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

National Program for Quality Indicators in Community Healthcare in Israel

Report

2013-2017

Supported by:

Ministry of Health, State of Israel

The Israel National Institute for Health Policy Research

Health Council

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With the support and participation of the four health plans in Israel:

Clalit Healthcare Services

Leumit Healthcare Services

Maccabi Healthcare Services

Meuhedet Healthcare Services

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Quality indicators in this report are derived from data provided by the four health plans in Israel. All data presented in the report underwent an internal review, as well as external auditing by an accredited professional.

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Introduction

The healthcare system in Israel places great importance on quality. Healthcare quality can be defined as a measure of the extent to which healthcare providers improve the probability of desired health outcomes according to current professional literature [2].

In 2001, the American Institute of Medicine (IOM) set an analytical framework for evaluating medical system quality, which outlined the main criteria for examining the quality of medical care [3]. According to the IOM, healthcare quality comprises the following elements:

- Effectiveness – improving health as a result of treatment
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cornerstones is the cooperation of the health plans, both one with each other as well as with the Program. This cooperation is evident in setting new quality indicators, in evaluating existing indicators on a regular basis, and in publication of performances in the selected measures. Since 2010, the Program has an academic directorate based in the Hadassah-Hebrew University Braun School of Public Health in Jerusalem.

QICH aspires to provide the public and policymakers with information regarding the quality of healthcare services supplied by the health plans to strengthen and improve medical care offered to Israeli residents. To achieve this goal, the program publishes the results of a national set of quality indicators for community healthcare (herein "indicators"). This assessment enables an evaluation of the development of quality medical care over time and identifies areas that require intervention and improvement, ranging from data collection to care.

Over the last decades, indicators have been developed to assess the quality of community health care in numerous countries. Quality indicators were implemented in the United States [6], Sweden [7], Australia [8], England [9], and in the Organization for Economic Cooperation and Development (OECD) [10]. QICH data compares Israel's achievements with those of other countries, where possible.

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

Indicators were selected based on five criteria:

1. Significance – the indicators relate to the treatment or prevention of common health states.
2. Evidence-based – the indicators reflect the best available treatments or preventive measures according to the up-to-date evidence in the scientific literature.
3. Quantification – the ability to have ratios of well-defined numerators and denominators.
4. Feasibility – the availability of the relevant data in electronic medical records, and the ability to retrieve these data from the computerized datasets.

5. Implementation – the indicators can be implemented in the setting of community healthcare.

The set of indicators include two indicator categories:

- Prevalence (e.g. the rate of asthma patients in the general population), used as a denominator for various indicators
- Quality of medical care
    - Process measures (e.g. appropriate treatment rates for asthma patients)
    - Intermediate outcome measures (e.g. rates of persons with diabetes achieving glycemic control)

All indicators, with the exception of antibiotic usage indicators, are presented as proportions or rates – the number of people in a defined group who satisfy specific criteria (e.g. the number of people who received the influenza vaccination among individuals aged 65+ years). The indicators are stratified by age, sex, and socio-economic position (SEP); the definition of the latest is given in the methods section.

Methods

Data Sources

The data presented in the report are based on information from patients' electronic medical records provided by Israel's four health plans. As part of their active and voluntary participation in the QICH program, the health plans provided data for quality indicators that were then aggregated into the national dataset. The data provided was therefore anonymous and did not include any personal identifiers, ensuring confidentiality.

Population

The report is based on information which originated in the computerized databases of each health plan, for the entire insured population. Therefore, it includes all Israeli residents, except for soldiers and prisoners. Additionally, members with incomplete membership in a given health plan during the study period are also not included in the report. Incomplete membership comprises those deceased and born during the measurement years, individuals who switched health plans, and Israelis who lived abroad for more than two years (in total, about 450,000 Israeli residents are not included in the report).

Aside from these exceptions, the report includes the entire Israeli population, approximately 8.02 million people. It is important to note that many indicators assess the quality of care provided by the family physician. Therefore, data are limited to patients with clinic visits. A study conducted in the setting of Clalit Health Services has shown that the majority of insured individuals visit their family doctor regularly, with over 90% of insured persons having at least one annual visit and 97% with at least one visit within a five-year period [11].

Variables

Indicators are presented as rates for the overall population over the five-year measurement period, as well as stratified by sex, age groups, and socio-economic position (SEP) for the year 2017.

SEP was classified based on geographical areas. The Israel Central Bureau of Statistics (CBS) classifies all neighborhoods in Israel into geographical statistical areas (GSAs), ranging from 1 to 20, based on financial and social information gathered during the census [12]. This classification is further refined, and information for new neighborhoods is completed by POINS, a privately-owned company, which gathers data from multiple sources (including various consumer and commercial data), and classifies all GSAs on a scale of 1 to 10. This classification is included in the aggregate data which is reported by all four HMOs to QICH, and was available for 96.1% of all health plan members in 2017. The small percentage of missing data on SEP classification (3.9% of the population), may be responsible for some discrepancies between graphs and tables presenting information with and without SEP.

All measures in this report are stratified into four SEP levels: SEP 1 (representing the lowest socio-economic position) represents POINTS classes 1 to 3, and includes 21.1% of the population; SEP 2 represents POINTS classes 4 and 5 and includes 29.1% of the population; SEP 3 represents POINTS classes 6 and 7 and includes 30.9% of the population; and SEP 4 (representing the highest socio-economic position) represents POINTS classes 8 to 10, and includes 15.0% of the population.

Work Plan

The preparation of this report included the following stages:

1. Defining the set of indicators and updating their specifications

This report includes most of the existing indicators in the program, with the aim of reflecting as much information as possible, including a number of new indicators: information on the presence of thinness, normal weight, overweight and obesity among children aged 7 years; information on overweight, obesity and morbid obesity among diabetics aged 20-64, and information on obesity among diabetics aged 65-84 is included for the first time. Furthermore, definitions of a number of indicators were updated to increase their validity and to match the recent evidence. A map of the indicators by field is presented in Figure 1.

2. Data auditing

Data from each health plan was examined on three levels: an internal data audit was conducted within each health plan, the QICH program's directorate performed a data audit, and the health plans and program directorate underwent an external audit process by a certified external auditor. The objective of the audits was to ensure a high level of consistency between the health plans' data. The evaluation included check routines, subgroup analyses, and an examination of trends over time. The external evaluation focused on the production process and indicator construction within each health plan. Throughout the auditing process, methodologies, control processes, documentation, and lessons learned were examined. This approach enables continuous improvement in indicator reporting. Topics that were emphasized in the audits conducted for this report include: the introduction of a minimal set of uniform check routines by all four plans, examining a variety of information sources in each health plan (laboratories, medical records, pharmacies), and a sample testing of software codes. In addition, the QICH program directorate has recently introduced a tailor-made computerized system to formulate algorithms that unify the definition files, thereby decreasing the chance of error.

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Figure 1: QICH indicators map by field, 2017

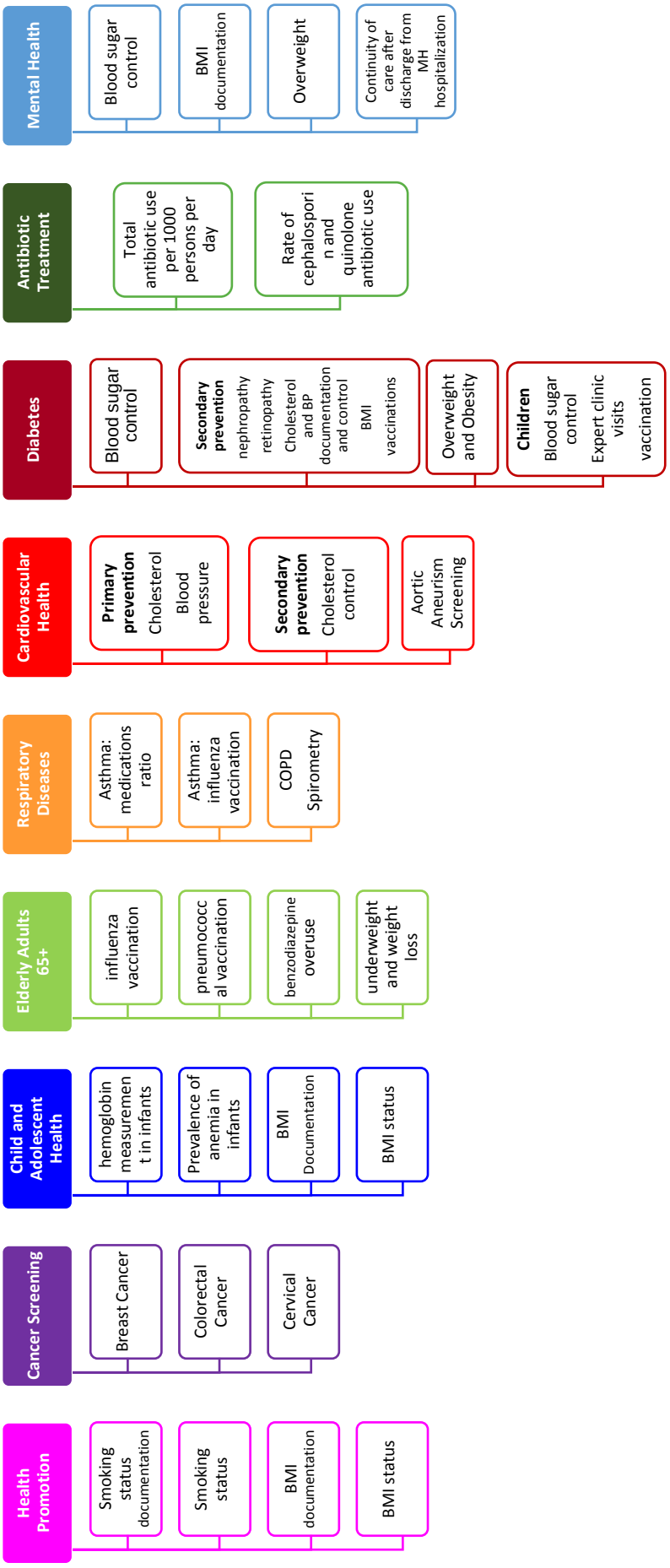

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Table 1: Quality Indicator Rates 2013-2017

Measure	2013	2014	2015	2016	2017
Health Promotion					
Documentation of BMI components (ages 20-64)	87.6%	88.2%	89.7%	90.4%	90.1%
Prevalence of underweight among adults (ages 20-64)	2.5%	2.5%	2.5%	2.6%	2.6%
Prevalence of normal weight among adults (ages 20-64)	40.1%	39.8%	39.9%	40.0%	39.8%
Prevalence of overweight among adults (ages 20-64)	34.1%	34.2%	34.4%	34.3%	34.3%
Prevalence of obesity among adults (ages 20-64)	22.8%	23.0%	23.0%	23.1%	23.3%
Smoking status documentation (ages 16-74)	83.9%	88.1%	91.0%	91.9%	91.8%
Prevalence of smoking (ages 16-74)	20.2%	20.3%	19.6%	19.2%	18.9%
Cancer Screening					
Breast cancer screening ,mammography (women, ages 50-74)	69.9%	69.3%	69.6%	69.9%	70.5%
Colorectal cancer screening (ages 50-74)	56.5%	58.3%	59.4%	58.6%	63.3%
Appropriate cervical cancer screening (women aged 35-54 who were screened in the past 3 years)	47.1%	48.1%	48.2%	48.7%	49.9%
Under-screening for cervical cancer (women aged 35-54 who were not screened in the last 5 years)	47.4%	39.0%	37.6%	36.6%	35.9%
Children and Adolescents					
Hemoglobin measurements in infants aged 9-18 months	84.8%	85.3%	86.4%	87.7%	88.0%
Prevalence of anemia among infants aged 9-18 months	8.6%	8.1%	7.9%	8.8%	7.8%
Documentation of BMI components in children (age 7 years)	72.7%	75.2%	77.9%	79.8%	79.8%
Prevalence of thinness among children (age 7 years)	-	4.3%	4.1%	4.5%	4.5%
Prevalence of normal weight among children (age 7 years)	-	74.6%	74.9%	75.3%	76.5%
Prevalence of overweight among children (age 7 years)	-	13.2%	13.0%	12.6%	11.9%
Prevalence of obesity among children (age 7 years)	-	7.9%	8.1%	7.6%	7.1%
components in adolescents Documentation of BMI (age 14-18 years)	76.8%	74.5%	75.4%	75.1%	75.2%

