%	15.16%	15.42%	8,921	107,444	116,365	45,666	708,829	754,495
45-54	27.92%	20.89%	21.63%	21,126	134,040	155,166	75,656	641,773	717,429
Total	22.49%	15.69%	16.10%	36,403	387,021	423,424	161,856	2,467,325	2,629,181



3.2 *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 20.4% of the population, though an impressive improvement in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 60).
- Among women, weight documentation is slightly better than for men, 21.5% compared to 19.1% (Figure 61).
- Individuals exempt from NII payments had slightly better weight documentation than insured individuals who are not exempt, 23.4% compared to 19.1% (Figure 62).

Figure 60: Rate of individuals aged 55-74 who were weighed at least once in the past year, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
55-64	11.75%	13.85%	18.39%	57,307	69,876	96,726	487,551	504,422	525,860
65-74	16.32%	18.46%	23.29%	58,393	66,893	85,100	357,884	362,397	365,378
Total	13.69%	15.78%	20.40%	115,700	136,769	181,826	845,435	866,819	891,238

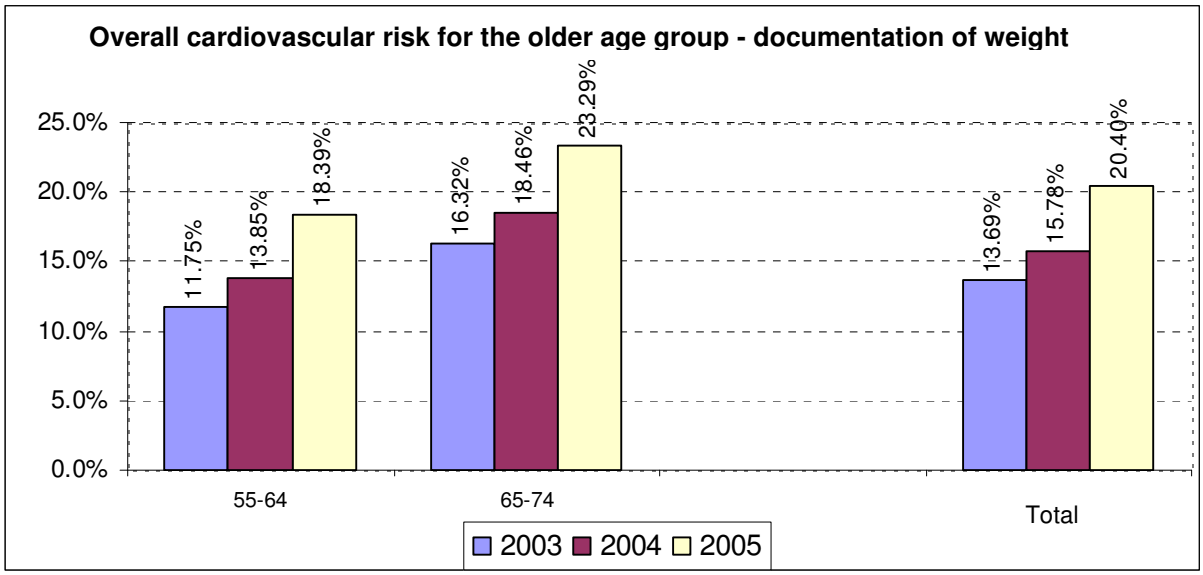


Figure 61: Rate of individuals aged 55-74 who were weighed at least once in the past year, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	17.19%	19.49%	18.39%	43,059	53,667	96,726	250,533	275,327	525,860
65-74	22.11%	24.25%	23.29%	36,127	48,973	85,100	163,430	201,948	365,378
Total	19.13%	21.51%	20.40%	79,186	102,640	181,826	413,963	477,275	891,238

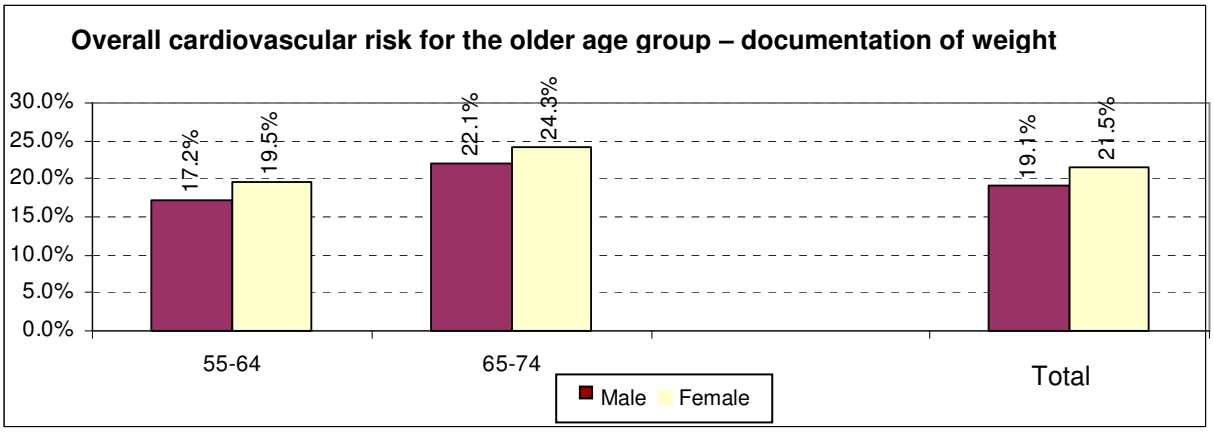
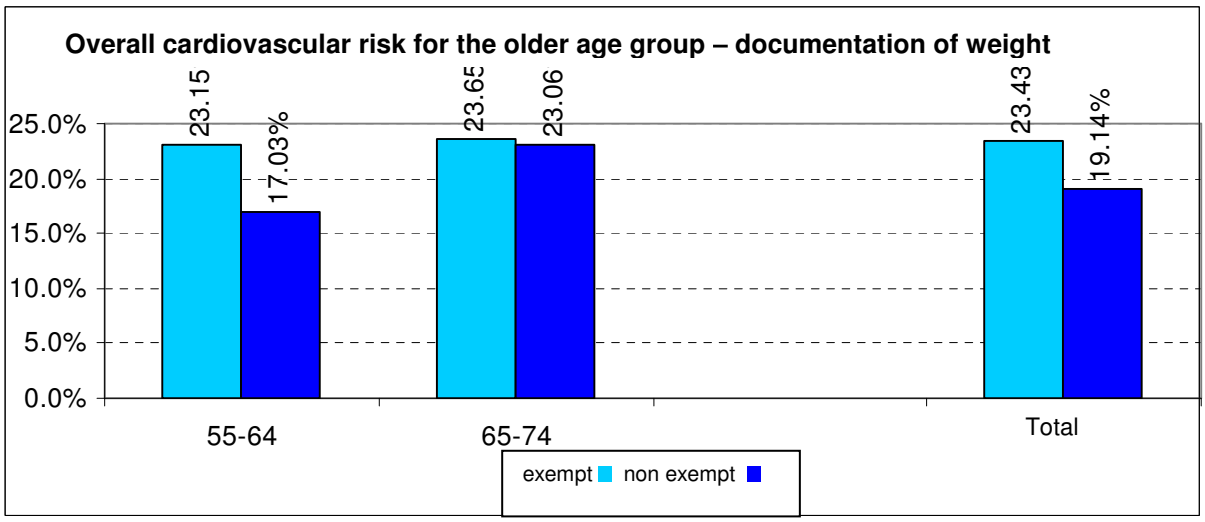


Figure 62: Rate of individuals aged 55-74 who were weighed at least once in the past year, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	23.15%	17.03%	18.39%	27,154	69,572	96,726	117,311	408,549	525,860
65-74	23.65%	23.06%	23.29%	34,158	50,942	85,100	144,426	220,952	365,378
Total	23.43%	19.14%	20.40%	61,312	120,514	181,826	261,737	629,501	891,238



3.3 *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 12.9% of the population, though an impressive improvement in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 63).
- Among women, height documentation was slightly better than for men, 14.1% compared to 11.5% (Figure 64).
- Individuals exempt from NII payments had slightly better height documentation than insured individuals who are not exempt, 19.1% compared to 12.5% (Figure 65).

Figure 63: Rate of individuals aged 20-54 whose height was checked at least once in the past five years, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
20-34	2.93%	5.50%	9.01%	32,773	62,534	104,233	1,118,128	1,136,284	1,157,257
35-44	4.43%	7.86%	12.66%	32,426	58,207	95,493	731,308	740,983	754,495
45-54	7.20%	12.47%	19.43%	49,763	87,959	139,364	691,396	705,266	717,429
Total	4.52%	8.08%	12.90%	114,962	208,700	339,090	2,540,832	2,582,533	2,629,181

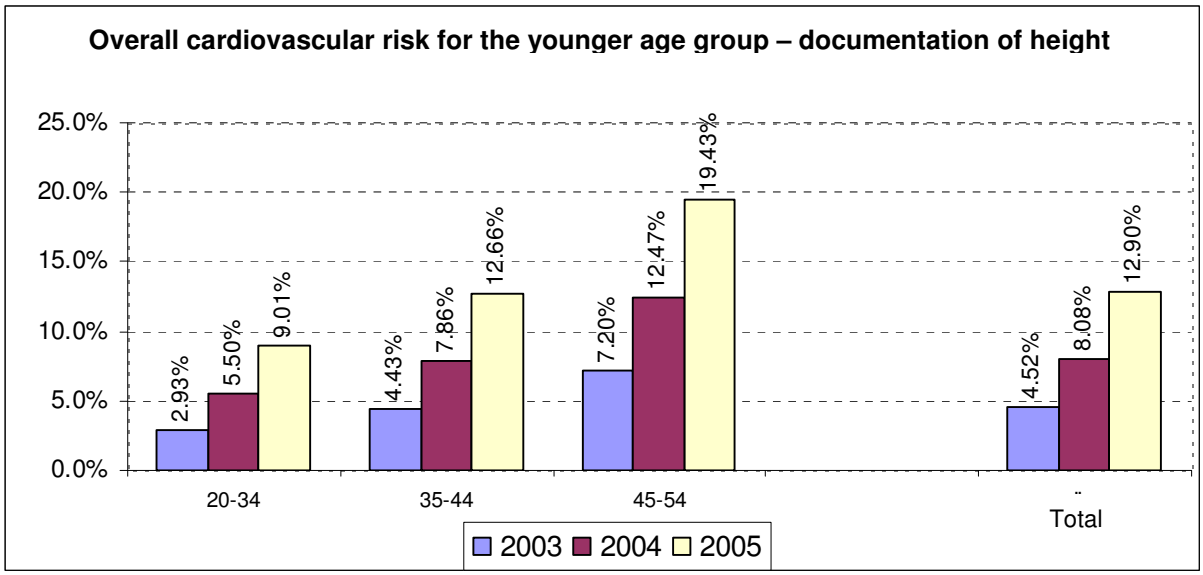


Figure 64: Rate of individuals aged 20-54 who had their height checked least once in the past five years, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
20-34	7.08%	10.67%	9.01%	37,994	66,239	104,233	536,492	620,765	1,157,257
35-44	11.63%	13.61%	12.66%	42,302	53,191	95,493	363,580	390,915	754,495
45-54	18.31%	20.45%	19.43%	63,016	76,348	139,364	344,124	373,305	717,429
Total	11.52%	14.14%	12.90%	143,312	195,778	339,090	1,244,196	1,384,985	2,629,181

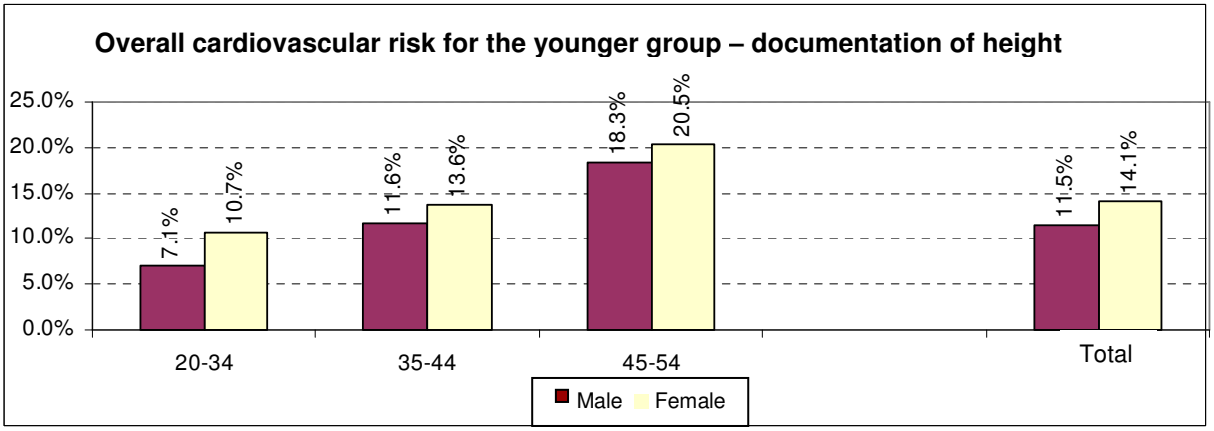
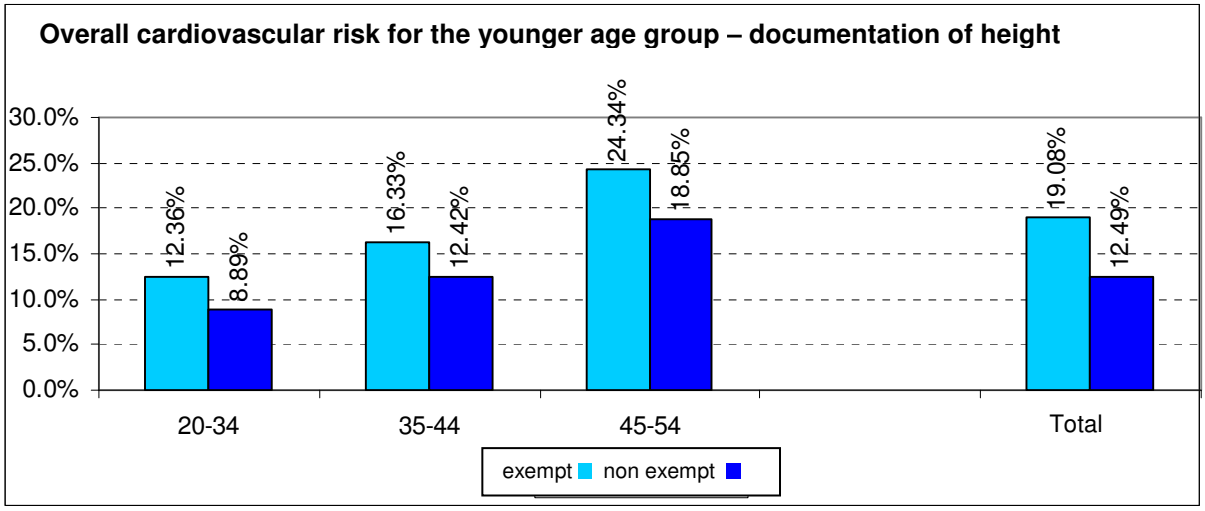


Figure 65: Rate of individuals aged 20-54 who had their height checked least once in the past five years, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	12.36%	8.89%	9.01%	5,008	99,225	104,233	40,534	1,116,723	1,157,257
35-44	16.33%	12.42%	12.66%	7,455	88,038	95,493	45,666	708,829	754,495
45-54	24.34%	18.85%	19.43%	18,417	120,947	139,364	75,656	641,773	717,429
Total	19.08%	12.49%	12.90%	30,880	308,210	339,090	161,856	2,467,325	2,629,181



3.4 *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 medical file in the last five years.

Main Findings:

- Documentation of height was only found for 27.9% of the population, though an impressive improvement in documentation during the reporting period can be seen. This testifies to a new indicator with good potential for improvement (Figure 66).

- Among women, height documentation was slightly better than for men, 29.0% compared to 26.6% (Figure 67).
- Individuals exempt from NII payments had slightly better height documentation than insured individuals who are not exempt, 31.0% compared to 26.6% (Figure 68).

Figure 66: Rate of individuals aged 55-74 whose height was checked at least once in the past five years, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
55-64	10.31%	17.17%	25.75%	47,110	82,255	130,024	456,781	479,177	504,855
65-74	13.29%	21.51%	30.87%	44,736	74,203	108,443	336,674	344,901	351,247
Total	11.58%	18.99%	27.85%	91,846	156,458	238,467	793,455	824,078	856,102

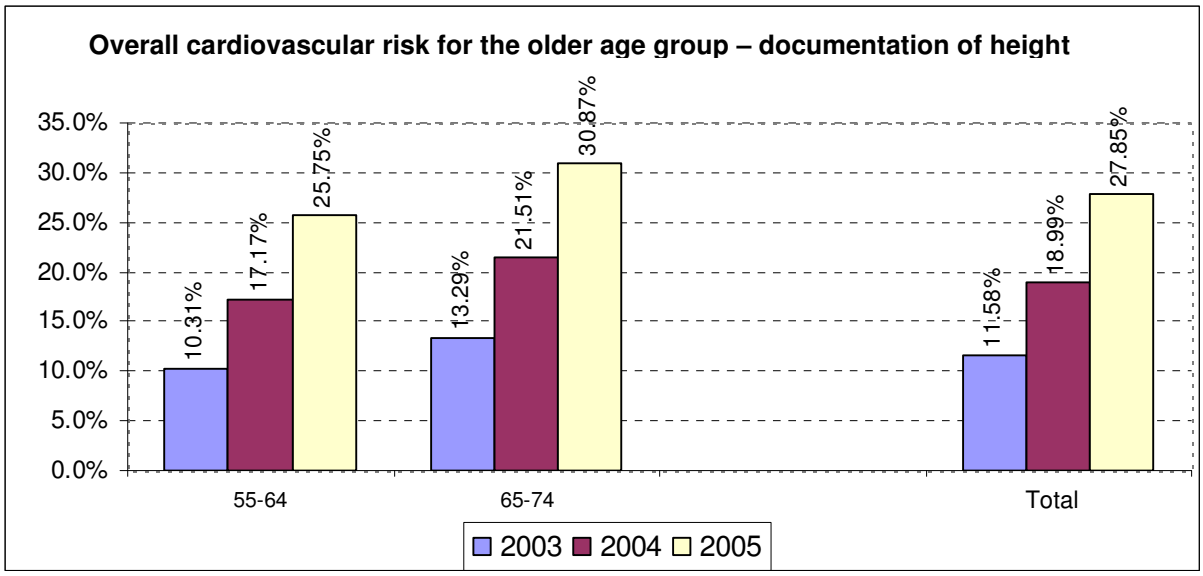


Figure 67: Rate of individuals aged 55-74 who had their height checked least once in the past five years, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	24.53%	26.88%	25.75%	59,160	70,864	130,024	241,210	263,645	504,855
65-74	29.65%	31.86%	30.87%	46,593	61,850	108,443	157,125	194,122	351,247
Total	26.55%	28.99%	27.85%	105,753	132,714	238,467	398,335	457,767	856,102

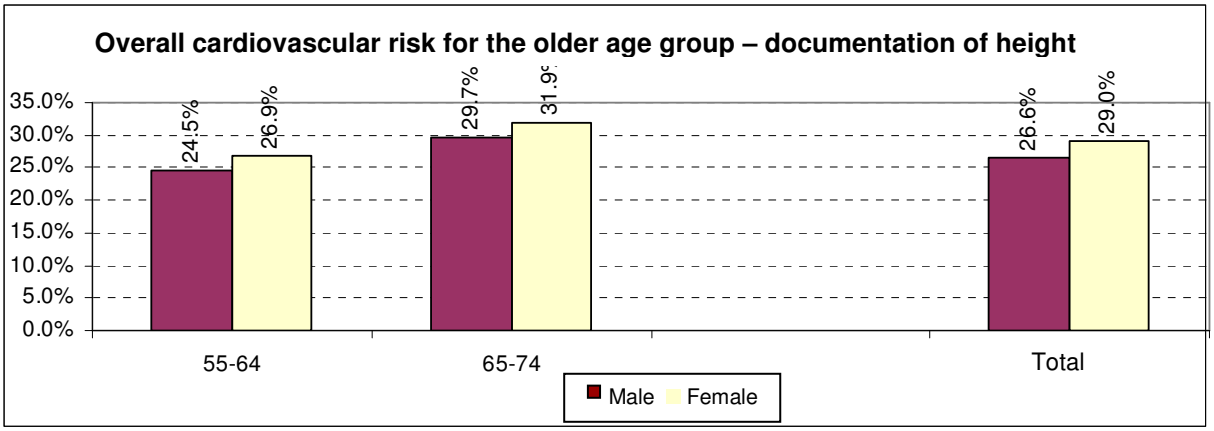
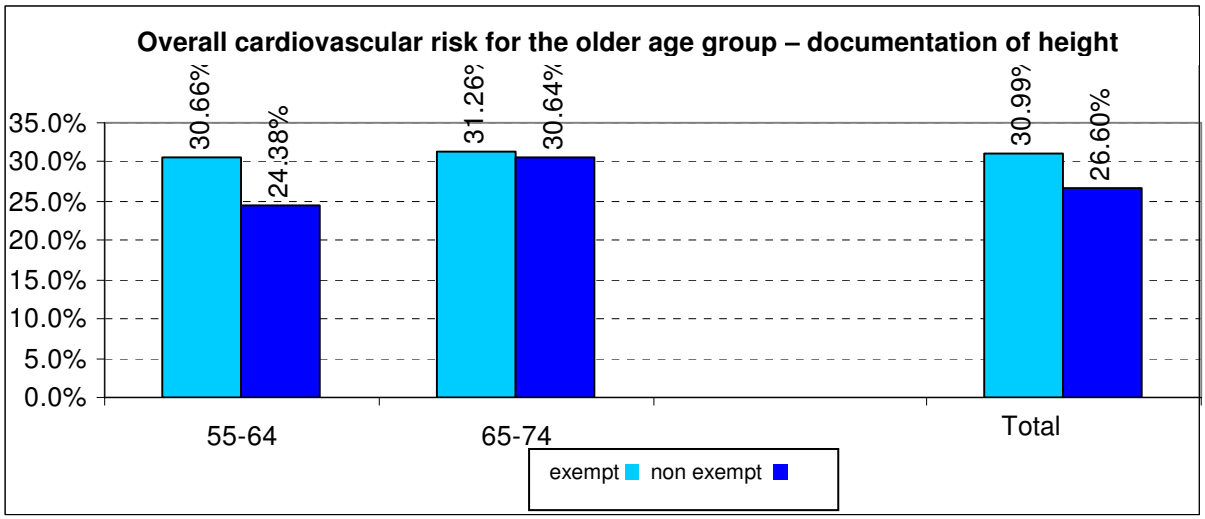


Figure 68: Rate of individuals aged 55-74 who had their height checked least once in the past five years, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	30.66%	24.38%	25.75%	33,869	96,155	130,024	110,466	394,389	504,855
65-74	31.26%	30.64%	30.87%	42,101	66,342	108,443	134,695	216,552	351,247
Total	30.99%	26.60%	27.85%	75,970	162,497	238,467	245,161	610,941	856,102



4. 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.

4.1 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 2005, blood pressure was documented for 1,286,282 individuals aged 20-54, meaning for 48.9% of the population. An impressive improvement in documentation was found relative to previous years, as characteristic of a new reportable measure (Figure 75).
- Documentation was higher in the 45-64 age group, where it reached close to 60%.
- Documentation was better for women (53.9%) compared to men (43.4%) in all age groups (Figure 76).

- Documentation was better among individuals exempt from NII payments: 54.7% compared to 48.5% for the rest of the population (Figure 77).

Figure 75: Rate of individuals aged 20-54 whose blood pressure was documented in the past five years, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
20-34	18.25%	31.03%	41.06%	204,052	352,601	475,148	1,118,128	1,136,284	1,157,257
35-44	22.64%	38.90%	50.57%	165,571	288,221	381,546	731,308	740,983	754,495
45-54	26.79%	47.10%	59.88%	185,204	332,165	429,588	691,396	705,266	717,429
Total	21.84%	37.68%	48.92%	554,827	972,987	1,286,282	2,540,832	2,582,533	2,629,181

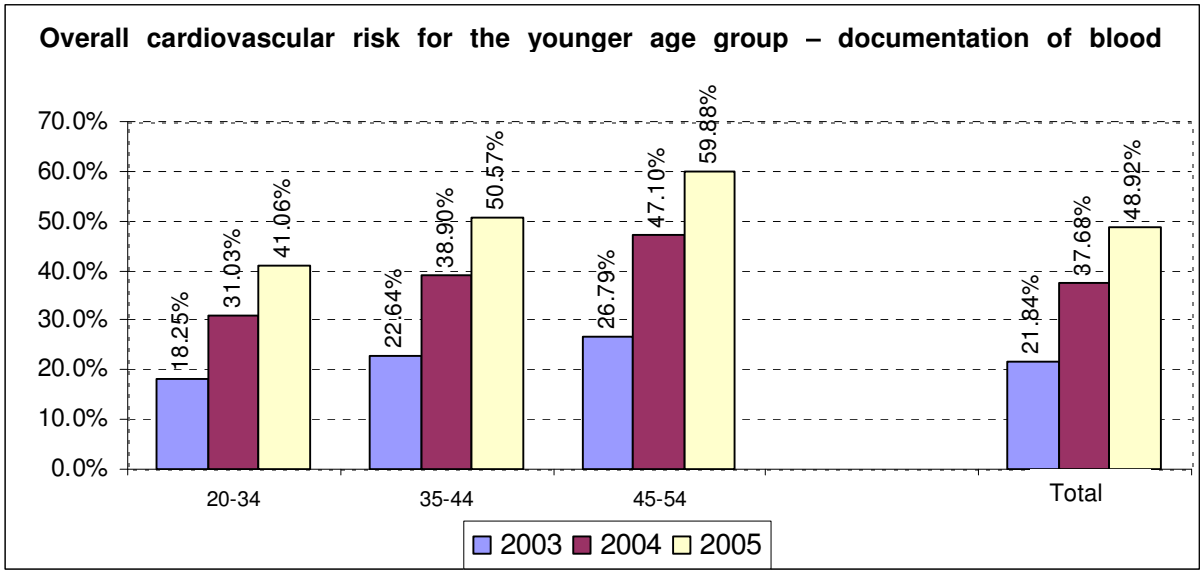


Figure 76: Rate of individuals aged 20-54 whose blood pressure was documented in the past five years, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
20-34	31.93%	48.95%	41.06%	171,277	303,871	475,148	536,492	620,765	1,157,257
35-44	46.80%	54.08%	50.57%	170,152	211,394	381,546	363,580	390,915	754,495
45-54	57.57%	62.00%	59.88%	198,125	231,463	429,588	344,124	373,305	717,429
Total	43.37%	53.92%	48.92%	539,554	746,728	1,286,282	1,244,196	1,384,985	2,629,181