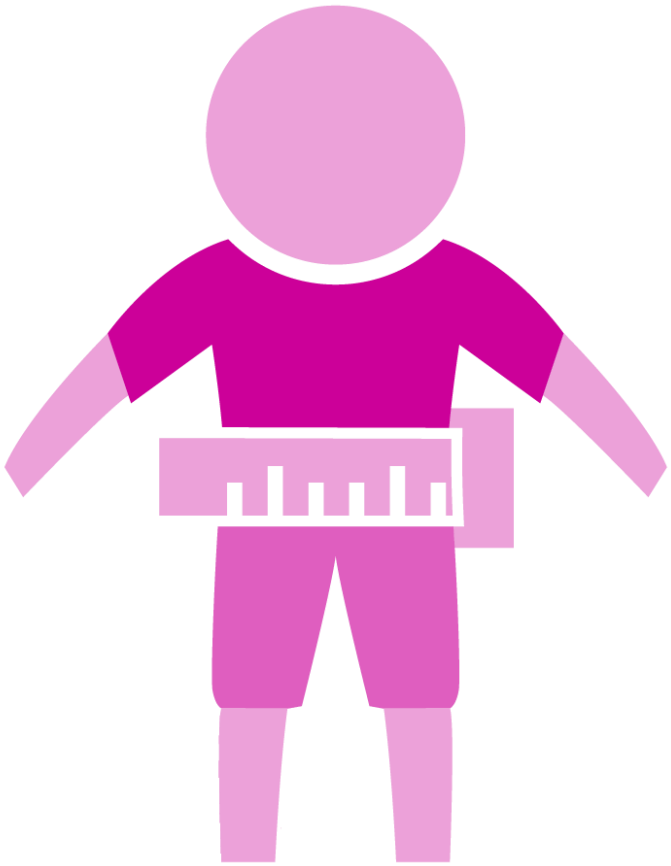
	Measure	2013	2014	2015	2016	2017
	Elderly Health					
	Influenza vaccination in older adults (aged 65 years or older)	62.4%	63.4%	64.3%	63.0%	61.0%
	Pneumococcal vaccination in older adults (aged 65-74 years)	78.7%	76.6%	78.1%	78.2%	77.7%
	Documentation of BMI components in older adults (aged 65-84 years)	80.0%	79.1%	81.4%	79.7%	80.3%
	Underweight among older adults (aged 75 years or older)	14.8%	14.9%	14.9%	15.0%	15.0%
	Significant weight-loss in older adults (aged 75 years or older)	7.2%	7.2%	7.6%	7.7%	7.6%
	Prevalence of obesity among older adults (aged 65-84)	33.5%	33.3%	33.1%	33.2%	33.2%
	Benzodiazepine overuse in older adults (aged 65 years or older)	5.2%	5.2%	5.3%	4.8%	5.0%
	Use of long-acting of benzodiazepines in older adults (aged 65 years or older)	3.1%	2.6%	2.5%	2.4%	2.3%
	Respiratory Diseases					
	Prevalence of persistent asthma (ages 5-45 years)	0.9%	0.8%	0.9%	0.8%	0.8%
	Asthma medication ratio (AMR) greater than or equal to 0.5 (ages 5-45 years)	66.2%	67.4%	66.8%	68.4%	69.4%
	Influenza vaccination of individuals with persistent asthma (ages 5-45 years)	37.3%	41.7%	42.1%	36.5%	35.2%
	Spirometry testing in patients with COPD or those at high- risk for COPD (ages 50-74 years)	52.4%	57.9%	67.3%	70.7%	73.7%
	Documentation of spirometry testing in patients with COPD or those at high- risk for COPD (ages 50-74 years)	6.6%	10.9%	13.8%	25.3%	33.1%

Measure	2013	2014	2015	2016	2017
Cardiovascular Health					
Cholesterol level testing (ages 35-54 years)	87.1%	86.2%	87.5%	88.2%	88.3%
Cholesterol level testing (ages 55-74 years)	78.0%	76.8%	76.2%	75.3%	75.8%
LDL-cholesterol achievement of target (ages 35-74 years, target is set by risk- level)	83.6%	83.9%	83.3%	83.3%	84.2%
Rate of LDL cholesterol level less than or equal to 160 mg/dL in those at low-risk for heart disease (ages 35-74 years)	90.1%	89.8%	89.4%	89.5%	90.2%
Rate of LDL cholesterol level less than or equal to 130 mg/dL in those at medium-risk for heart disease (ages 35-74 years)	71.8%	72.8%	72.0%	72.0%	72.9%
Rate of LDL cholesterol level less than or equal to 100 mg/dL in those at high-risk for heart disease (ages 35-74 years)	27.7%	30.8%	29.3%	30.3%	32.9%
Documentation of blood pressure (ages 20-54 years)	92.1%	91.4%	92.7%	93.1%	92.9%
Documentation of blood pressure (ages 55-74 years)	82.8%	82.0%	83.1%	81.1%	81.5%
Use of LDL- lowering drug therapy in individuals after CABG and/ or angioplasty (ages 35-80 years)	82.9%	82.2%	82.5%	82.5%	82.3%
Use of high- potency statin therapy or LDL- cholesterol level less than or equal to 70 mg/ dl in individuals after CABG and/ or angioplasty (ages 35-80 years)	55.9%	57.2%	60.1%	62.5%	65.2%
Diabetes					
Prevalence of diabetes mellitus (ages 18 years or older)	9.6%	9.7%	9.7%	9.7%	9.6%
Documentation of HbA1c levels in individuals with diabetes mellitus (ages 18 years or older)	89.6%	90.0%	90.2%	89.8%	90.9%
Adequate control of HbA1c in individuals with diabetes mellitus (ages 18 years or older)	64.3%	66.4%	67.6%	69.6%	69.7%
Uncontrolled diabetes: HbA1c greater than 9% in individuals with diabetes mellitus (ages 18 years or older)	12.2%	11.6%	11.0%	10.3%	10.0%
Documentation of eye exam for individuals with diabetes mellitus (ages 18 years or older)	74.3%	75.0%	75.9%	72.5%	72.5%
Documentation of urinary protein levels for individuals with diabetes mellitus (ages 18-84)	77.8%	78.6%	79.7%	79.6%	81.3%
Documentation of GFR /Egfr in individuals with diabetes mellitus (ages 18-84)	91.3%	91.5%	91.8%	91.3%	92.5%
Chronic kidney disease in individuals with diabetes mellitus (ages 18-84)	30.1%	30.5%	31.1%	31.4%	32.7%

Measure	2013	2014	2015	2016	2017
Treatment with ACEI/ARB for chronic kidney diseases in individuals with diabetes mellitus (ages 18-74)	76.8%	76.4%	76.1%	74.6%	73.4%
pressure for individuals with Documentation of blood diabetes mellitus (ages 18 years or older)	91.1%	90.0%	91.6%	90.7%	91.5%
Blood pressure control: less than or equal to 140/90 mmHg in individuals with diabetes mellitus (ages 18 years or older)	83.7%	83.7%	83.6%	83.2%	83.0%
Documentation of LDL-cholesterol levels in individuals with diabetes mellitus (ages 18 years or older)	90.8%	90.8%	90.8%	90.1%	91.3%
LDL-cholesterol target achievement (less than or equal to 100 mg/dL) in individuals with diabetes mellitus (ages 18 years or older)	63.8%	63.1%	63.4%	64.0%	65.9%
Documentation of BMI components in individuals with diabetes mellitus (ages 20-64 years)	-	-	88.0%	85.0%	86.1%
Prevalence of overweight among individuals withdiabetes mellitus (ages 20-64 years)	-	34.7%	35.0%	34.9%	35.0%
Prevalence of obesity among individuals with diabetes mellitus (ages 20-64 years)	-	30.3%	30.4%	30.5%	30.4%
Prevalence of morbid obesity among individuals with diabetes mellitus (ages 20-64 years)	-	21.4%	21.0%	20.8%	20.7%
Documentation of BMI components in individuals with diabetes mellitus (ages 65-84 years)	-	-	90.5%	88.5%	89.3%
Prevalence of obesity and morbid obesity among individuals with diabetes mellitus (ages 65-84 years)	-	44.1%	43.9%	43.9%	43.7%
Influenza vaccination in individuals with diabetes mellitus (ages 18 years or older)	61.2%	61.6%	63.6%	62.0%	61.0%
Pneumococcal vaccination in individuals with diabetes mellitus (ages 65-74 years)	85.3%	81.9%	84.0%	84.6%	84.8%
Prevalence of diabetes mellitus (ages 2-17 years)	0.1%	0.1%	0.1%	0.1%	0.1%
Diabetes clinic visits in children with diabetes mellitus (ages 2-17 years)	86.5%	87.2%	87.4%	88.1%	86.6%
Documentation of HbA1c levels in children with diabetes mellitus (ages 2-17 years)	74.5%	75.4%	76.7%	80.7%	79.1%
Uncontrolled diabetes :HbA1c greater than 9% in children with diabetes mellitus (ages 2-17 years)	38.2%	37.1%	37.0%	35.6%	34.8%
Influenza vaccination in children with diabetes mellitus (ages 2-17 years)	48.3%	49.8%	54.8%	46.3%	41.5%

Measure	2013	2014	2015	2016	2017
Antibiotics					
Total antibiotic use per 1000 persons per day	21.1	20.8	21.5	20.8	20.5
Proportion of cephalosporins and quinolones of total antibiotic drugs use	21.8%	22.1%	24.2%	24.2%	24.0%
Mental health					
Mental health follow-up in the community within 14 days after discharge from psychiatric hospitalization (ages 18 years or older)	-	-	32.5%	34.8%	35.4%
Prevalence of Severe mental Illness in adults (ages 18 or higher)	-	-	1.3%	1.3%	1.4%
Prevalence of diabetes mellitus in individuals with SMI (ages 18 or older)	-	-	13.9%	14.3%	14.3%
Documentation of hemoglobin A1c (HbA1c) levels in individuals with SMI and diabetes mellitus (ages 18 years or older)	-	-	89.6%	89.5%	90.1%
Adequate control of HbA1c in individuals with SMI and diabetes mellitus (ages 18-84 years)	-	-	67.7%	70.0%	70.8%
Uncontrolled diabetes :HbA1c greater than 9% in individuals with SMI and diabetes mellitus (ages 18 years or older)	-	-	11.6%	11.4%	10.8%
Documentation of body mass index (BMI) components in adults with SMI (ages 20-64 years)	-	-	61.2%	58.9%	58.3%
Prevalence of obesity among adults (ages 20-64 years)	-	-	38.0%	38.5%	38.8%

Health Promotion



BMI in adults: documentation and distribution of BMI categories (ages 20-64 years)

Rationale: The obesity epidemic is expected to further increase globally, contributing to morbidity as well as significant economic burdens [1]. Therefore, it is important to monitor BMI and provide guidance for maintaining healthy lifestyles and body weight, particularly as preventive measures before accompanying morbidities occur [2]. Additionally, monitoring body weight has an important role in primary care, as weight loss and underweight may serve as early signals for various chronic conditions, including depression, dental problems, and drugs side effects [2].