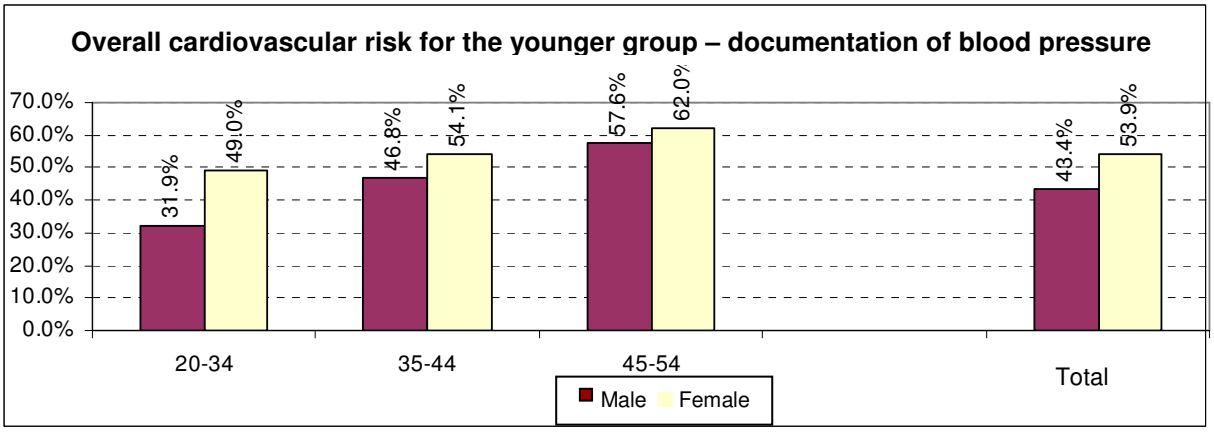
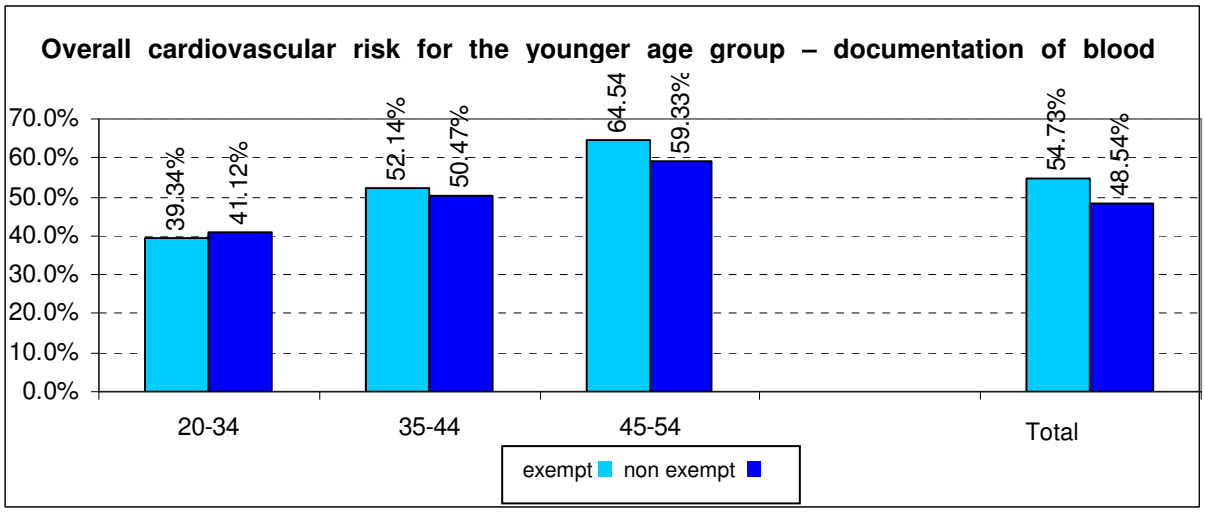


Figure 77: Rate of individuals aged 20-54 whose blood pressure was documented in the past five years, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
20-34	39.34%	41.12%	41.06%	15,946	459,202	475,148	40,534	1,116,723	1,157,257
35-44	52.14%	50.47%	50.57%	23,810	357,736	381,546	45,666	708,829	754,495
45-54	64.54%	59.33%	59.88%	48,828	380,760	429,588	75,656	641,773	717,429
Total	54.73%	48.54%	48.92%	88,584	1,197,698	1,286,282	161,856	2,467,325	2,629,181



4.2 *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 2005, blood pressure was documented for 531,778 individuals aged 55-74, meaning for 59.7% of the population. An impressive improvement in documentation was found relative to previous years, as characteristic of a new reportable measure (Figure 78).
- Documentation was better in the 65-74 age group than for the younger individuals.
- Documentation was slightly better for women (62.1% compared to 56.9% for men) in all age groups (Figure 79).
- Documentation was better among individuals exempt from NII payments: 67.1% compared to 56.6% for the rest of the population (Figure 80).

Figure 78: Rate of individuals aged 55-74 whose blood pressure was documented at least once a year, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	2003	2004	2005	2003	2004	2005	2003	2004	2005
55-64	28.58%	49.74%	55.07%	139,350	250,896	289,568	487,551	504,422	525,860
65-74	33.34%	61.02%	66.29%	119,302	221,125	242,210	357,884	362,397	365,378
Total	30.59%	54.45%	59.67%	258,652	472,021	531,778	845,435	866,819	891,238

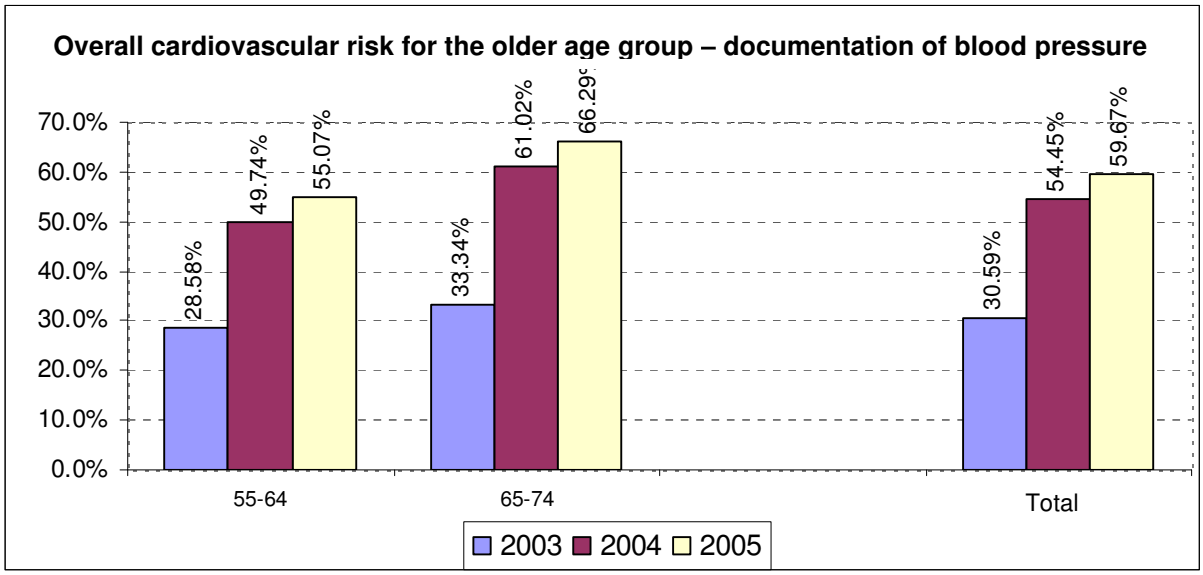


Figure 79: Rate of individuals aged 55-74 whose blood pressure was documented at least once a year, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
55-64	52.30%	57.58%	55.07%	131,024	158,544	289,568	250,533	275,327	525,860
65-74	63.87%	68.25%	66.29%	104,375	137,835	242,210	163,430	201,948	365,378
Total	56.86%	62.10%	59.67%	235,399	296,379	531,778	413,963	477,275	891,238

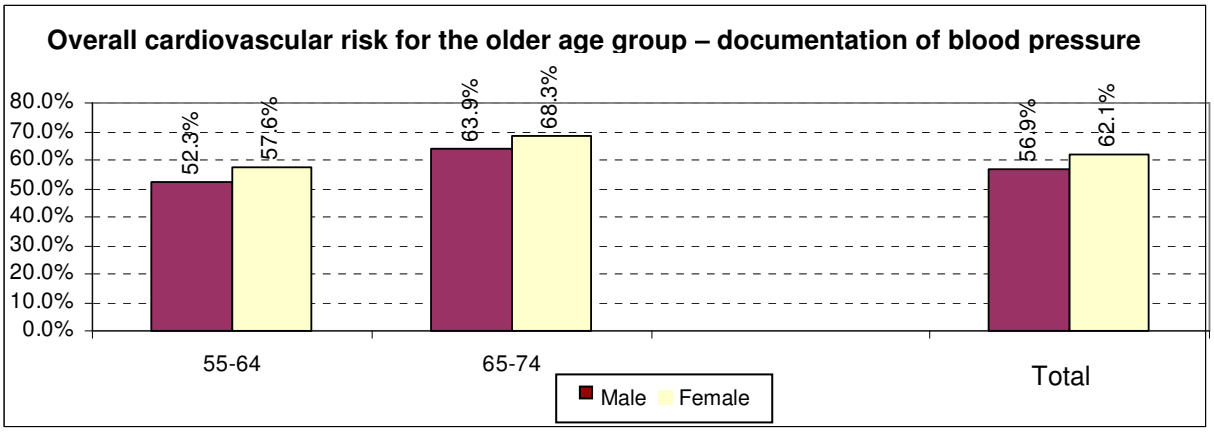
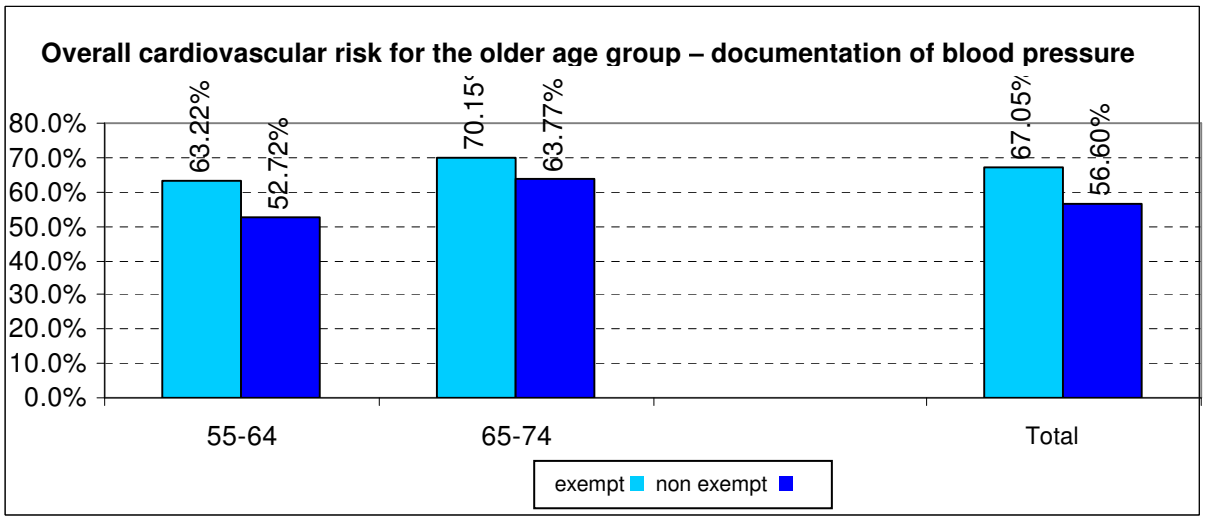


Figure 80: Rate of individuals aged 55-74 whose blood pressure was documented at least once a year, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
55-64	63.22%	52.72%	55.07%	74,168	215,400	289,568	117,311	408,549	525,860
65-74	70.15%	63.77%	66.29%	101,317	140,893	242,210	144,426	220,952	365,378
Total	67.05%	56.60%	59.67%	175,485	356,293	531,778	261,737	629,501	891,238



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.

1. 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. We may deal with this important medication again in the near future.

1.1 Drug therapy following coronary bypass surgery

1.1.1 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* 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 14,714 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 2005, 78.8% of the patients who underwent surgery purchased statins. Only approximately 49% of the patients in the 35-44 age group who underwent surgery needed and purchased statins, while approximately 82% of those aged 55 and older who underwent surgery received this treatment. There is an annual increase in the purchase of statins by these patients (Figure 81).
- Men purchased more statins than women (80.3% compared to 74.3%, respectively), until reaching the 65-74 age group, where the rate of purchase equalizes (Figure 82).
- Individuals exempt from NII payments purchased statins at virtually the same level as the others who underwent surgery, 77.4% compared to 80.0%, respectively, a difference that significant in most age groups (Figure 83).