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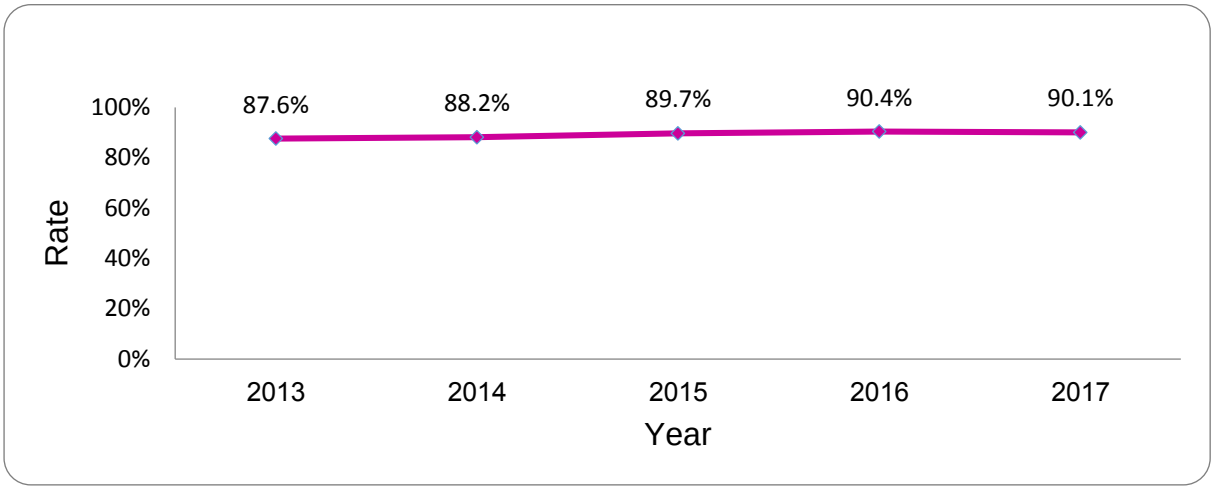
Documentation of body mass index (BMI) components in adults (ages 20-64 years)

Denominator: Individuals 20-64 years old

Numerator: Individuals in the denominator who had their height and weight documented (height at least once after the age of 18 years and weight in the five previous years)

Key results: The documentation rate of body mass index (BMI) components in adults (ages 20-64 years) remained stable during the measurement period (2013-2017), and was 90.1% in 2017. The documentation rate was slightly higher for women compared to men (92.7% vs. 87.4%). The rate in SEP level 1 (lowest, 91.7%) was slightly higher compared to SEP level 4 (highest, 87.5%).

Documentation of BMI components by Year, 2013-2017



Documentation of BMI components by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of BMI components by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	20,945	35,022	55,967
	Denominator	26,098	38,459	64,557
	Rate	80.3%	91.1%	86.7%
25-34	Numerator	372,391	454,036	826,427
	Denominator	458,070	496,078	954,148
	Rate	81.3%	91.5%	86.6%
35-44	Numerator	395,837	445,637	841,474
	Denominator	460,570	487,602	948,172
	Rate	85.9%	91.4%	88.7%
45-54	Numerator	348,901	379,100	728,001
	Denominator	385,171	408,212	793,383
	Rate	90.6%	92.9%	91.8%
55-64	Numerator	293,462	326,217	619,679
	Denominator	308,461	338,781	647,242
	Rate	95.1%	96.3%	95.7%
Total	Numerator	1,431,536	1,640,012	3,071,548
	Denominator	1,638,370	1,769,132	3,407,502
	Rate	87.4%	92.7%	90.1%

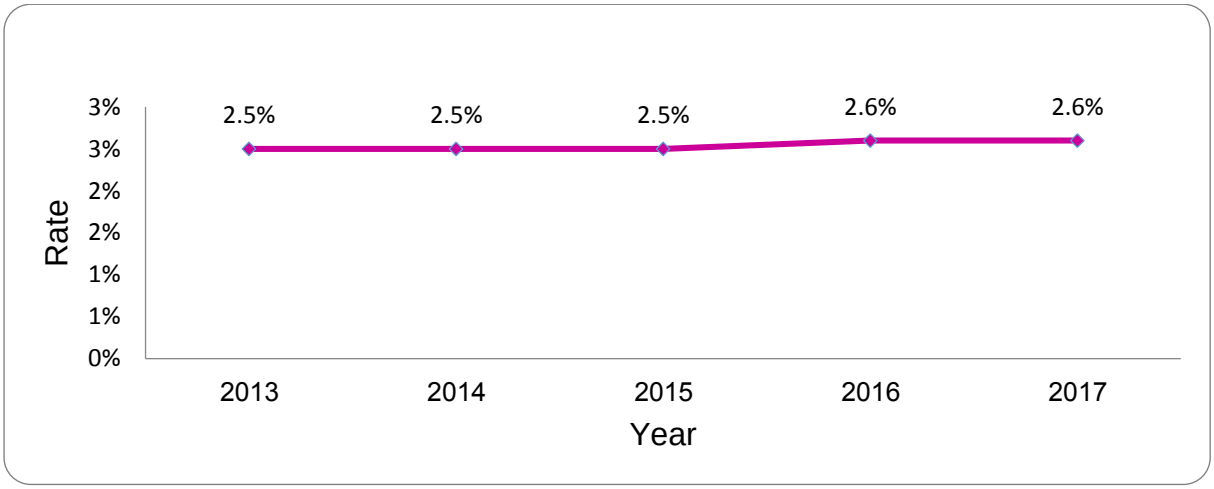
Prevalence of underweight among adults (ages 20-64 years)

Denominator: Individuals 20-64 years old with documented BMI components

Numerator: Individuals in the denominator who were underweight (BMI <19 Kg/m^2)

Key results: The prevalence of underweight among adults (ages 20-64 years) remained stable during the measurement period (2013-2017), and was 2.6% in 2017. The rate among women was 2.3 times higher compared to men (3.5% vs. 1.5%). The rate in SEP level 1 (lowest, 2.2%) was lower compared to SEP level 4 (highest, 2.7%).

Prevalence of underweight among adults by year, 2013-2017



Prevalence of underweight among adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of underweight among adults by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	944	3,256	4,200
	Denominator	20,912	34,930	55,842
	Rate	4.5%	9.3%	7.5%
25-34	Numerator	10,805	28,729	39,534
	Denominator	371,380	447,325	818,705
	Rate	2.9%	6.4%	4.8%
35-44	Numerator	4,935	14,998	19,933
	Denominator	394,560	438,917	833,477
	Rate	1.3%	3.4%	2.4%
45-54	Numerator	2,700	6,574	9,274
	Denominator	347,622	377,327	724,949
	Rate	0.8%	1.7%	1.3%
55-64	Numerator	2,015	3,619	5,634
	Denominator	292,764	325,354	618,118
	Rate	0.7%	1.1%	0.9%
Total	Numerator	21,399	57,176	78,575
	Denominator	1,427,238	1,623,853	3,051,091
	Rate	1.5%	3.5%	2.6%

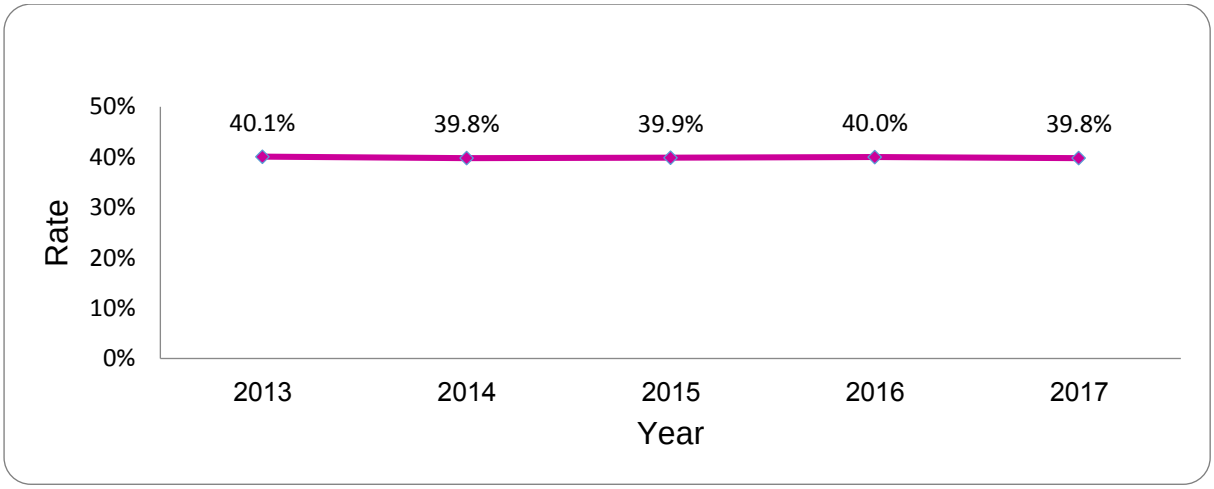
Prevalence of normal weight, overweight and obesity among adults (ages 20-64 years)

Denominator: Individuals 20-64 years old with documented BMI components

Numerator: Individuals in the denominator with normal body weight (BMI ≥20 and <25 Kg/m^2)

Key results: The prevalence of normal weight among adults (ages 20-64 years) remained stable during the measurement period (2013-2017), and was 39.8% in 2017. The rate was higher for women compared to men (42.7% vs. 36.4%). The rate in SEP level 1 (lowest, 32.8%) was 1.5 times lower compared to SEP level 4 (highest, 48.6%).

Prevalence of normal weight among adults by year, 2013-2017



Prevalence of normal weight among adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of normal weight among adults by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	11,831	19,548	31,379
	Denominator	20,912	34,930	55,842
	Rate	56.6%	56.0%	56.2%
25-34	Numerator	189,559	235,421	424,980
	Denominator	371,380	447,325	818,705
	Rate	51.0%	52.6%	51.9%
35-44	Numerator	147,477	200,622	348,099
	Denominator	394,560	438,917	833,477
	Rate	37.4%	45.7%	41.8%
45-54	Numerator	97,841	140,772	238,613
	Denominator	347,622	377,327	724,949
	Rate	28.1%	37.3%	32.9%
55-64	Numerator	72,662	97,830	170,492
	Denominator	292,764	325,354	618,118
	Rate	24.8%	30.1%	27.6%
Total	Numerator	519,370	694,193	1,213,563
	Denominator	1,427,238	1,623,853	3,051,091
	Rate	36.4%	42.7%	39.8%

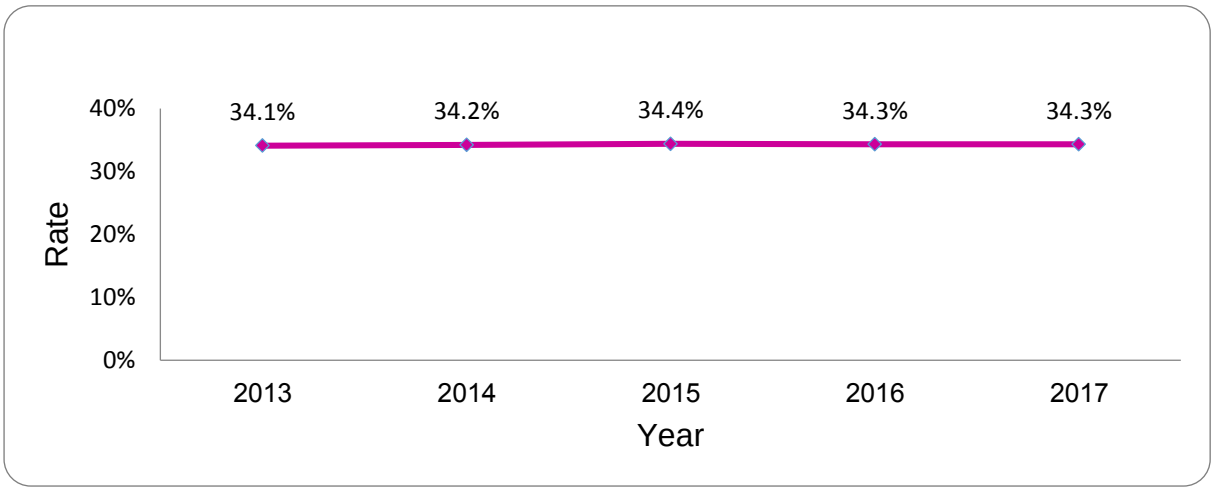
Prevalence of overweight among adults (ages 20-64 years)