Figure 81: Rate of patients who underwent coronary bypass surgery and receive statins, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	40.22%	39.60%	49.35%	222	217	265	552	548	537
45-54	66.60%	69.92%	71.89%	1,745	1,811	1,803	2,620	2,590	2,508
55-64	75.13%	78.20%	80.84%	3,746	3,943	4,045	4,986	5,042	5,004
65-74	74.63%	78.63%	82.34%	5,344	5,439	5,488	7,161	6,917	6,665
Total	72.18%	75.58%	78.84%	11,057	11,410	11,601	15,319	15,097	14,714

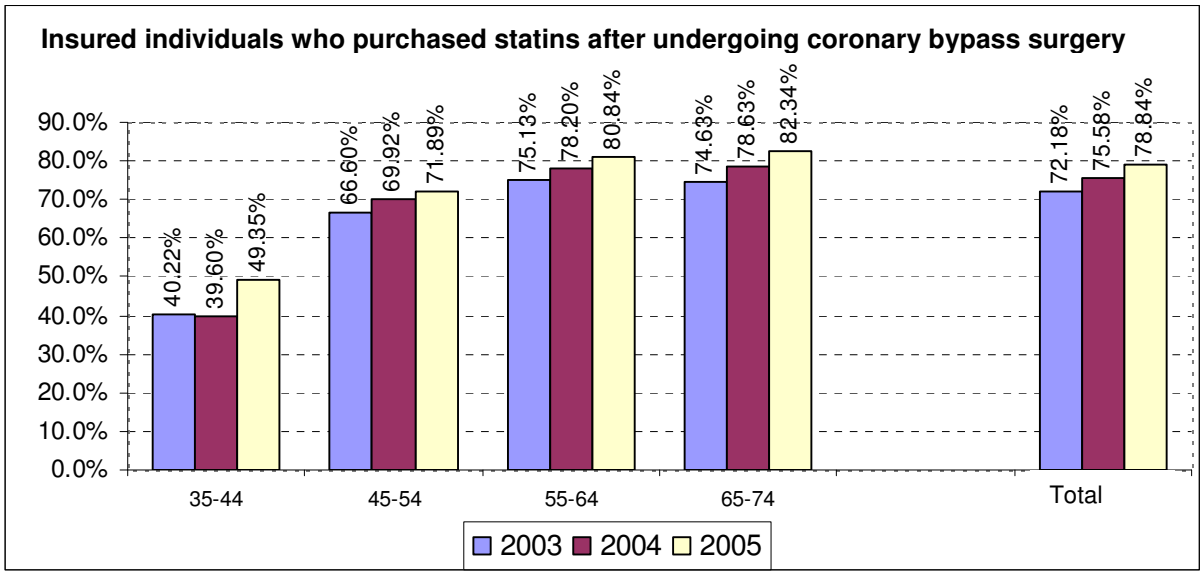


Figure 82: Rate of patients who underwent coronary bypass surgery and receive statins, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**	**All**
35-44	60.31%	22.08%	49.35%	231	34	265	383	154	537
45-54	75.99%	53.78%	71.89%	1,554	249	1,803	2,045	463	2,508
55-64	82.12%	75.58%	80.84%	3,302	743	4,045	4,021	983	5,004
65-74	82.20%	82.68%	82.34%	3,898	1,590	5,488	4,742	1,923	6,665
Total	80.29%	74.25%	78.84%	8,985	2,616	11,601	11,191	3,523	14,714

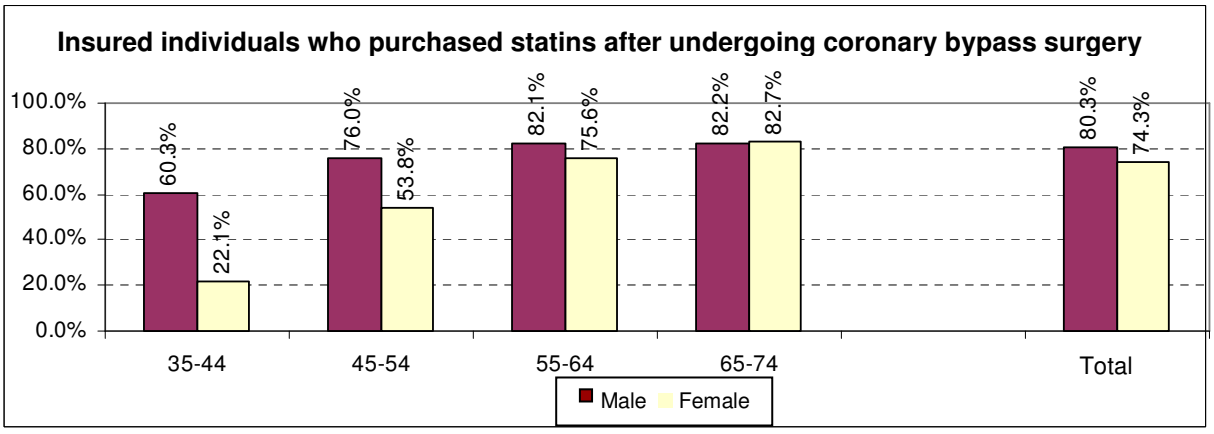
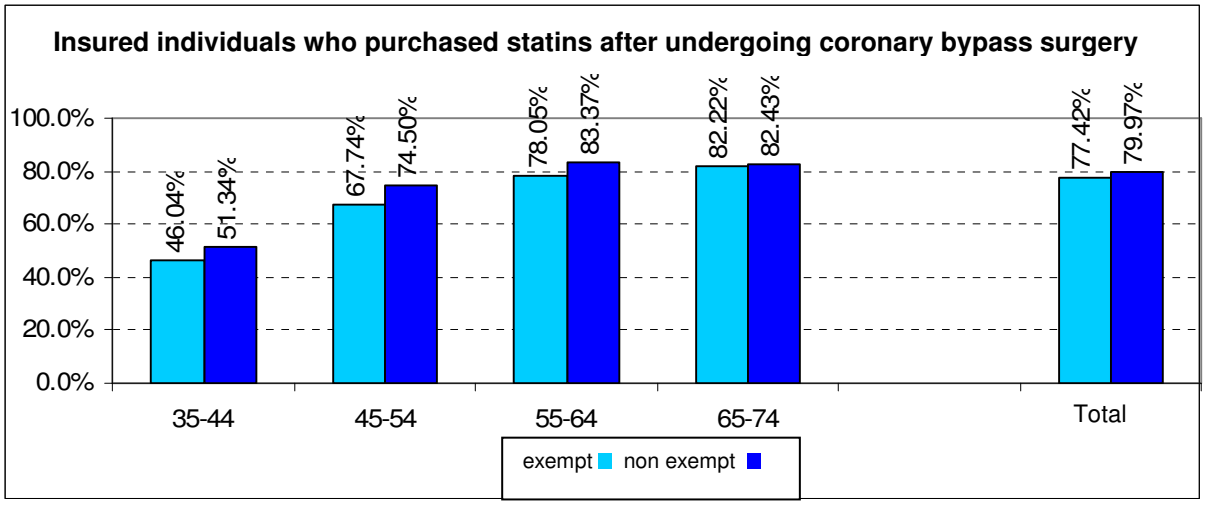


Figure 83: Rate of patients who underwent coronary bypass surgery and receive statins, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	46.04%	51.34%	49.35%	93	172	265	202	335	537
45-54	67.74%	74.50%	71.89%	655	1,148	1,803	967	1,541	2,508
55-64	78.05%	83.37%	80.84%	1,860	2,185	4,045	2,383	2,621	5,004
65-74	82.22%	82.43%	82.34%	2,433	3,055	5,488	2,959	3,706	6,665
Total	77.42%	79.97%	78.84%	5,041	6,560	11,601	6,511	8,203	14,714



1.1.2 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* 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 2005, 57.8% of the patients who underwent surgery purchased ACEI/ARB. Only approximately 31% of the patients in the 35-44 age group who underwent surgery purchased these drugs, while approximately 64% 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 84).
- No significant sex-related differences were found in the purchase of ACEI/ARB (Figure 85).
- Patients exempt from NII payments purchased more ACEI/ARB that the rest of those who underwent surgery, 62.1% compared to 54.4%, respectively – a difference found in all age groups (Figure 86).

Figure 84: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	32.61%	30.47%	31.10%	180	167	167	552	548	537
45-54	44.16%	45.75%	45.65%	1,157	1,185	1,145	2,620	2,590	2,508
55-64	53.81%	56.09%	58.29%	2,683	2,828	2,917	4,986	5,042	5,004
65-74	60.20%	62.06%	64.19%	4,311	4,293	4,278	7,161	6,917	6,665
Total	54.38%	56.12%	57.82%	8,331	8,473	8,507	15,319	15,097	14,714

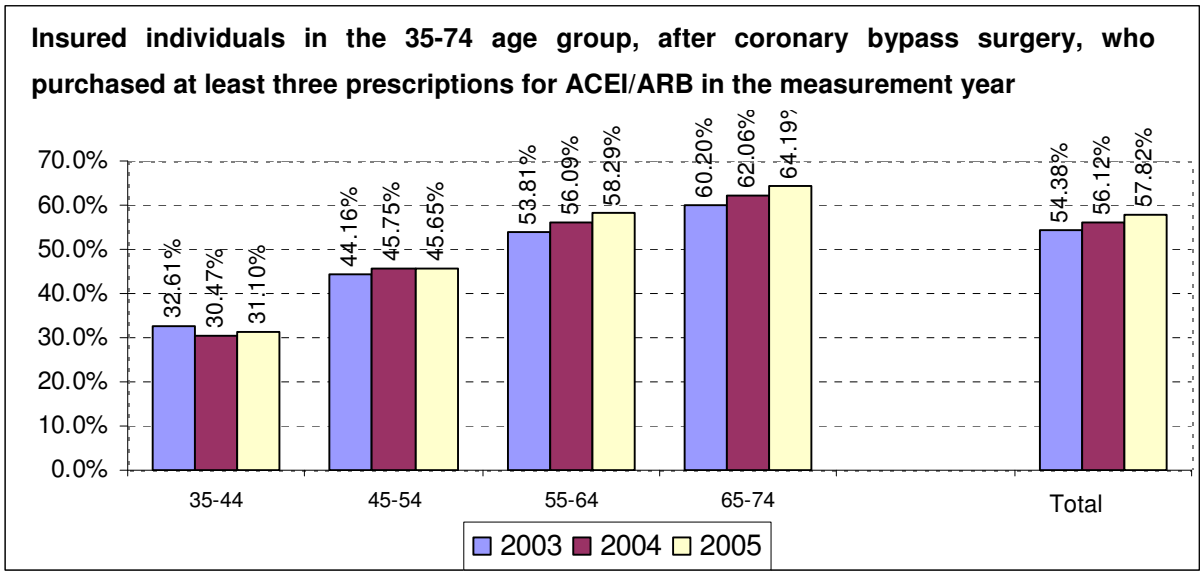


Figure 85: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	37.08%	16.23%	31.10%	142	25	167	383	154	537
45-54	46.11%	43.63%	45.65%	943	202	1,145	2,045	463	2,508
55-64	58.44%	57.68%	58.29%	2,350	567	2,917	4,021	983	5,004
65-74	62.36%	68.69%	64.19%	2,957	1,321	4,278	4,742	1,923	6,665
Total	57.12%	60.03%	57.82%	6,392	2,115	8,507	11,191	3,523	14,714

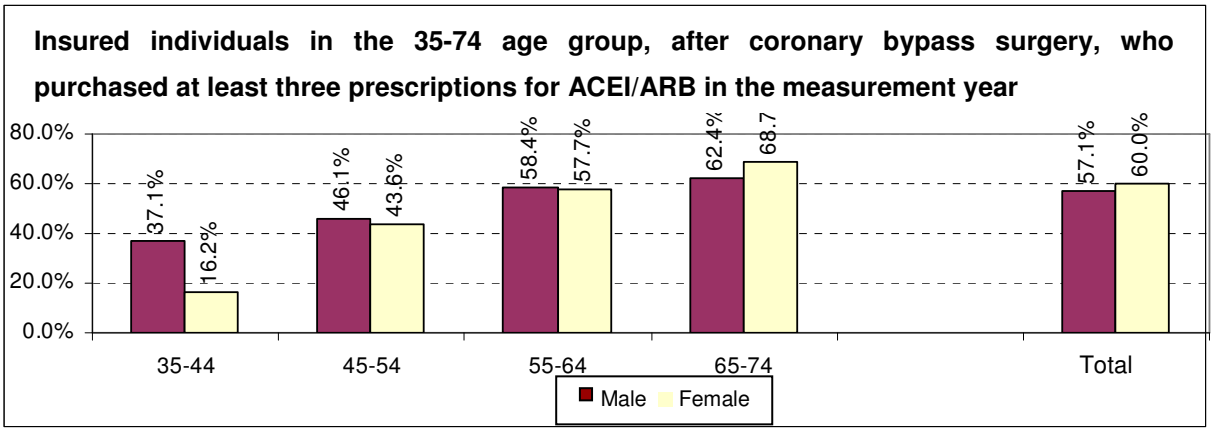
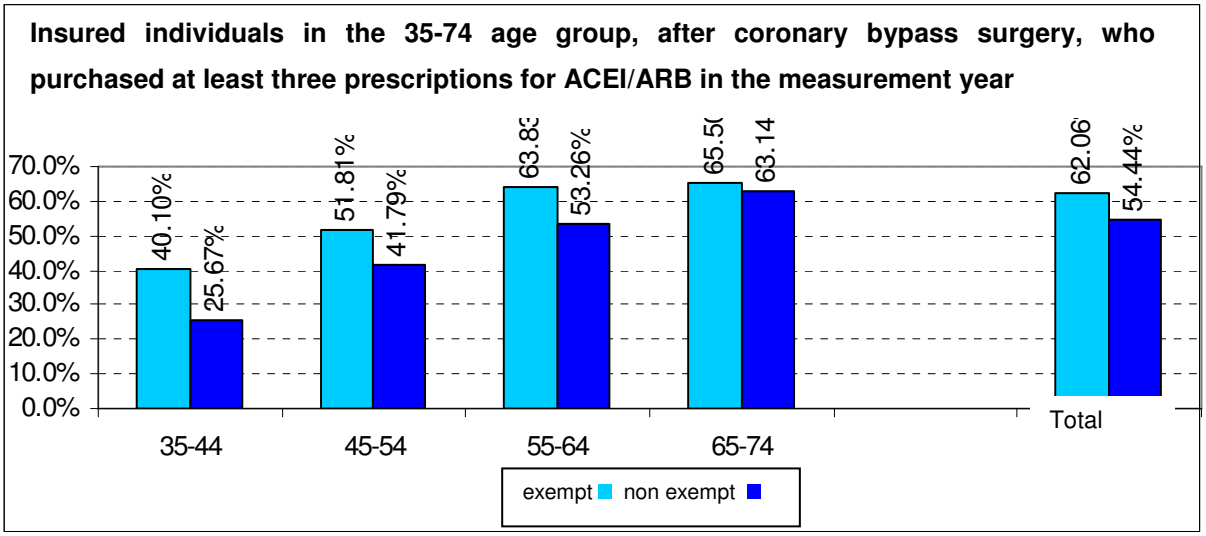


Figure 86: Rate of patients who underwent coronary bypass surgery and receive ACEI/ARB, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	40.10%	25.67%	31.10%	81	86	167	202	335	537
45-54	51.81%	41.79%	45.65%	501	644	1,145	967	1,541	2,508
55-64	63.83%	53.26%	58.29%	1,521	1,396	2,917	2,383	2,621	5,004
65-74	65.50%	63.14%	64.19%	1,938	2,340	4,278	2,959	3,706	6,665
Total	62.06%	54.44%	57.82%	4,041	4,466	8,507	6,511	8,203	14,714



1.1.3 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* 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 2005, 68.8% of the patients who underwent surgery purchased beta blockers. Only approximately 52% of the patients in the 35-44 age group who underwent surgery purchased these drugs, while approximately 71% 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 87).
- 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 (57.7% compared to 37.0%, respectively) (Figure 88).
- Patients exempt from NII payments purchased slightly more beta blockers than the rest of those who underwent surgery, 70.6% compared to 67.3%, respectively – a difference found in all age groups (Figure 89).