Denominator: Individuals 20-64 years old with documented BMI components

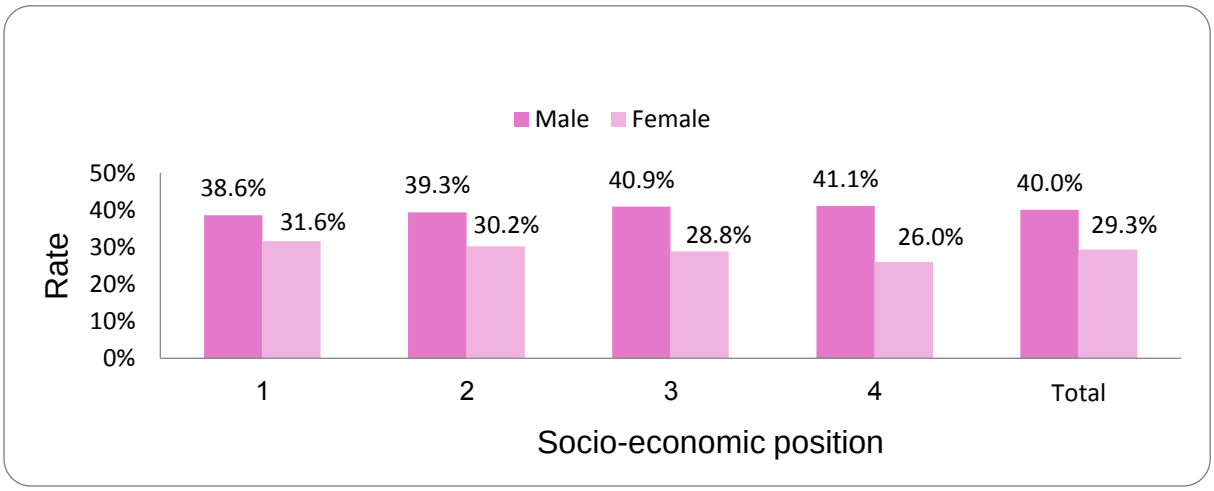
Numerator: Individuals in the denominator who were overweight (BMI ≥25 and <30 Kg/m^2)

Key results: The prevalence of overweight among adults (ages 20-64 years) remained stable during the measurement period (2013-2017), and was 34.1% in 2017. The rate was lower for women compared to men (29.0% vs. 39.9%). The rate in SEP level 1 (lowest, 34.9%) was slightly higher compared to SEP level 4 (highest, 32.5%).

Prevalence of overweight among adults by year, 2013-2017



Prevalence of overweight among adults by socio-economic position (1-lowest, 4-highest) and sex, 2017



Prevalence of overweight among adults by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	5,508	7,576	13,084
	Denominator	20,912	34,930	55,842
	Rate	26.3%	21.7%	23.4%
25-34	Numerator	118,731	110,587	229,318
	Denominator	371,380	447,325	818,705
	Rate	32.0%	24.7%	28.0%
35-44	Numerator	159,459	125,993	285,452
	Denominator	394,560	438,917	833,477
	Rate	40.4%	28.7%	34.2%
45-54	Numerator	153,576	119,565	273,141
	Denominator	347,622	377,327	724,949
	Rate	44.2%	31.7%	37.7%
55-64	Numerator	133,291	112,150	245,441
	Denominator	292,764	325,354	618,118
	Rate	45.5%	34.5%	39.7%
Total	Numerator	570,565	475,871	1,046,436
	Denominator	1,427,238	1,623,853	3,051,091
	Rate	40.0%	29.3%	34.3%

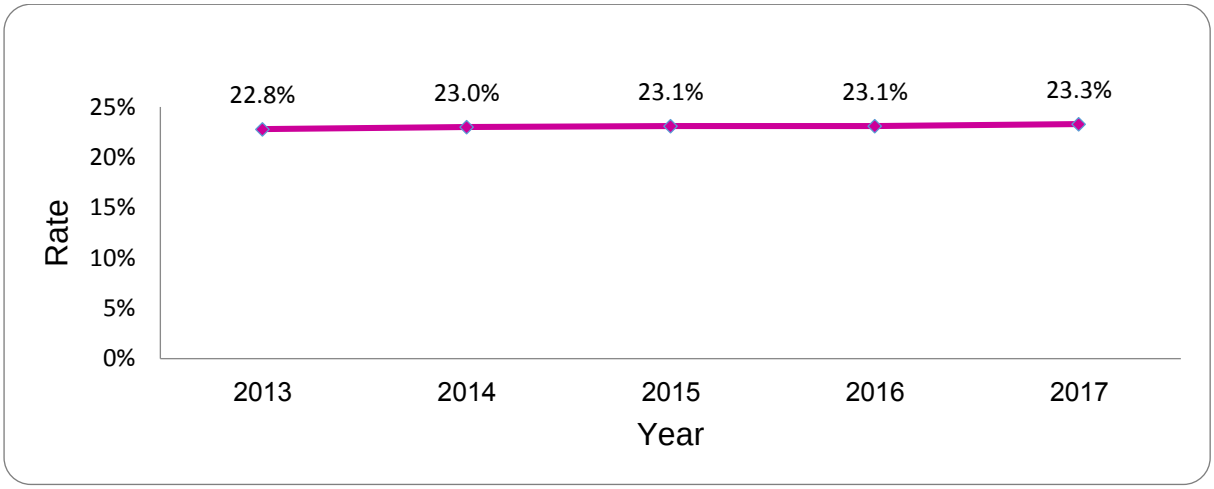
Prevalence of obesity among adults (ages 20-64 years)

Denominator: Individuals 20-64 years old with documented BMI components

Numerator: Individuals in the denominator who were obese (BMI ≥30 Kg/m^2)

Key results: The prevalence of obesity among adults (ages 20-64 years) remained stable during the measurement period (2013-2017), and was 23.3% in 2017. The rate was slightly higher for women compared to men (24.4% vs. 22.1%). The rate in SEP level 1 (lowest, 30.0%) was twice as high compared to SEP level 4 (highest, 15.4%).

Prevalence of obesity among adults by year, 2013-2017



Prevalence of obesity among adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of obesity among adults by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	2,618	4,537	7,155
	Denominator	20,912	34,930	55,842
	Rate	12.5%	13.0%	12.8%
25-34	Numerator	52,196	72,420	124,616
	Denominator	371,380	447,325	818,705
	Rate	14.1%	16.2%	15.2%
35-44	Numerator	82,570	97,171	179,741
	Denominator	394,560	438,917	833,477
	Rate	20.9%	22.1%	21.6%
45-54	Numerator	93,395	110,338	203,733
	Denominator	347,622	377,327	724,949
	Rate	26.9%	29.2%	28.1%
55-64	Numerator	84,736	111,695	196,431
	Denominator	292,764	325,354	618,118
	Rate	28.9%	34.3%	31.8%
Total	Numerator	315,515	396,161	711,676
	Denominator	1,427,238	1,623,853	3,051,091
	Rate	22.1%	24.4%	23.3%

Smoking

Rationale: Cigarette smoking harms nearly every organ in the body, causes a wide range of diseases, and represents the leading preventable cause of death in many countries [1]. It is estimated that in Israel 10,000 deaths every year are associated with tobacco use [2]. Comprehensive cessation interventions that motivate and help users quit tobacco use can be very effective. Healthcare providers play an important role in supporting tobacco users and their efforts to quit [3].

References:

[1] "WHO global report: mortality attributable to tobacco," WHO World Health Organization, 2014. Available: http://www.who.int/tobacco/publications/ surveillance/rep_mortality_attributable/en/. [Accessed: 24-Dec-2017].

[2] G. M. Ginsberg, E. Rosenberg, and L. Rosen, "Issues in estimating smoking attributable mortality in Israel.," Eur. J. Public Health 2010, 20(1):113–119.

[3] Centers for Disease Control and Prevention (CDC). "Best practices for comprehensive tobacco control programs–2014." Atlanta, GA: U.S. Department of Health and Human Services. Available: http://www.cdc.gov/tobacco/stateandcommunity/best_practices/pdfs/2014/comprehensive.pdf

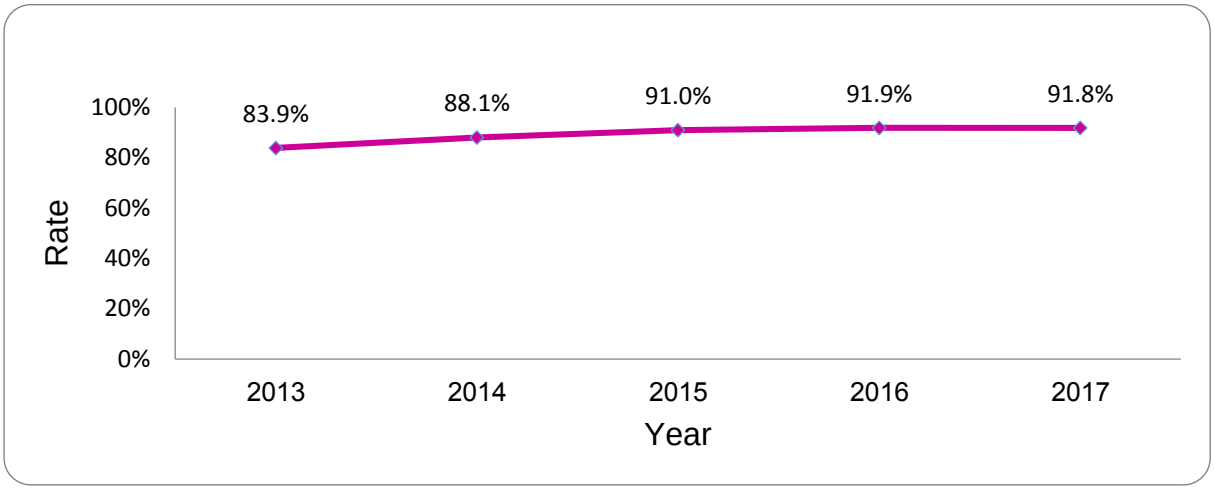
Smoking status documentation (ages 16-74 years)

Denominator: Individuals 16-74 years old

Numerator: Individuals in the denominator with documented smoking status in the five previous years

Key results: Smoking status documentation (ages 16-74 years) increased during the measurement period (2013-2017), from 83.9% in 2013 to 91.8% in 2017. The rate was slightly higher for women compared to men (93.2% vs. 90.3%). The rate in SEP level 1 (lowest, 92.1%) was slightly higher compared to SEP level 4 (highest, 89.9%).

Smoking status documentation by year, 2013-2017



Smoking status documentation by socio-economic position (1-lowest, 4-highest) and sex, 2017

Smoking status documentation by age and sex, 2017

		Sex		
		Male	Female	Total
16-24	Numerator	277,229	319,278	596,507
	Denominator	320,748	352,546	673,294
	Rate	86.4%	90.6%	88.6%
25-34	Numerator	418,957	482,773	901,730
	Denominator	458,070	496,077	954,147
	Rate	91.5%	97.3%	94.5%
35-44	Numerator	404,819	446,994	851,813
	Denominator	460,570	487,602	948,172
	Rate	87.9%	91.7%	89.8%
45-54	Numerator	339,338	365,348	704,686
	Denominator	385,171	408,212	793,383
	Rate	88.1%	89.5%	88.8%
55-64	Numerator	317,972	352,497	670,469
	Denominator	341,685	375,757	717,442
	Rate	93.1%	93.8%	93.5%
65-74	Numerator	238,800	275,569	514,369
	Denominator	246,192	284,647	530,839
	Rate	97.0%	96.8%	96.9%
Total	Numerator	1,997,115	2,242,459	4,239,574
	Denominator	2,212,436	2,404,841	4,617,277
	Rate	90.3%	93.2%	91.8%

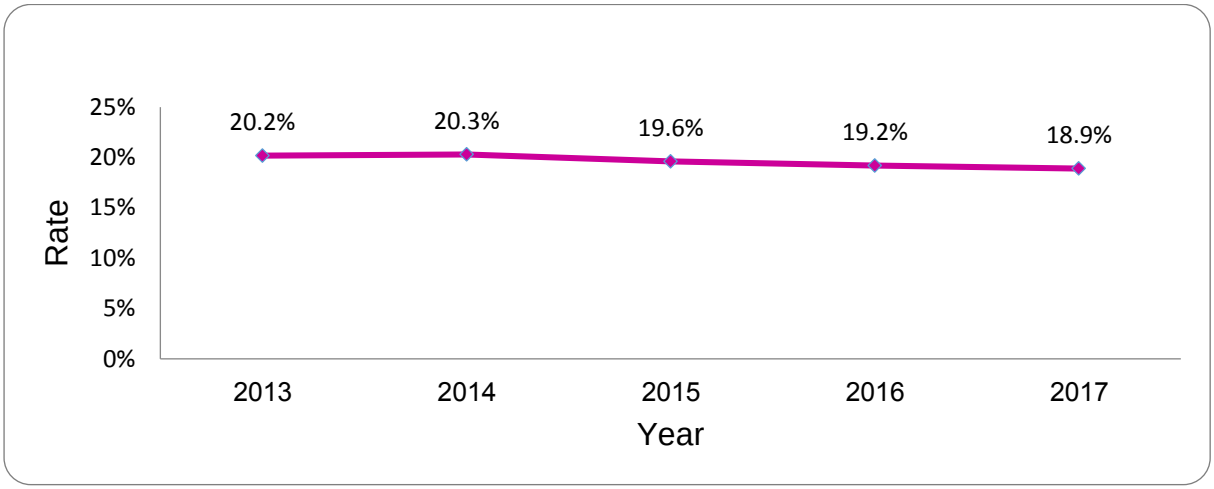
Prevalence of smoking (ages 16-74 years)

Denominator: Individuals 16-74 years old with a documented smoking status in the five previous years

Numerator: Individuals in the denominator with a current tobacco smoking status.

Key results: The prevalence of smoking (ages 16-74 years) decreased during the measurement period (2013-2017), from 20.2% in 2013 to 18.9% in 2017. The rate among men was 2.2 times higher compared to women (26.6% vs. 12.1%). The rate in SEP level 1 (lowest, 19.2%) was 1.5 times higher compared to SEP level 4 (highest, 13.0%).

Prevalence of smoking by year, 2013-2017



Prevalence of smoking by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of smoking by age and sex, 2017

		Sex		
		Male	Female	Total
16-24	Numerator	49,329	14,219	63,548
	Denominator	277,229	319,278	596,507
	Rate	17.8%	4.5%	10.7%
25-34	Numerator	134,790	60,297	195,087
	Denominator	418,957	482,773	901,730
	Rate	32.2%	12.5%	21.6%
35-44	Numerator	122,577	57,820	180,397
	Denominator	404,819	446,994	851,813
	Rate	30.3%	12.9%	21.2%
45-54	Numerator	101,431	54,953	156,384
	Denominator	339,338	365,348	704,686
	Rate	29.9%	15.0%	22.2%
55-64	Numerator	83,265	55,872	139,137
	Denominator	317,972	352,497	670,469
	Rate	26.2%	15.9%	20.8%
65-74	Numerator	40,392	27,271	67,663
	Denominator	238,800	275,569	514,369
	Rate	16.9%	9.9%	13.2%
Total	Numerator	531,784	270,432	802,216
	Denominator	1,997,115	2,242,459	4,239,574
	Rate	26.6%	12.1%	18.9%

Cancer Screening

Breast cancer screening – mammography (women, ages 50-74 years)

Rationale: Breast cancer is the most common malignant disease among women in Israel. In women above the age of 50, the primary radiographic method for early detection of breast cancer is mammography [1]. The survival rates of women with breast cancer have improved over the past few years, which is partly attributed to early detection [2].

Denominator: Women 50-74 years old

Numerator: Women in the denominator who underwent a mammogram during the two previous years

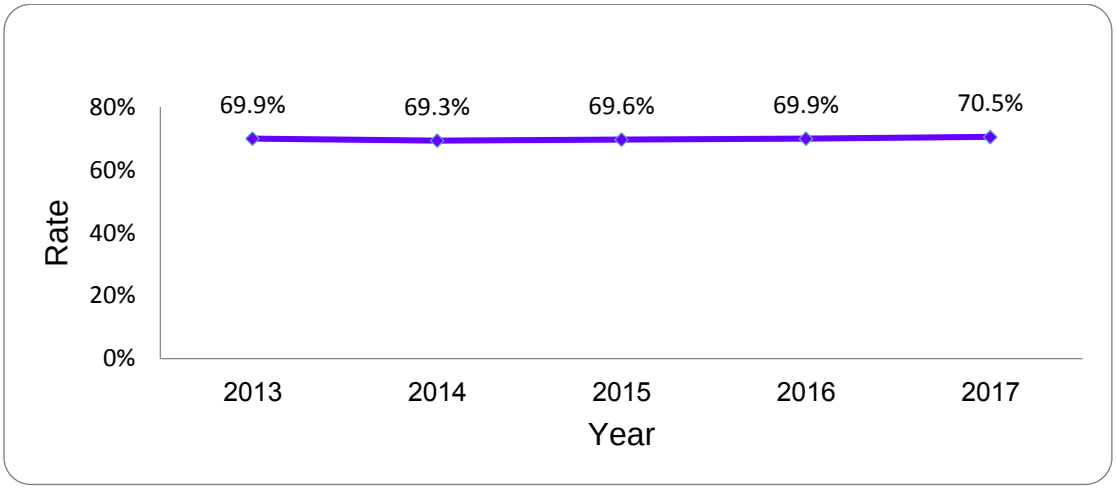
Key results: The rate of breast cancer screening (using mammography) among women 50-74 years old remained stable during the measurement period (2013-2017), and was 70.5% in 2017. The rate in SEP level 1 (lowest, 65.7%) was lower compared to SEP level 4 (highest, 72.9%).

References:

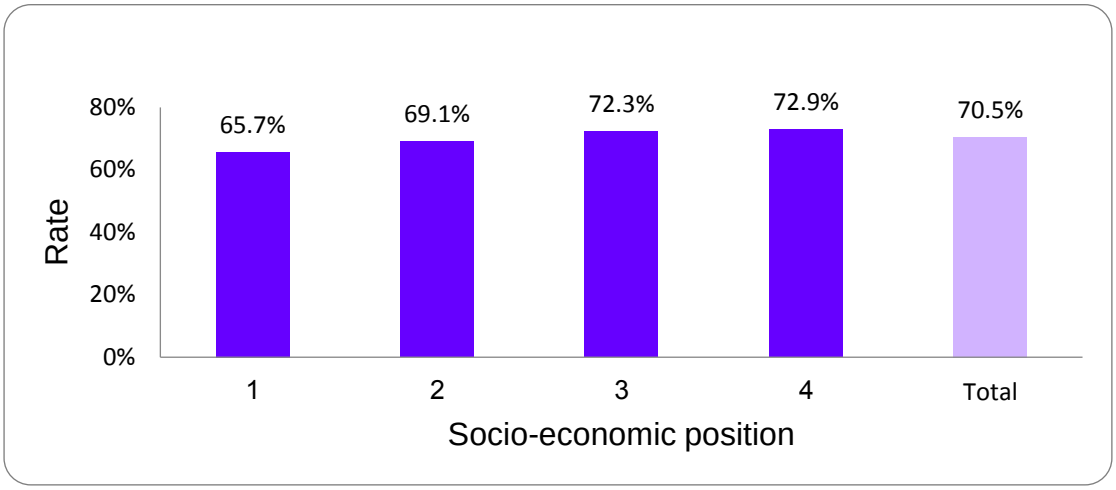
[1] In Hebrew: הרישום הלאומי לסרטן, "Breast Cancer Registry 2017," Moh, 2017. [Online]. Available: http://www.health.gov.il/PublicationsFiles/breast_cancer_oct2017.pdf [Accessed: 22-Feb-2018].

[2] American Cancer Society. Breast Cancer Facts & Figures 2015-2017. Atlanta: American Cancer Society, Inc. 2015. Available: https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breast-cancer-facts-and-figures-2015-2017.pdf [Accessed: 22-Feb-2018].

Breast cancer screening by year, 2013-2017



Breast cancer screening by socio-economic position (1-lowest, 4-highest), 2017



Breast cancer screening by age, 2017

		Rates
50-54	Numerator	109,216
	Denominator	159,019
	Rate	68.7%
55-59	Numerator	137,264
	Denominator	196,290
	Rate	69.9%
60-64	Numerator	136,570
	Denominator	189,965
	Rate	71.9%
65-69	Numerator	129,800
	Denominator	176,645
	Rate	73.5%
70-74	Numerator	77,280
	Denominator	115,379
	Rate	67.0%
Total	Numerator	590,130
	Denominator	837,298
	Rate	70.5%

Colorectal cancer screening (ages 50-74 years)

Rationale: Colorectal cancer is the third most commonly diagnosed cancer in the world. Screening is recommended to reduce both incidence and mortality [1]. The Israeli Ministry of Health recommends screening via a yearly fecal occult blood test between the ages of 50 and 74 years. Colonoscopy is widely used for screening as well, although there is no such directive in Israel [2].

Denominator: Individuals aged 50-74

Numerator: Individuals in the denominator who had a fecal occult blood test in the previous year or had a colonoscopy in the ten previous years

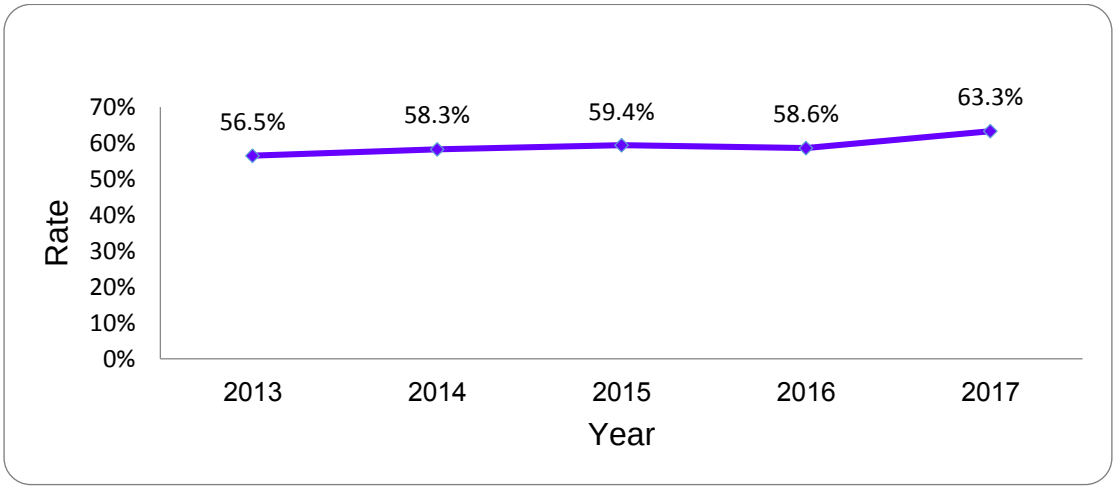
Key results: The rate of colorectal cancer screening in individuals 50-74 years old increased from 56.5% in 2013 to 63.3% in 2017. The rate was slightly higher for women compared to men (64.3% vs. 62.2%). The rate in SEP level 1 (lowest, 57.9%) was lower compared to SEP level 4 (highest, 67.7%).

References:

[1] Navarro M, Nicolas A, Ferrandez A, Lanas A. Colorectal cancer population screening programs worldwide in 2017: An update. World Journal of Gastroenterology. 2017;23(20):3632-3642. doi:10.3748/wjg.v23.i20.3632.