Figure 87: Rate of patients who underwent coronary bypass surgery and receive beta blockers, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	46.38%	46.90%	51.77%	256	257	278	552	548	537
45-54	59.69%	64.32%	65.07%	1,564	1,666	1,632	2,620	2,590	2,508
55-64	64.82%	67.99%	70.00%	3,232	3,428	3,503	4,986	5,042	5,004
65-74	64.96%	68.18%	70.59%	4,652	4,716	4,705	7,161	6,917	6,665
Total	63.35%	66.68%	68.76%	9,704	10,067	10,118	15,319	15,097	14,714

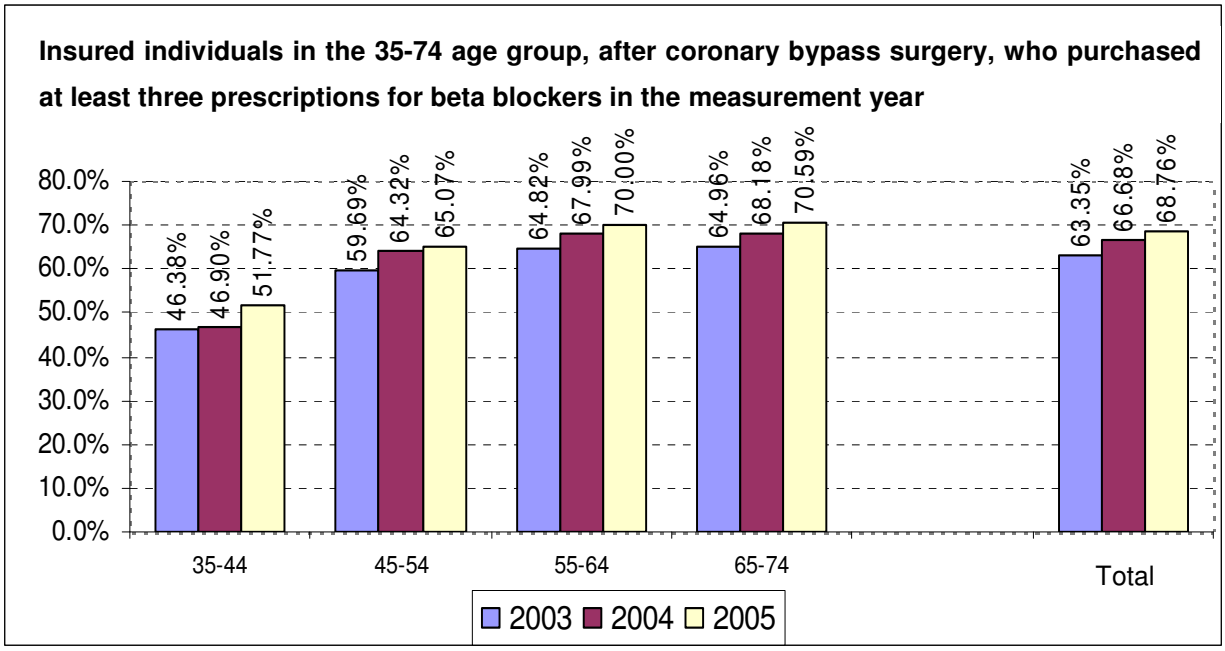


Figure 88: Rate of patients who underwent coronary bypass surgery and receive beta blockers, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**	**All**
35-44	57.70%	37.01%	51.77%	221	57	278	383	154	537
45-54	65.23%	64.36%	65.07%	1,334	298	1,632	2,045	463	2,508
55-64	69.91%	70.40%	70.00%	2,811	692	3,503	4,021	983	5,004
65-74	69.78%	72.59%	70.59%	3,309	1,396	4,705	4,742	1,923	6,665
Total	68.58%	69.34%	68.76%	7,675	2,443	10,118	11,191	3,523	14,714

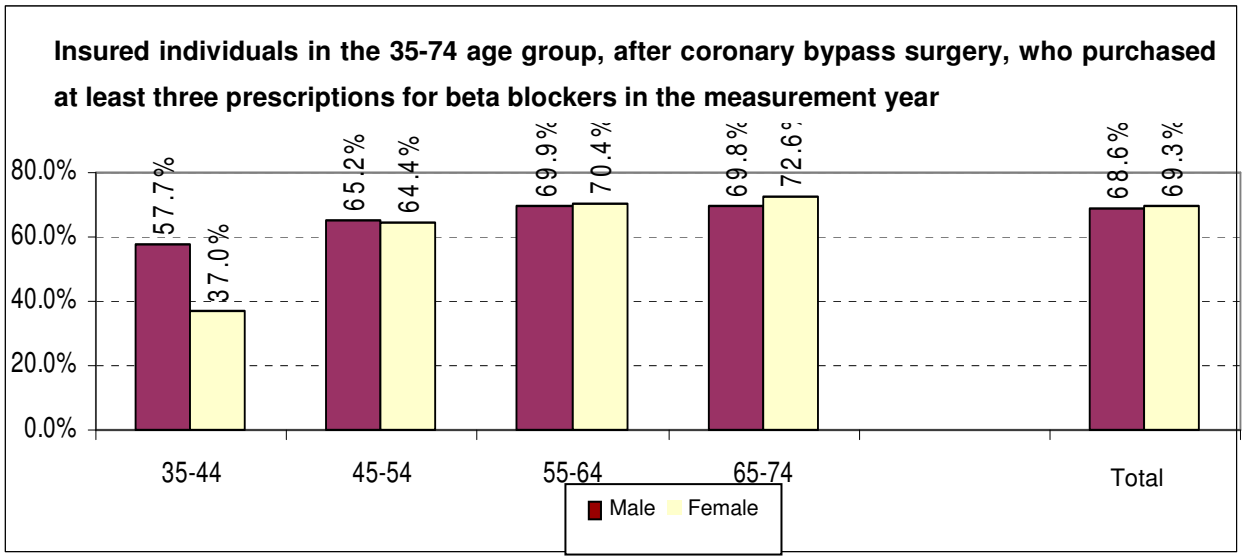
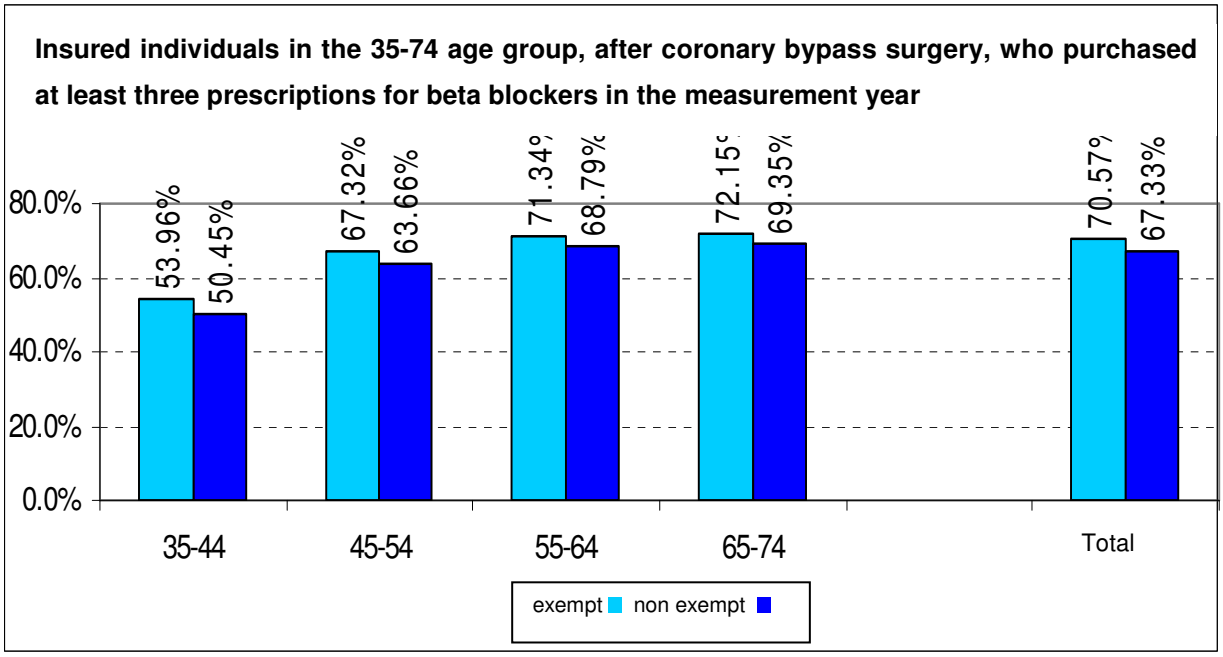


Figure 89: Rate of patients who underwent coronary bypass surgery and receive beta blockers, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	53.96%	50.45%	51.77%	109	169	278	202	335	537
45-54	67.32%	63.66%	65.07%	651	981	1,632	967	1,541	2,508
55-64	71.34%	68.79%	70.00%	1,700	1,803	3,503	2,383	2,621	5,004
65-74	72.15%	69.35%	70.59%	2,135	2,570	4,705	2,959	3,706	6,665
Total	70.57%	67.33%	68.76%	4,595	5,523	10,118	6,511	8,203	14,714



1.2 Drug therapy following therapeutic coronary angiography

1.2.1 *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* 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 42,292 subjects, slightly higher than in previous years, as a reflection of the slow increase in performance of this action 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 2005, 81.2% of the patients who underwent therapeutic coronary angiography purchased statins. In the 35-44 age group, only approximately 65% of patients who underwent therapeutic coronary angiography purchased statins, while among patients aged 55 and older, over 83% of those who underwent therapeutic coronary angiography received this treatment. An annual increase was recorded in the performance of this indicator (Figure 90).
- Young men purchased more statins than did young women (71.0% compared to 27.3%, respectively), but from the age of 55, differences by sex were equalized (Figure 91).

- No differences were found in the purchase of statins based on status of exemption from NII payments (Figure 92).