[2] In Hebrew: חוזר המנהל הכללי בנושא: מניעה וגילוי מוקדם של מחלות ממאירות, 2012. משרד הבריאות Available: http://www.cancer.org.il/template/default.aspx?PageId=7655. [Accessed: 22-Mar-2018]

Colorectal cancer screeningby year, 2013-2017



Colorectal cancer screeningby socio-economic position (1-lowest, 4-highest) and sex, 2017

Colorectal cancer screening by age and sex, 2017

		Sex		
		Male	Female	Total
50-54	Numerator	87,495	101,252	188,747
	Denominator	169,461	183,376	352,837
	Rate	51.6%	55.2%	53.5%
55-59	Numerator	98,497	113,417	211,914
	Denominator	166,643	182,440	349,083
	Rate	59.1%	62.2%	60.7%
60-64	Numerator	103,313	118,974	222,287
	Denominator	160,032	178,127	338,159
	Rate	64.6%	66.8%	65.7%
65-69	Numerator	101,629	117,271	218,900
	Denominator	144,852	165,599	310,451
	Rate	70.2%	70.8%	70.5%
70-74	Numerator	65,307	75,099	140,406
	Denominator	92,503	108,547	201,050
	Rate	70.6%	69.2%	69.8%
Total	Numerator	456,241	526,013	982,254
	Denominator	733,491	818,089	1,551,580
	Rate	62.2%	64.3%	63.3%

Cervical cancer screening (women aged 35-54)

Rationale: Cervical cancer used to be one of the most common causes of cancer death for American women Appropriate screening has reduced the mortality rate by more than 50% over the last 30 years, as early detection is highly effective [1]. In Israel, the Ministry of Health recommends PAP test screening every three years in women 25 to 65 years old. However, it is only included in the "Health Basket" for women aged 35 to 54 [2].

References:

[1] American Cancer Society. *Cancer Prevention & Early Detection Facts & Figures 2015-2017*. Atlanta, Ga: American Cancer Society; 2015. Available: https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-prevention-and-early-detection-facts-and-figures/cancer-prevention-and-early-detection-facts-and-figures-2015-2017.pdf [Accessed: 22-Mar-2018]

[2] In Hebrew: חוזר המנהל הכללי בנושא: מניעה וגילוי מוקדם של מחלות ממאירות, 2012. משרד הבריאות Available: http://www.cancer.org.il/template/default.aspx?PageId=7655. [Accessed: 22-Mar-2018]

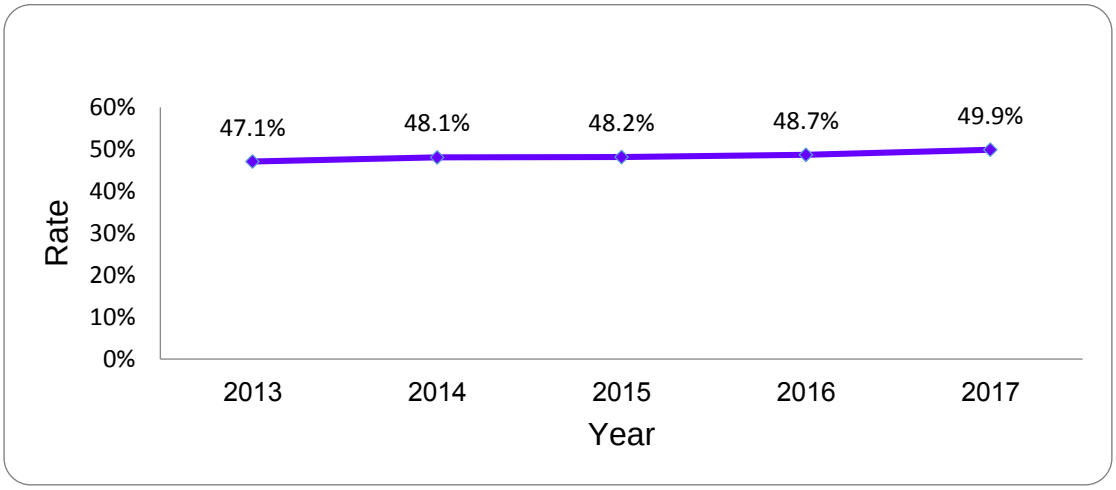
Appropriate cervical cancer screening (women aged 35-54 who were screened in the past three years)

Denominator: Women aged 35-54

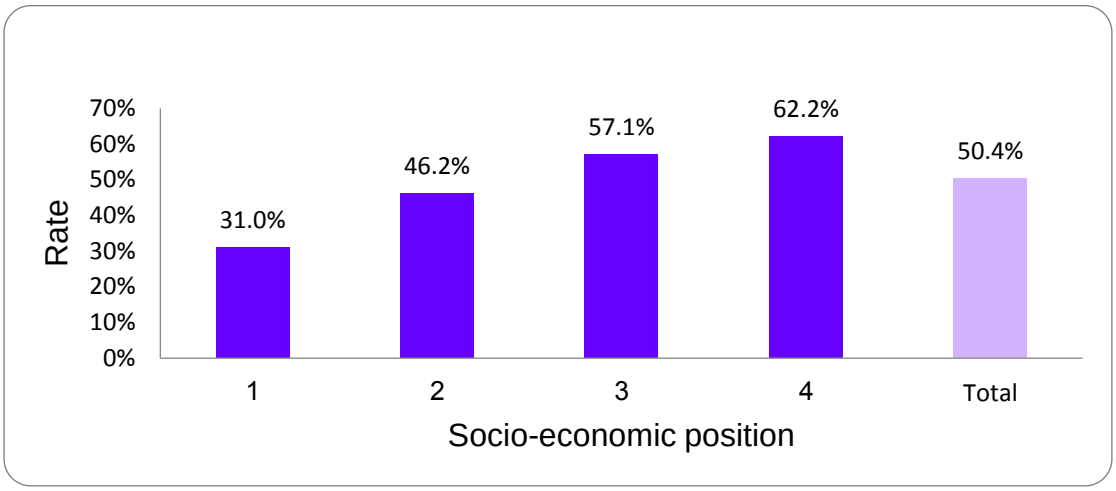
Numerator: Women in the denominator who were screened for cervical cancer (PAP test) in the previous three years

Key results: The rate of women aged 35-54 who underwent appropriate screening for cervical cancer (screening in the past three years) increased from 47.1% in 2013 to 49.9% in 2017. The rate in SEP level 1 (lowest, 31.0%) was twice as low compared to SEP level 4 (highest, 62.2%).

Appropriate cervical cancer screening by year, 2013-2017



Appropriate cervical cancer screening by socio-economic position (1-lowest, 4-highest), 2017



Appropriate cervical cancer screening by age, 2017

		Rates
35-39	Numerator	130,149
	Denominator	253,645
	Rate	51.3%
40-44	Numerator	130,319
	Denominator	253,003
	Rate	51.5%
45-49	Numerator	110,719
	Denominator	220,921
	Rate	50.1%
50-54	Numerator	70,717
	Denominator	158,778
	Rate	44.5%
Total	Numerator	441,904
	Denominator	886,347
	Rate	49.9%

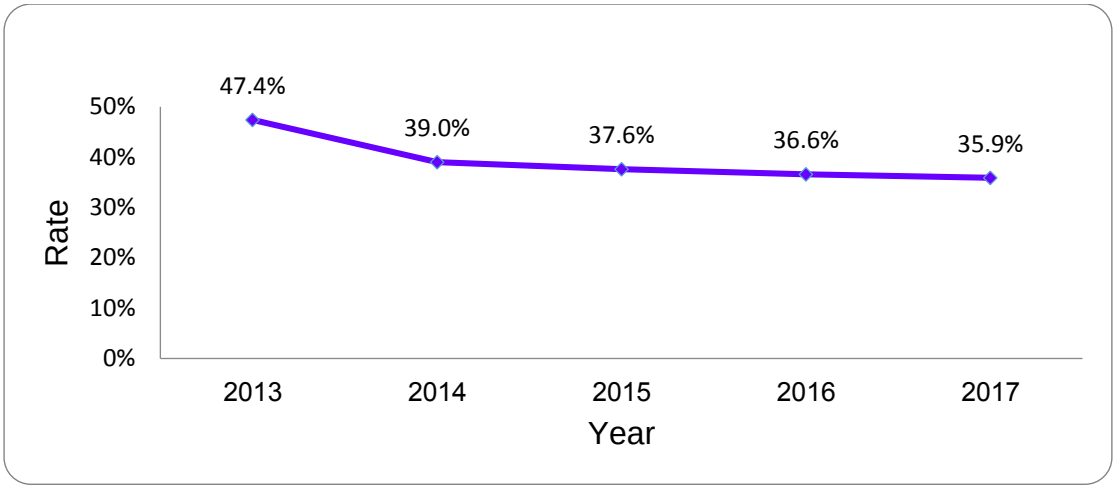
Underscreening for cervical cancer (women aged 35-54 who were not screened in the last five years)

Denominator: Women aged 35-54

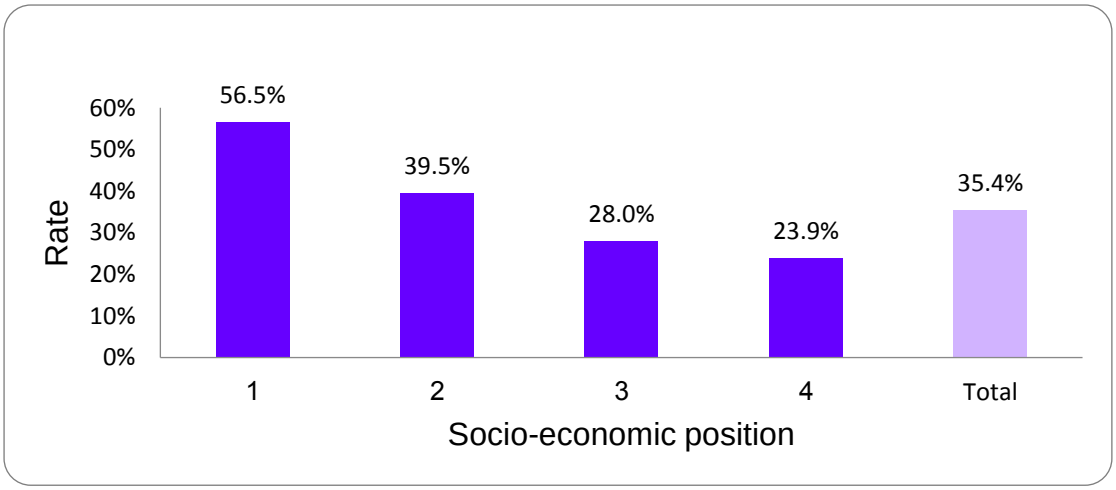
Numerator: women in the denominator who were not screened for cervical cancer (PAP test) in the previous five years

Key results: The rate of women aged 35-54 who were not screened in the last five years for cervical cancer decreased during the measurement period (2013-2017), from 47.4% in 2013 to 35.9% in 2017. The rate in SEP level 1 (lowest, 56.5%) was 2.4 times higher compared to SEP level 4 (highest, 23.9%).

Underscreening for cervical cancer by year, 2013-2017



Underscreening for cervical cancer by socio-economic position (1-lowest, 4-highest), 2017



Underscreening for cervical cancer by age, 2017

		Rates
35-39	Numerator	16,488
	Denominator	49,444
	Rate	33.3%
40-44	Numerator	82,355
	Denominator	244,601
	Rate	33.7%
45-49	Numerator	76,138
	Denominator	214,874
	Rate	35.4%
50-54	Numerator	63,665
	Denominator	155,211
	Rate	41.0%
Total	Numerator	238,646
	Denominator	664,130
	Rate	35.9%

Children and Adolescents

Hemoglobin measurements and anemia in infants

Rationale: Iron deficiency in childhood has been associated with delayed cognitive and motor development [1]. The Israeli Ministry of Health issued guidelines for oral iron supplementation to all infants 4-18 months, and a hemoglobin test after nine months of age [2].

References:

[1] Pala E, Erguven M, Guven S, Erdogan M, Balta T. Psychomotor development in children with iron deficiency and iron-deficiency anemia. Food Nutr Bull. 2010; 31(3): 431-5.