Figure 90: Rate of patients who underwent therapeutic coronary angiography and receive statins, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	60.07%	61.52%	64.81%	1,154	1,340	1,492	1,921	2,178	2,302
45-54	72.30%	74.90%	77.28%	5,727	6,921	7,790	7,921	9,240	10,080
55-64	77.32%	80.03%	82.82%	8,368	10,433	12,222	10,822	13,036	14,757
65-74	78.22%	81.87%	84.75%	9,042	11,213	12,842	11,559	13,696	15,153
Total	75.38%	78.39%	81.21%	24,291	29,907	34,346	32,223	38,150	42,292

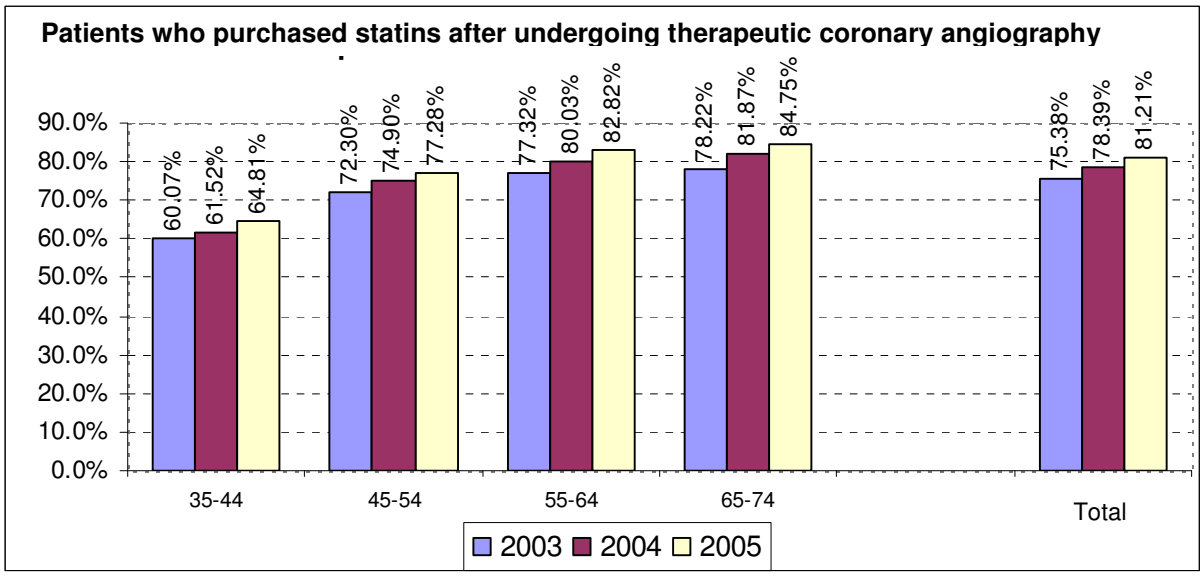


Figure 91: Rate of patients who underwent therapeutic coronary angiography and receive statins, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	71.00%	27.30%	64.81%	1,403	89	1,492	1,976	326	2,302
45-54	79.08%	65.27%	77.28%	6,935	855	7,790	8,770	1,310	10,080
55-64	83.08%	81.61%	82.82%	10,097	2,125	12,222	12,153	2,604	14,757
65-74	84.06%	86.45%	84.75%	9,064	3,778	12,842	10,783	4,370	15,153
Total	81.64%	79.52%	81.21%	27,499	6,847	34,346	33,682	8,610	42,292

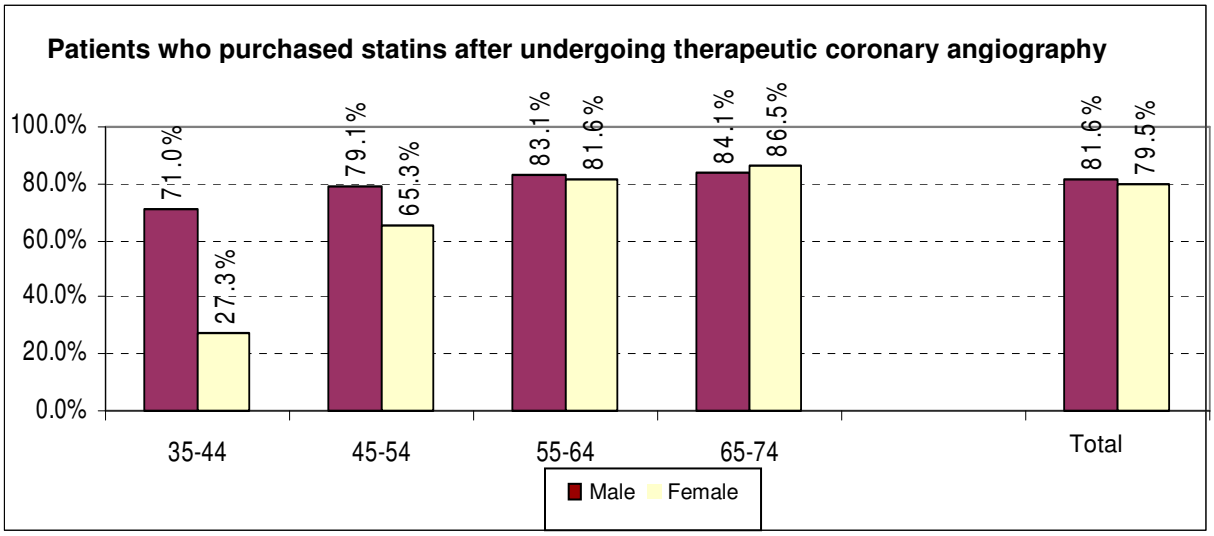
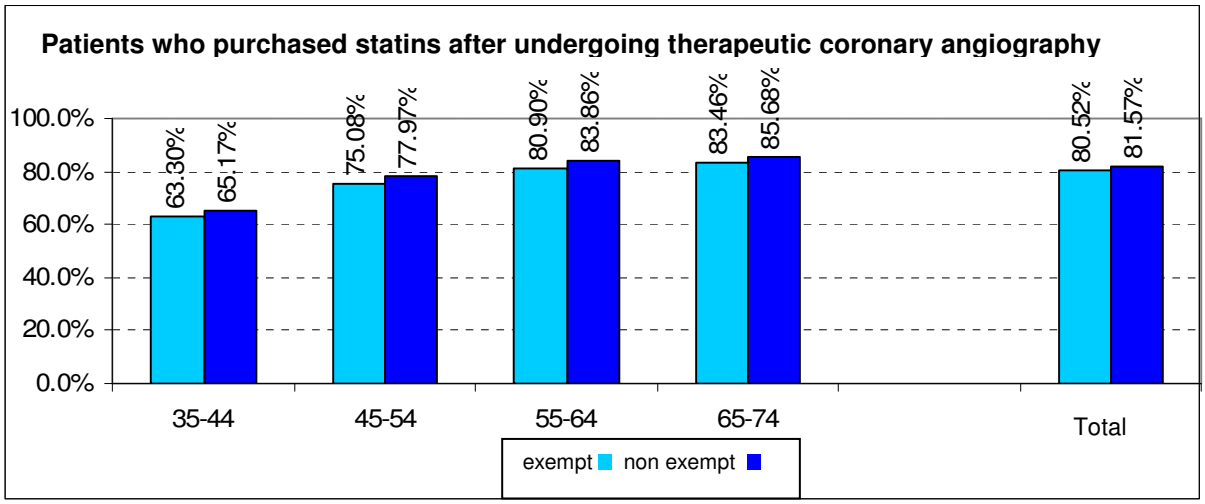


Figure 92: Rate of patients who underwent therapeutic coronary angiography and receive statins, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	63.30%	65.17%	64.81%	276	1,216	1,492	436	1,866	2,302
45-54	75.08%	77.97%	77.28%	1,811	5,979	7,790	2,412	7,668	10,080
55-64	80.90%	83.86%	82.82%	4,186	8,036	12,222	5,174	9,583	14,757
65-74	83.46%	85.68%	84.75%	5,299	7,543	12,842	6,349	8,804	15,153
Total	80.52%	81.57%	81.21%	11,572	22,774	34,346	14,371	27,921	42,292



1.2.2 *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* 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 2005, 59.1% of the patients who underwent therapeutic coronary angiography purchased ACEI/ARB. Only approximately 40% of the patients in the 35-44 age group who underwent therapeutic coronary angiography purchased these drugs, while approximately 66% 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 93).
- No significant differences were found in the purchase of ACEI/ARB by men and women, with the exception of in the young group, where men purchased this drug more than women (43.1% compared to 21.2%, respectively) (Figure 94).

- Patients exempt from NII payments purchased more ACEI/ARB than the rest of those who underwent therapeutic coronary angiography, 64.7% compared to 56.3%, respectively – a difference found in all age groups (Figure 95).

Figure 93: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	35.87%	37.37%	40.01%	689	814	921	1,921	2,178	2,302
45-54	45.58%	49.37%	50.72%	3,610	4,562	5,113	7,921	9,240	10,080
55-64	55.40%	57.54%	60.35%	5,995	7,501	8,906	10,822	13,036	14,757
65-74	62.18%	64.11%	66.42%	7,187	8,781	10,065	11,559	13,696	15,153
Total	54.25%	56.77%	59.12%	17,481	21,658	25,005	32,223	38,150	42,292

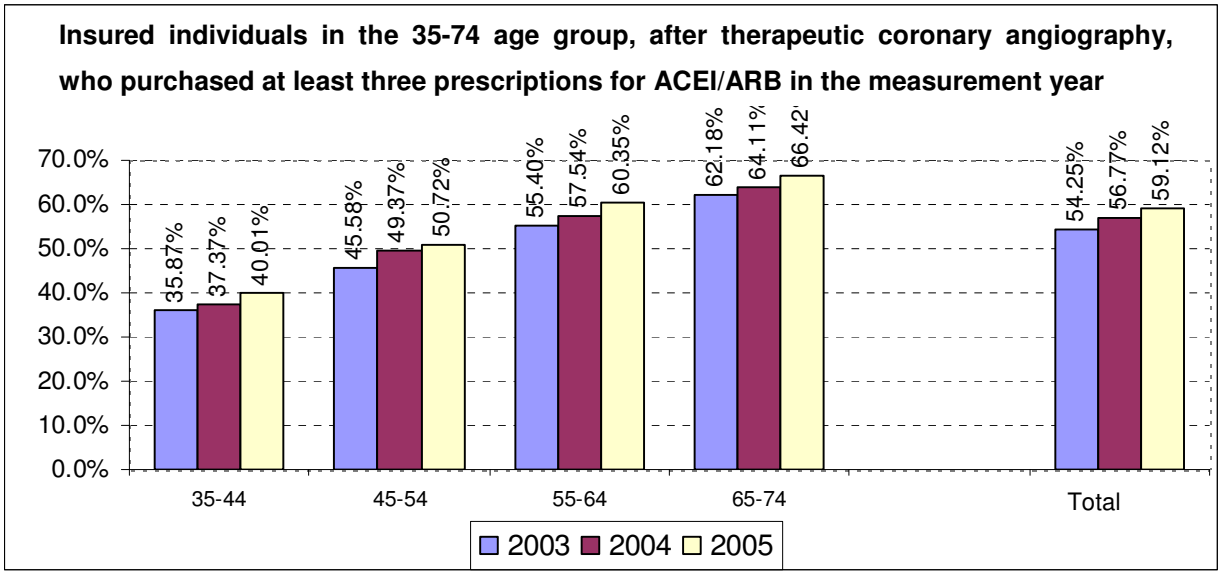


Figure 94: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	43.12%	21.17%	40.01%	852	69	921	1,976	326	2,302
45-54	51.23%	47.33%	50.72%	4,493	620	5,113	8,770	1,310	10,080
55-64	60.08%	61.64%	60.35%	7,301	1,605	8,906	12,153	2,604	14,757
65-74	65.18%	69.50%	66.42%	7,028	3,037	10,065	10,783	4,370	15,153
Total	58.41%	61.92%	59.12%	19,674	5,331	25,005	33,682	8,610	42,292

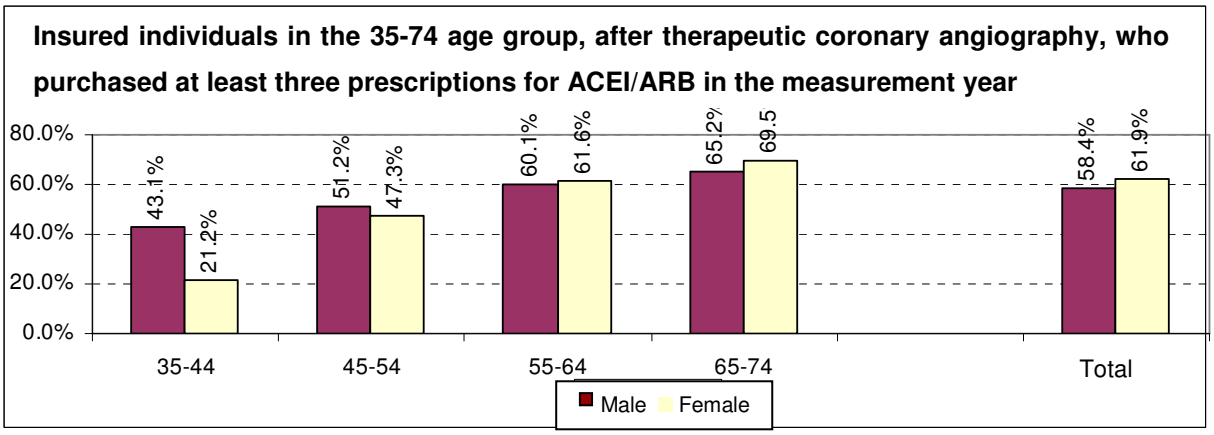
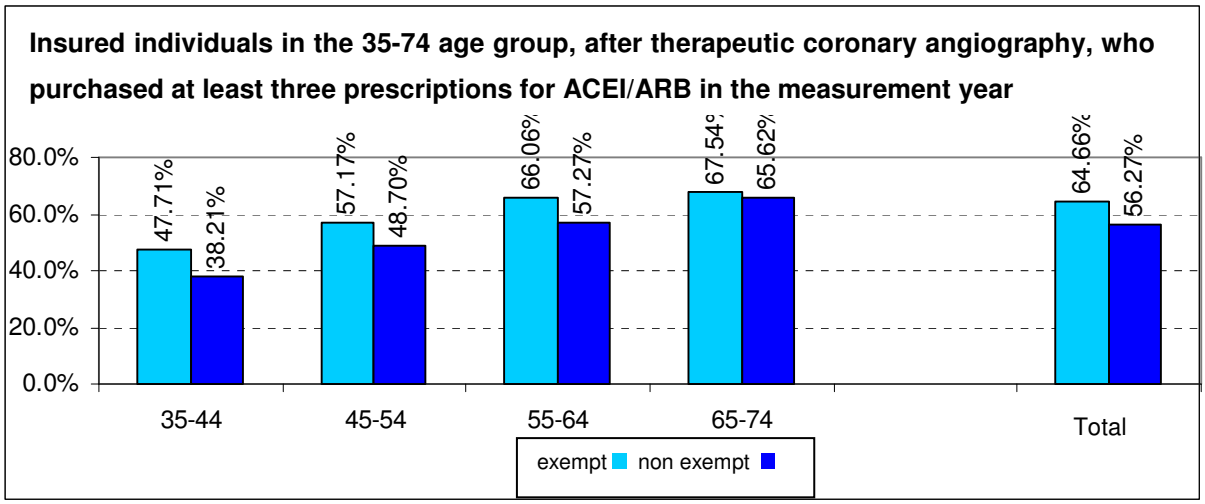


Figure 95: Rate of patients who underwent therapeutic coronary angiography and receive ACEI/ARB, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	47.71%	38.21%	40.01%	208	713	921	436	1,866	2,302
45-54	57.17%	48.70%	50.72%	1,379	3,734	5,113	2,412	7,668	10,080
55-64	66.06%	57.27%	60.35%	3,418	5,488	8,906	5,174	9,583	14,757
65-74	67.54%	65.62%	66.42%	4,288	5,777	10,065	6,349	8,804	15,153
Total	64.66%	56.27%	59.12%	9,293	15,712	25,005	14,371	27,921	42,292



1.2.3 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* 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 included in the indicator population (in the denominator) could not receive these drugs due to contraindications.