[2] In Hebrew: 2012. משרד הבריאות. תדריך למניעת אנמיה וחוסר ברזל בתינוקות ובפעוטות. חוזר ראש שירותי בריאות הציבור 13 ,באוגוסט Available at: http://www.health.gov.il/hozer/BZ17_2012.pdf

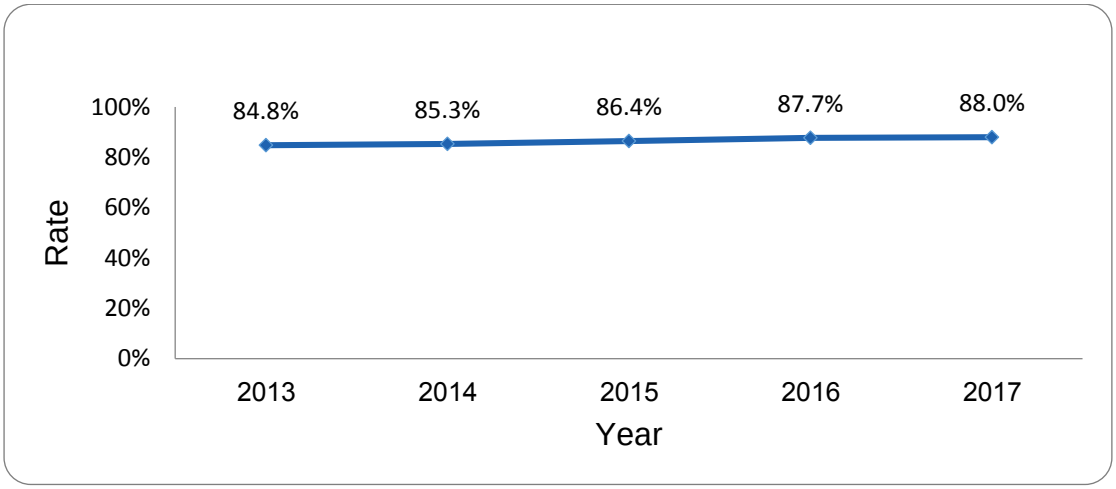
Hemoglobin measurements in infants 9-18 months old

Denominator: Infants 9-18 months old.

Numerator: Infants in the denominator with a recorded hemoglobin level.

Key results: Hemoglobin measurement in infants 9-18 months old remained stable during the measurement period (2013-2017), and was 88.0% in 2017. The rate was slightly lower for girls compared to boys (87.8% vs. 88.2%). The rate in SEP level 1 (lowest, 86.6%) was slightly lower compared to SEP level 4 (highest, 89.8%).

Hemoglobin measurements by year, 2013-2017



Hemoglobin measurement by socio-economic position (1-lowest, 4-highest) and sex, 2017

Hemoglobin measurement by sex, 2017

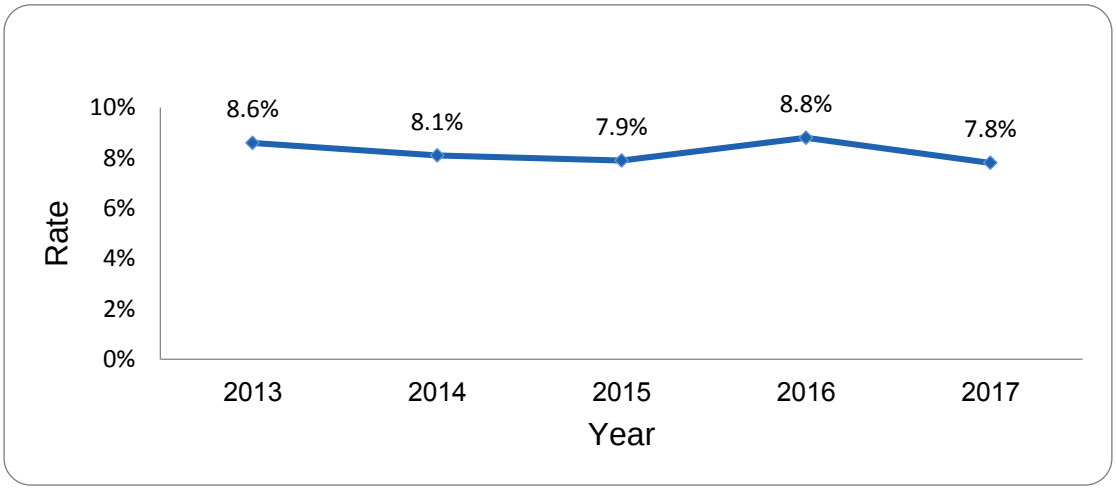
	Sex		
	Male	Female	Total
Numerator	82,137	77,263	159,400
Denominator	93,102	88,038	181,140
Rate	88.2%	87.8%	88.0%

Prevalence of anemia among infants 9-18 months old

Denominator: Infants 9-18 months old with a recorded hemoglobin level

Numerator: Infants in the denominator who had anemia (had Hgb levels ≤10.5 mg/dL) **Key results:** The prevalence of anemia among infants 9-18 months old decreased during the measurement period (2013-2017), from 8.6% in 2013 to 7.8% in 2017. The rate was slightly lower for girls compared to boys (7.6% vs. 8.0%). The rate in SEP level 1 (lowest, 9.0%) was higher compared to SEP level 4 (highest, 6.9%).

Prevalence of anemia by year, 2013-2017



Prevalence of anemia by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of anemia by sex, 2017

	Sex		
	Male	Female	Total
Numerator	6,603	5,909	12,512
Denominator	82,137	77,263	159,400
Rate	8.0%	7.6%	7.8%

Body mass index (BMI) in children and adolescents

Rationale: Nearly one in six children are overweight or obese in OECD countries. In 2015, the country-specific prevalence of overweight and obesity at age 15 ranged from 10% to 31%. Despite implementing new policies to combat obesity, prevalence has steadily increased since 2000 in most countries [1]. Monitoring weight and height in children and adolescents is of great importance, as early detection of overweight or obesity and interventions may promote healthier lifestyles. In addition, detecting extreme thinness should be carefully addressed, as it may signify malnutrition, morbidity, or eating disorders [2].

The Israeli Ministry of Health recommends recording weight and height at least once between the ages of 5-7 years, and every three years during adolescence [3].

The categories presented below are based on the WHO anthro sex- and age-specific BMI percentiles [4].

Measures:

- ✓ Documentation of body mass index (BMI) components in children (age 7 years)
- ✓ Prevalence of thinness among children (age 7 years)
- ✓ Prevalence of normal weight among children (age 7 years)
- ✓ Prevalence of overweight among children (age 7 years)
- ✓ Prevalence of obesity among children (age 7 years)
- ✓ Documentation of body mass index (BMI) components in adolescents (ages 14-18 years)

References:

[1] "Obesity-Update-2017," OECD, 2017. [Online]. Available: http://www.oecd.org/health/health-systems/Obesity-Update-2017.pdf. [Accessed: 15-Feb-2018].

[2] Güngör NK: Overweight and obesity in children and adolescents. J Clin Res Pediatr Endocrinol 2014, 6(3):129-143.

[3] In Hebrew2011 משרד הבריאות. חוברת תיעוד של גורמי סיכון ואורחות חיים בתיק הרפואי הממוחשב. חוזר המנהל הכללי, 18 ביולי. Available at: https://www.health.gov.il/hozer/mk21_2011.pdf

[4] World Health Organization. Growth reference 5-19 years 2017. Available at: http://www.who.int/growthref/who2007_bmi_for_age/en/

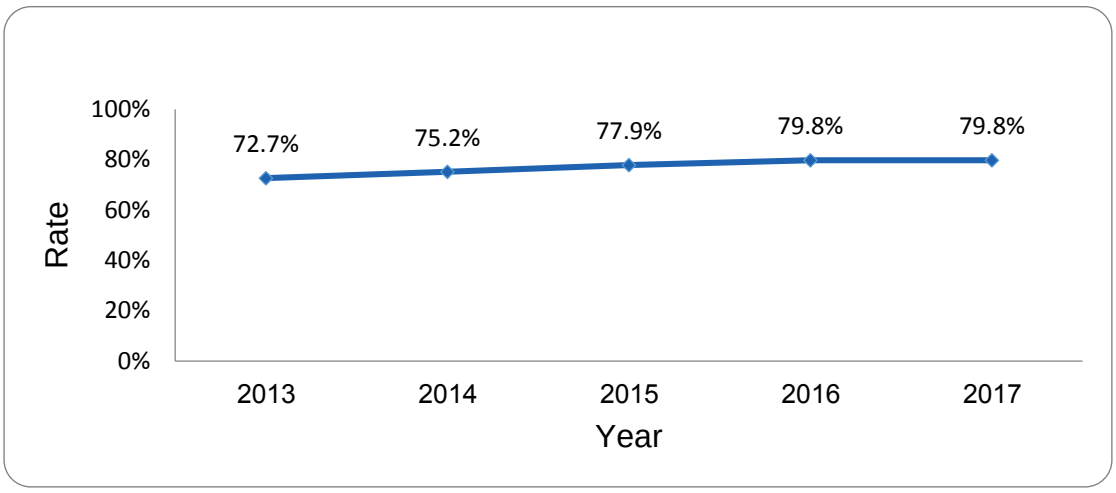
Documentation of body mass index (BMI) components in children (age 7 years)

Denominator: Seven year-old children

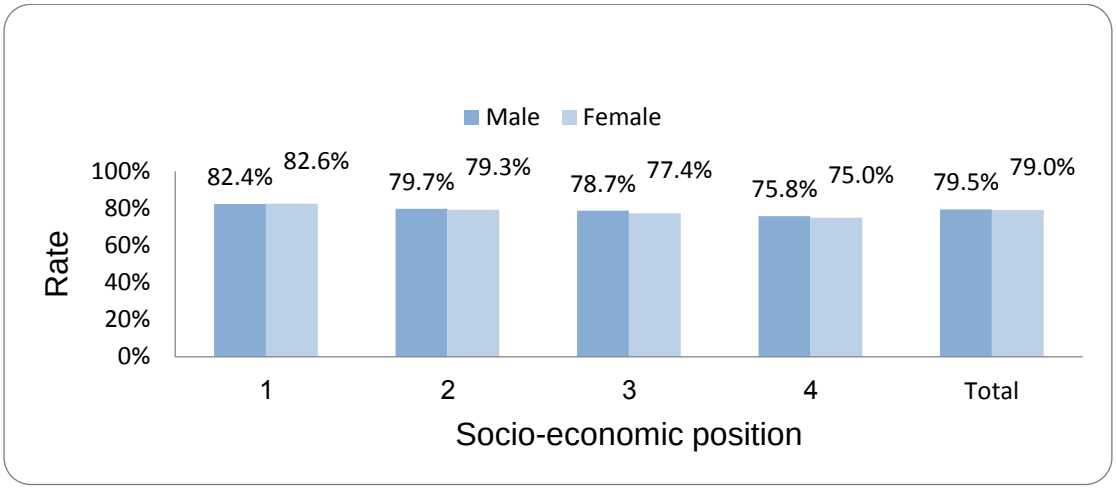
Numerator: Children in the denominator with documented BMI components in the two previous years.

Key results: The documentation of body mass index (BMI) components in children (age 7 years) increased during the measurement period (2013-2017), from 72.7% in 2013 to 79.8% in 2017. The documentation rate was similar in both genders. The rate in SEP level 1 (lowest, 82.5%) was slightly higher compared to SEP level 4 (highest, 75.4%).