Main Findings:

- In 2005, 68.9% of the patients who underwent therapeutic coronary angiography purchased beta blockers. Only approximately 56% of the patients in the 35-44 age group who underwent therapeutic coronary angiography purchased these drugs, while approximately 72% 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 purchased beta blockers (Figure 96).
- 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 (59.4% compared to 35.9%, respectively) (Figure 97).
- Patients exempt from NII payments purchased slightly more beta blockers than the rest of those who underwent therapeutic coronary angiography, 71.8%

compared to 67.4%, respectively – a difference found in all age groups (Figure 98).

Figure 96: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	54.35%	54.59%	56.04%	1,044	1,189	1,290	1,921	2,178	2,302
45-54	62.66%	64.27%	65.37%	4,963	5,939	6,589	7,921	9,240	10,080
55-64	67.13%	68.66%	69.92%	7,265	8,950	10,318	10,822	13,036	14,757
65-74	68.50%	71.01%	72.12%	7,918	9,726	10,929	11,559	13,696	15,153
Total	65.76%	67.64%	68.87%	21,190	25,804	29,126	32,223	38,150	42,292

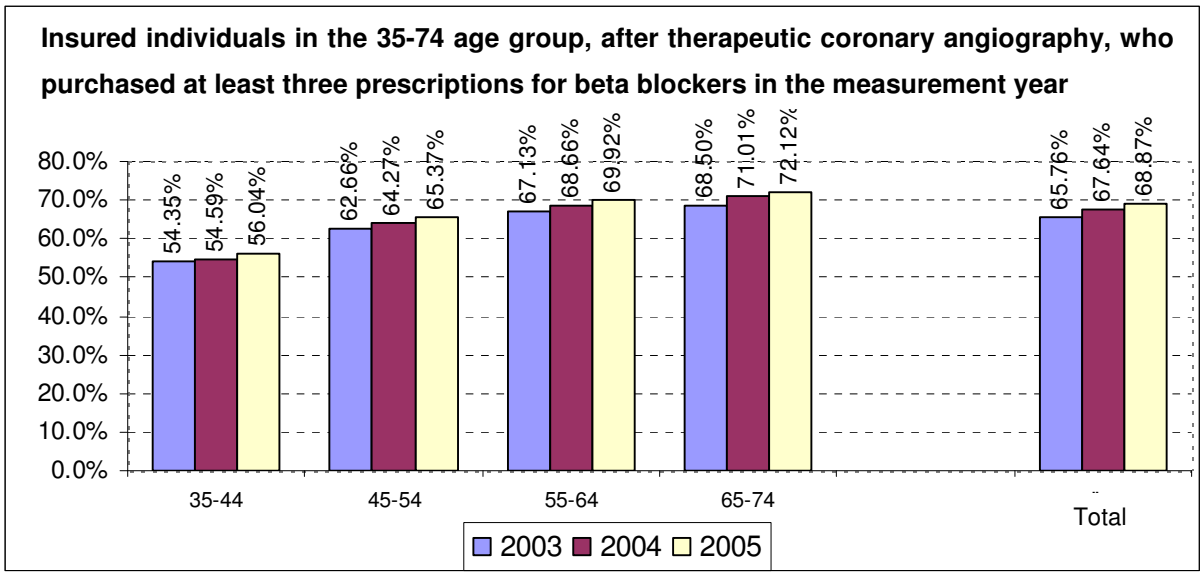


Figure 97: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	Male	Female	All	Male	Female	All	Male	Female	All
35-44	59.36%	35.89%	56.04%	1,173	117	1,290	1,976	326	2,302
45-54	65.70%	63.13%	65.37%	5,762	827	6,589	8,770	1,310	10,080
55-64	69.36%	72.54%	69.92%	8,429	1,889	10,318	12,153	2,604	14,757
65-74	70.52%	76.09%	72.12%	7,604	3,325	10,929	10,783	4,370	15,153
Total	68.19%	71.52%	68.87%	22,968	6,158	29,126	33,682	8,610	42,292

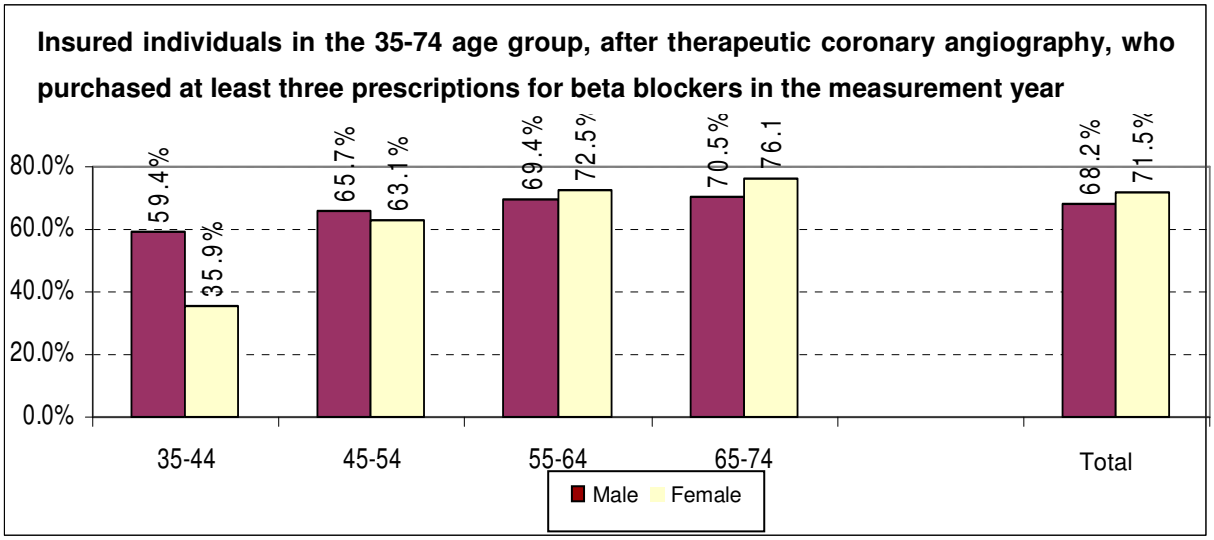
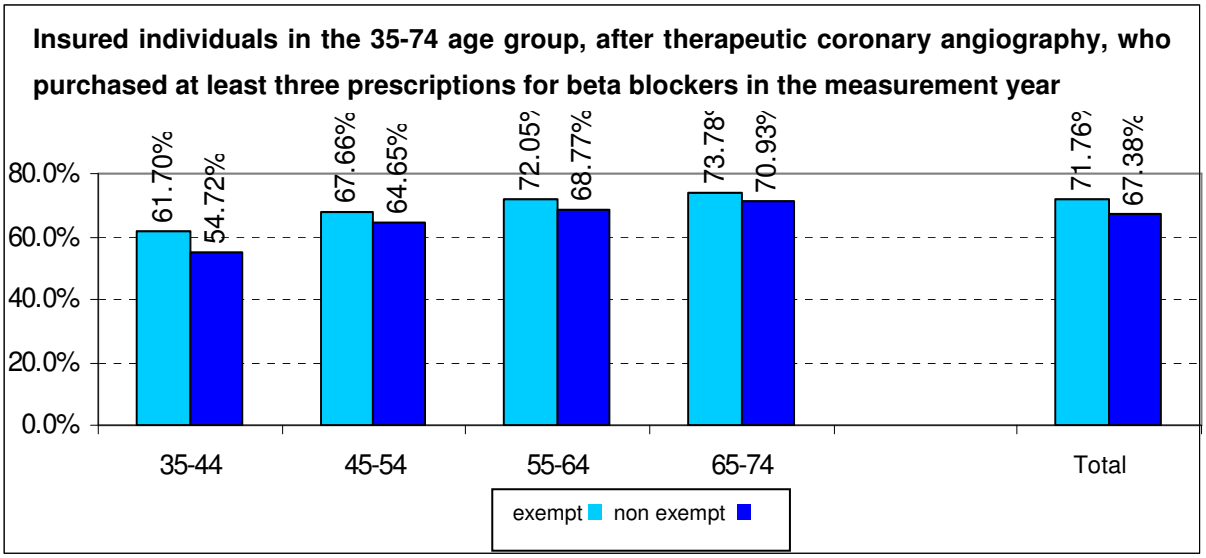


Figure 98: Rate of patients who underwent therapeutic coronary angiography and receive beta blockers, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	61.70%	54.72%	56.04%	269	1,021	1,290	436	1,866	2,302
45-54	67.66%	64.65%	65.37%	1,632	4,957	6,589	2,412	7,668	10,080
55-64	72.05%	68.77%	69.92%	3,728	6,590	10,318	5,174	9,583	14,757
65-74	73.78%	70.93%	72.12%	4,684	6,245	10,929	6,349	8,804	15,153
Total	71.76%	67.38%	68.87%	10,313	18,813	29,126	14,371	27,921	42,292



2. 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].

2.1 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 shows an LDL cholesterol level below 100 mg/dl. In 2005, the target population for this indicator was 12,578 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 2005, 56.8% of patients following coronary bypass surgery attained the LDL cholesterol control target of lower than 100 mg/dl. The target was achieved more

often in patients in the 65-74 age group than among younger patients, 60.1% and 46.7%, respectively. For the sake of comparison, according to HEDIS 2005 data, the rate of patients who achieved the target after a heart attack (a similar medical condition in terms of the control target for cholesterol) was 50.9%-54.3%, by type of insurance and age [1] (Figure 99).

- A 10% 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, 59.1% compared to 49.6%, respectively. This difference was maintained in all age groups (Figure 100).
- A slightly lower number of patients exempt from NII payments achieved the control target compared to the other patients, 54.5% compared to 58.6%, respectively, In the HEDIS 2005 Report, the rate of performance for individuals eligible for federal assistance in the US was only 28.5% (Figure 101).

Figure 99: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	40.31%	42.32%	46.74%	131	146	165	325	345	353
45-54	41.14%	44.48%	49.93%	820	910	1,000	1,993	2,046	2,003
55-64	45.69%	51.95%	56.20%	1,888	2,216	2,412	4,132	4,266	4,292
65-74	48.69%	54.50%	60.10%	3,032	3,306	3,564	6,227	6,066	5,930
Total	46.31%	51.70%	56.77%	5,871	6,578	7,141	12,677	12,723	12,578

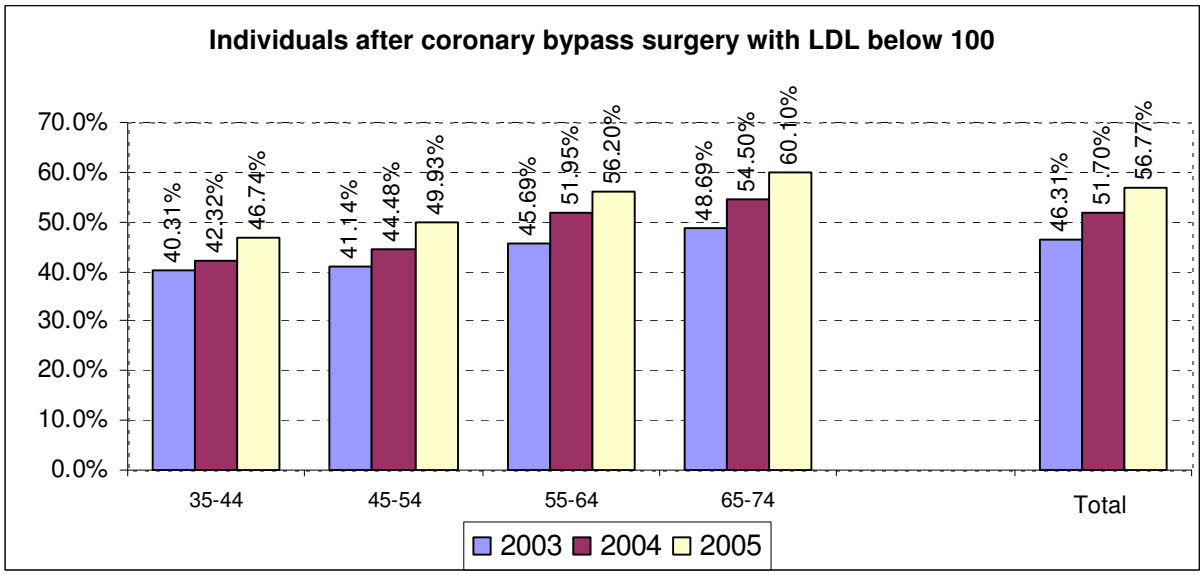


Figure 100: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**	**All**
35-44	49.23%	39.78%	46.74%	128	37	165	260	93	353
45-54	50.43%	47.73%	49.93%	821	179	1,000	1,628	375	2,003
55-64	58.44%	47.04%	56.20%	2,015	397	2,412	3,448	844	4,292
65-74	63.58%	51.72%	60.10%	2,664	900	3,564	4,190	1,740	5,930
Total	59.08%	49.57%	56.77%	5,628	1,513	7,141	9,526	3,052	12,578

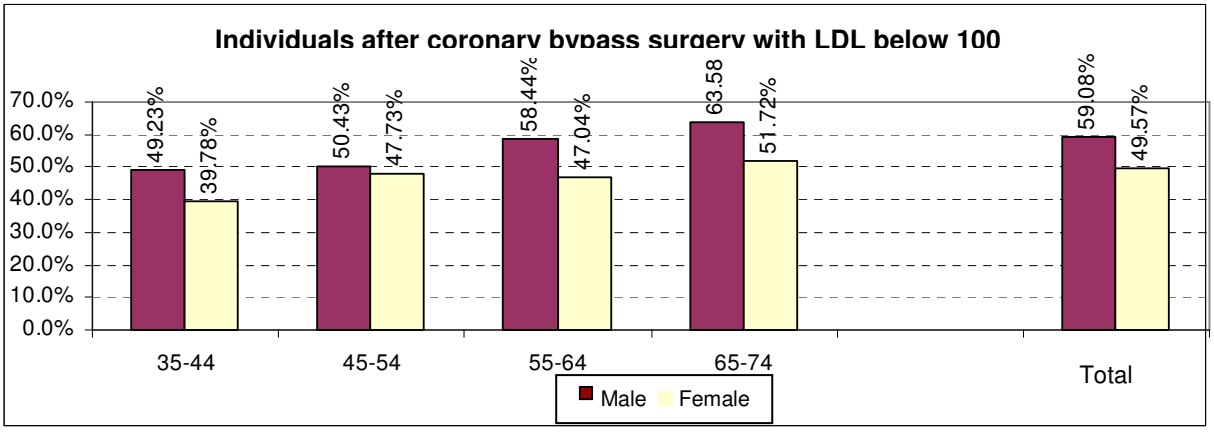
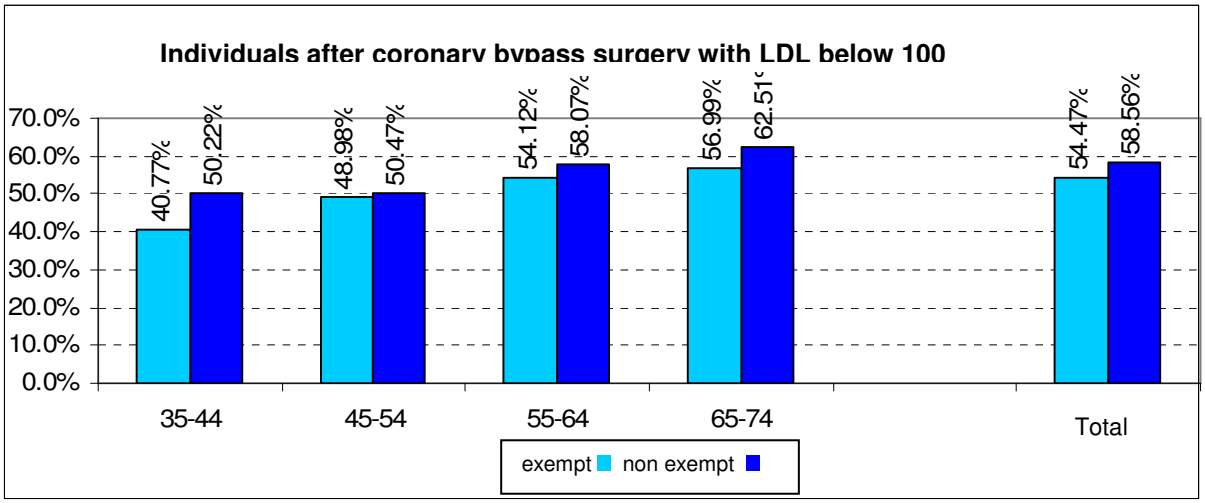


Figure 101: The rate of patients who after undergoing coronary bypass surgery achieved the cholesterol control target of below 100 mg/dl, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	40.77%	50.22%	46.74%	53	112	165	130	223	353
45-54	48.98%	50.47%	49.93%	361	639	1,000	737	1,266	2,003
55-64	54.12%	58.07%	56.20%	1,103	1,309	2,412	2,038	2,254	4,292
65-74	56.99%	62.51%	60.10%	1,476	2,088	3,564	2,590	3,340	5,930
Total	54.47%	58.56%	56.77%	2,993	4,148	7,141	5,495	7,083	12,578



2.2 LDL cholesterol level following therapeutic coronary angiography

Definition of the indicator:

The percentage of patients aged 35+ who have undergone therapeutic coronary angiography in the past five years and whose most recent test of blood fat levels shows an LDL cholesterol level below 100 mg/dl. In 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 2005, 57.8% of patients following therapeutic coronary angiography attained the LDL cholesterol control target of lower than 100 mg/dl. The target was achieved more often in patients in the 65-74 age group than among younger patients, 62.3% and 50.4%, respectively (Figure 102) (see section B1 for comparison with HEDIS data).
- A 10% 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, 58.9% compared to 53.7%, respectively. This difference was maintained in all age groups (Figure 103).
- A slightly lower number of patients exempt from NII payments achieved the control target compared to the other patients, 55.3% compared to 59.1%, respectively (Figure 104) (see section B1 for comparison with HEDIS data)

Figure 102: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, by age and year of reporting (2003-2005)

	Ratio			Numerator			Population		
Age	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
35-44	40.90%	43.03%	50.36%	508	633	779	1,242	1,471	1,547
45-54	43.27%	47.35%	52.39%	2,587	3,382	4,131	5,979	7,142	7,885
55-64	48.63%	51.94%	57.35%	4,305	5,691	7,122	8,852	10,957	12,419
65-74	52.22%	57.40%	62.30%	5,204	6,938	8,354	9,966	12,087	13,410
Total	48.40%	52.58%	57.81%	12,604	16,644	20,386	26,039	31,657	35,261

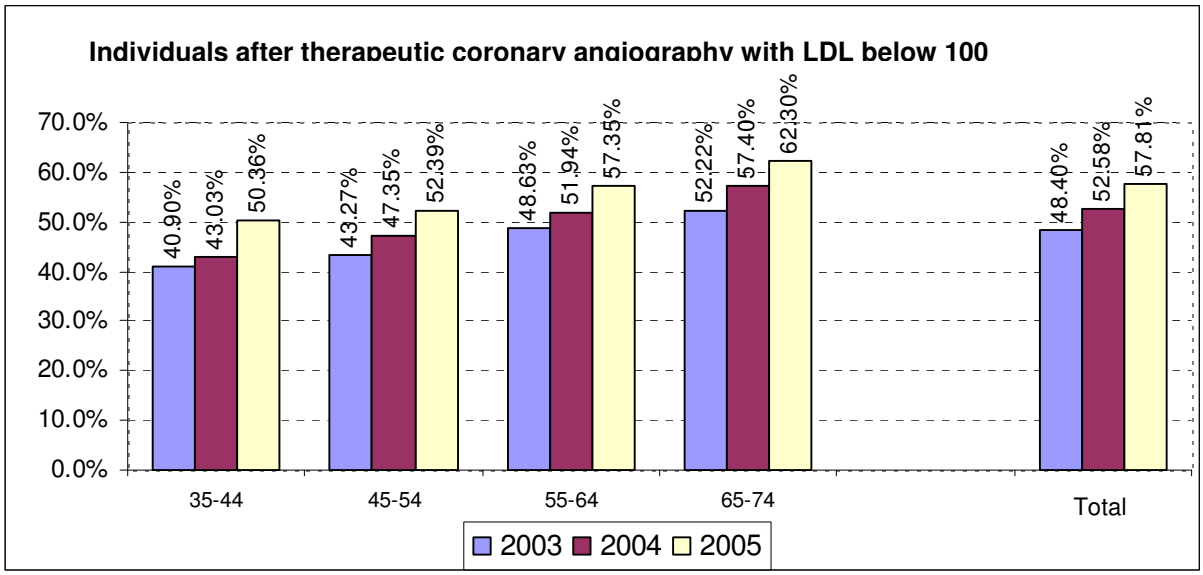


Figure 103: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, in 2005, by age and sex

	Ratio			Numerator			Population		
Age	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**	**All**
35-44	51.28%	43.18%	50.36%	703	76	779	1,371	176	1,547
45-54	52.83%	49.47%	52.39%	3,618	513	4,131	6,848	1,037	7,885
55-64	58.56%	51.94%	57.35%	5,943	1,179	7,122	10,149	2,270	12,419
65-74	64.80%	56.25%	62.30%	6,146	2,208	8,354	9,485	3,925	13,410
Total	58.92%	53.67%	57.81%	16,410	3,976	20,386	27,853	7,408	35,261

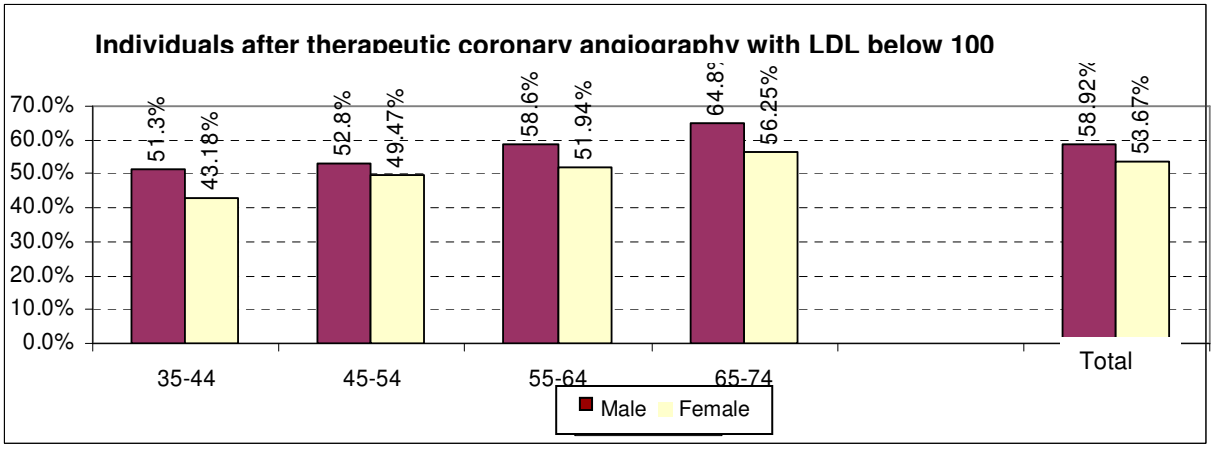
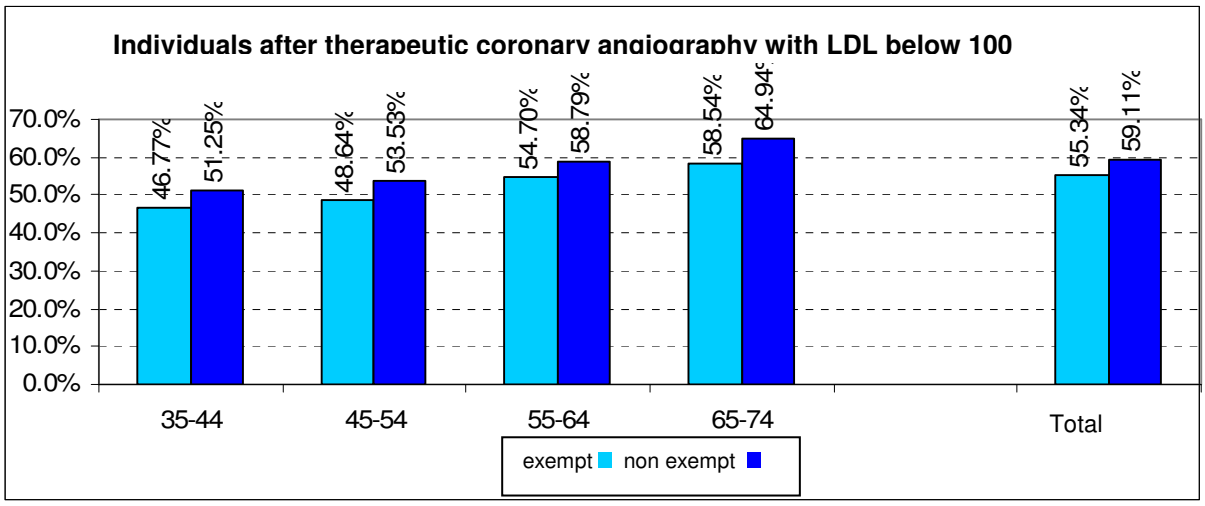


Figure 104: The rate of patients who after undergoing therapeutic coronary angiography achieved the cholesterol control target of below 100 mg/dl, in 2005, by age and socioeconomic status

	Ratio			Numerator			Population		
Age	Exempt	Non-exempt	All	Exempt	Non-exempt	All	Exempt	Non-exempt	All
35-44	46.77%	51.25%	50.36%	145	634	779	310	1,237	1,547
45-54	48.64%	53.53%	52.39%	897	3,234	4,131	1,844	6,041	7,885
55-64	54.70%	58.79%	57.35%	2,401	4,721	7,122	4,389	8,030	12,419
65-74	58.54%	64.94%	62.30%	3,245	5,109	8,354	5,543	7,867	13,410
Total	55.34%	59.11%	57.81%	6,688	13,698	20,386	12,086	23,175	35,261



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