Documentation of BMI components in children by year, 2013-2017



Documentation of BMI components in children by socio-economic position (1-lowest, 4-highest) and sex, 2017



Documentation of BMI components in children by sex, 2017

	Sex		
	Male	Female	Total
Numerator	64,289	60,342	124,631
Denominator	80,309	75,862	156,171
Rate	80.1%	79.5%	79.8%

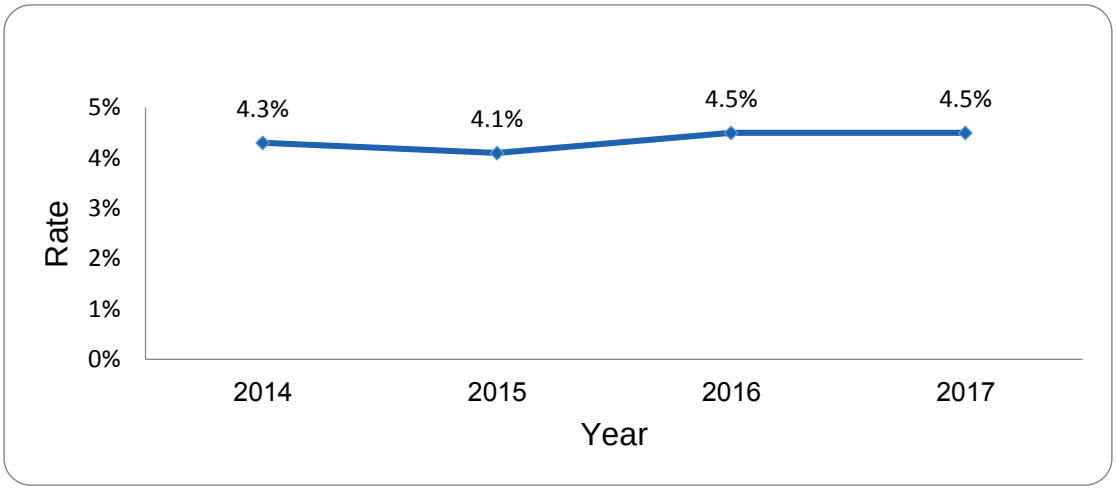
Prevalence of thinness among children (age 7 years)

Denominator: Seven year-old children with documented BMI components

Numerator: Children in the denominator whose BMI was considered thin (lower than the 2.3rd percentile).

Key results: The prevalence of thinness among children (age 7 years) remained stable during the measurement period (2014-2017), and was 4.5% in 2017. The rate was slightly lower for girls compared to boys (3.9% vs. 5.0%). The rate in SEP level 1 (lowest, 6.3%) was 2.1 times higher compared to SEP level 4 (highest, 3.0%).

Prevalence of thinness among children by year, 2014-2017



Prevalence of thinness among children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of thinness among children by age and sex, 2017

	Sex		
	Male	Female	Total
Numerator	3,203	2,369	5,572
Denominator	64,289	60,340	124,629
Rate	5.0%	3.9%	4.5%

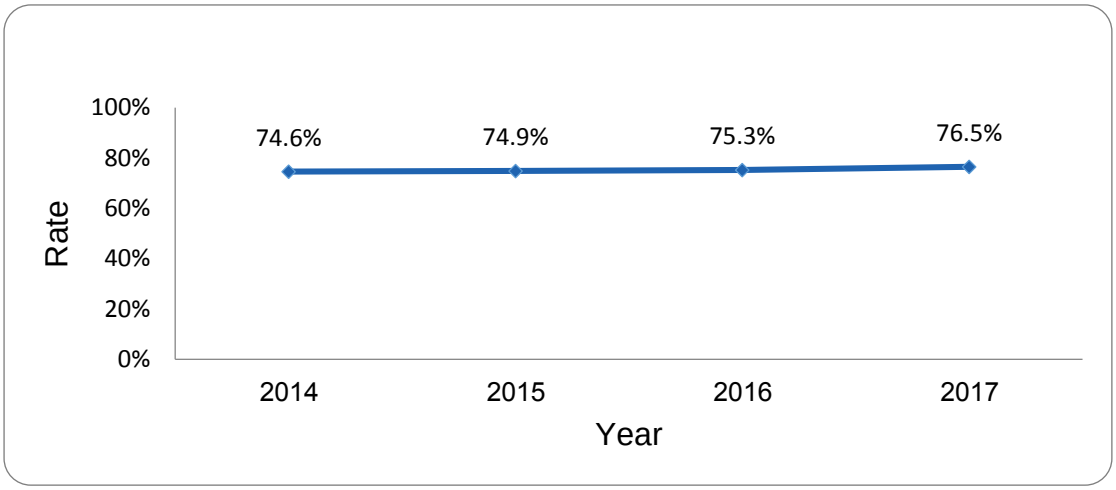
Prevalence of normal weight among children (age 7 years)

Denominator: Seven year-old children with documented BMI components

Numerator: Children in the denominator who had BMI within the normal range (≥2.3rd and <85th percentile)

Key results: The prevalence of normal weight among children aged 7 years was 76.5% in 2017. The rate was slightly higher for girls compared to boys (77.2% vs. 75.2%). The rate in SEP level 1 (lowest, 74.4%) was slightly lower compared to SEP level 4 (highest, 78.6%).

Prevalence of normal weight among children by year, 2014-2017



Prevalence of normal weight among children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of normal weight among children by sex, 2017

	Sex		
	Male	Female	Total
Numerator	48,795	46,575	95,370
Denominator	64,289	60,340	124,629
Rate	75.9%	77.2%	76.5%

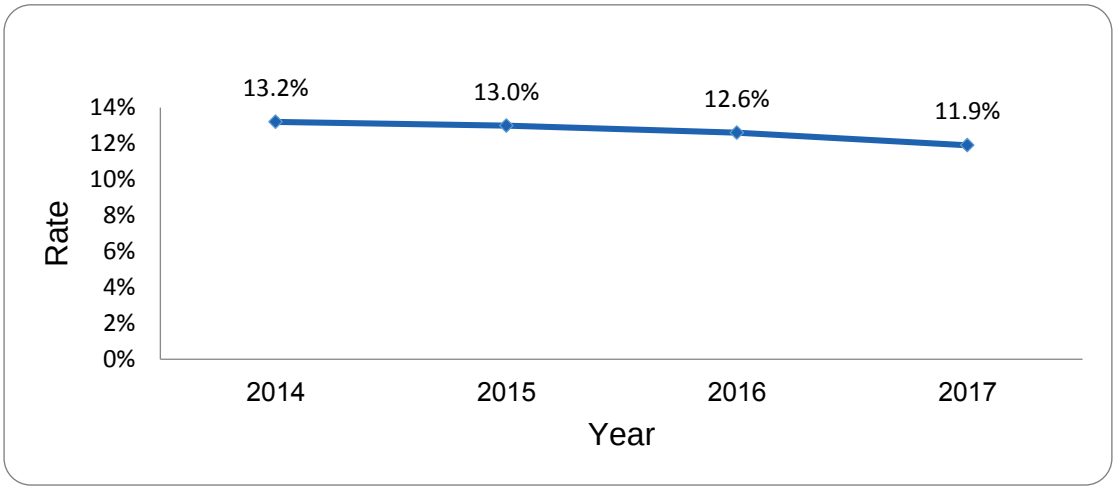
Prevalence of overweight among children (age 7 years)

Denominator: Seven year-old children with documented BMI components

Numerator: Children in the denominator who were overweight (BMI ≥85th percentile and <97.7th percentile)

Key results: The prevalence of overweight among children (age seven years) decreased during the measurement period (2014-2017), from 13.2% in 2014 to 11.9% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 11.1%) was slightly lower compared to SEP level 4 (highest, 12.2%).

Prevalence of overweight among children by year, 2014-2017



Prevalence of overweight among children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of overweight among children by sex, 2017

	Sex		
	Male	Female	Total
Numerator	7,494	7,370	14,864
Denominator	64,289	60,340	124,629
Rate	11.7%	12.2%	11.9%

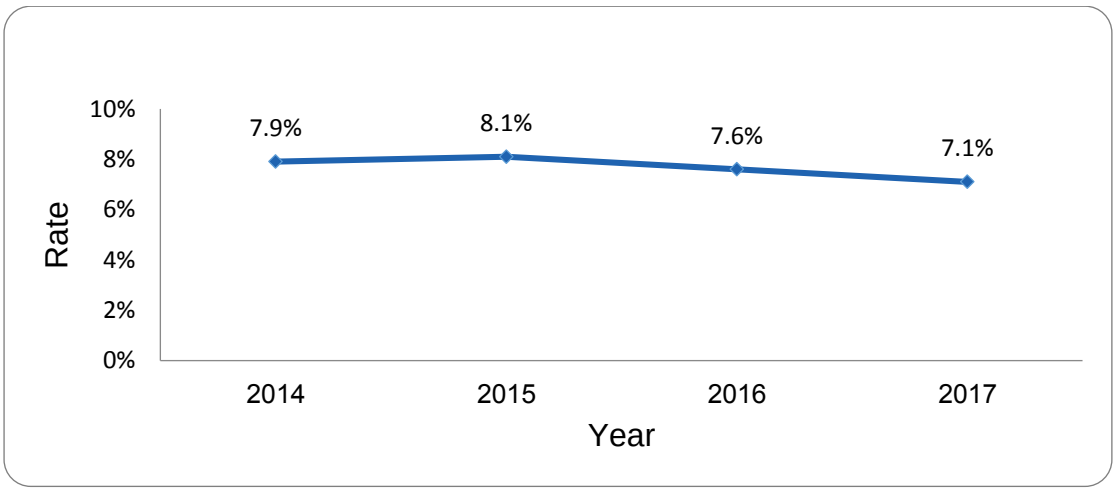
Prevalence of obesity among children (age 7 years)

Denominator: Seven year-old children with documented BMI components

Numerator: Children in the denominator who were obese (BMI ≥97.7th percentile)

Key results: The prevalence of obesity among children (age 7 years) decreased during the measurement period (2014-2017), from 7.9% in 2014 to 7.1% in 2017. The rate was lower for girls compared to boys (6.7% vs. 7.4%). The rate in SEP level 1 (lowest, 6.3%) was slightly higher compared to SEP level 4 (highest, 5.6%).

Prevalence of obesity among children by year, 2014-2017



Prevalence of obesity among children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of obesity among children by sex, 2017

	Sex		
	Male	Female	Total
Numerator	4,781	4,020	8,801
Denominator	64,289	60,340	124,629
Rate	7.4%	6.7%	7.1%

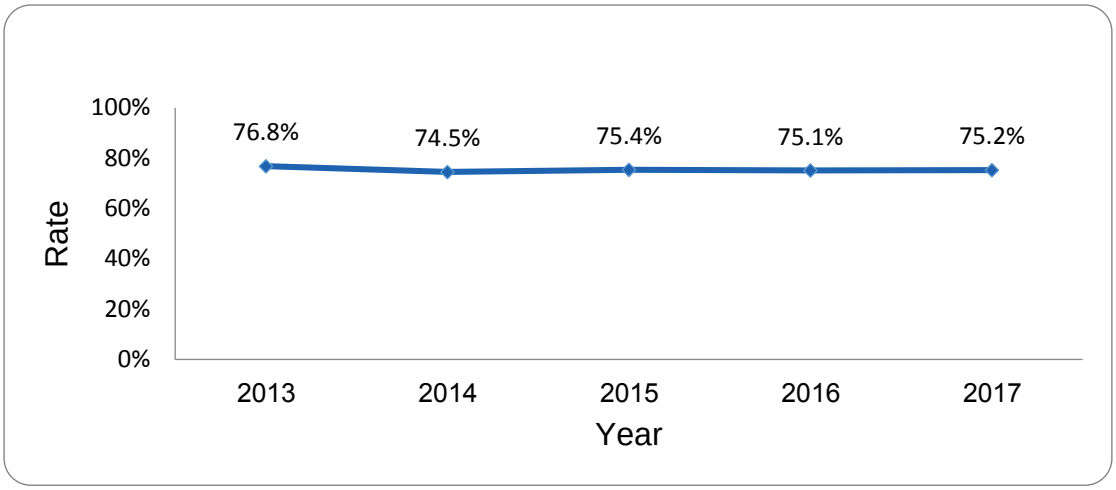
Documentation of body mass index (BMI) components in adolescents (ages 14-18 years)

Denominator: 14-18 year-old adolescents

Numerator: Adolescents in the denominator with recorded BMI components in the three previous years

Key results: The documentation of body mass index (BMI) components in adolescents (ages 14-18 years) remained stable during the measurement period (2013-2017), and was 75.2% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 69.0%) was lower compared to SEP level 4 (highest, 81.0%).

Documentation of BMI components in adolescents by year, 2013-2017

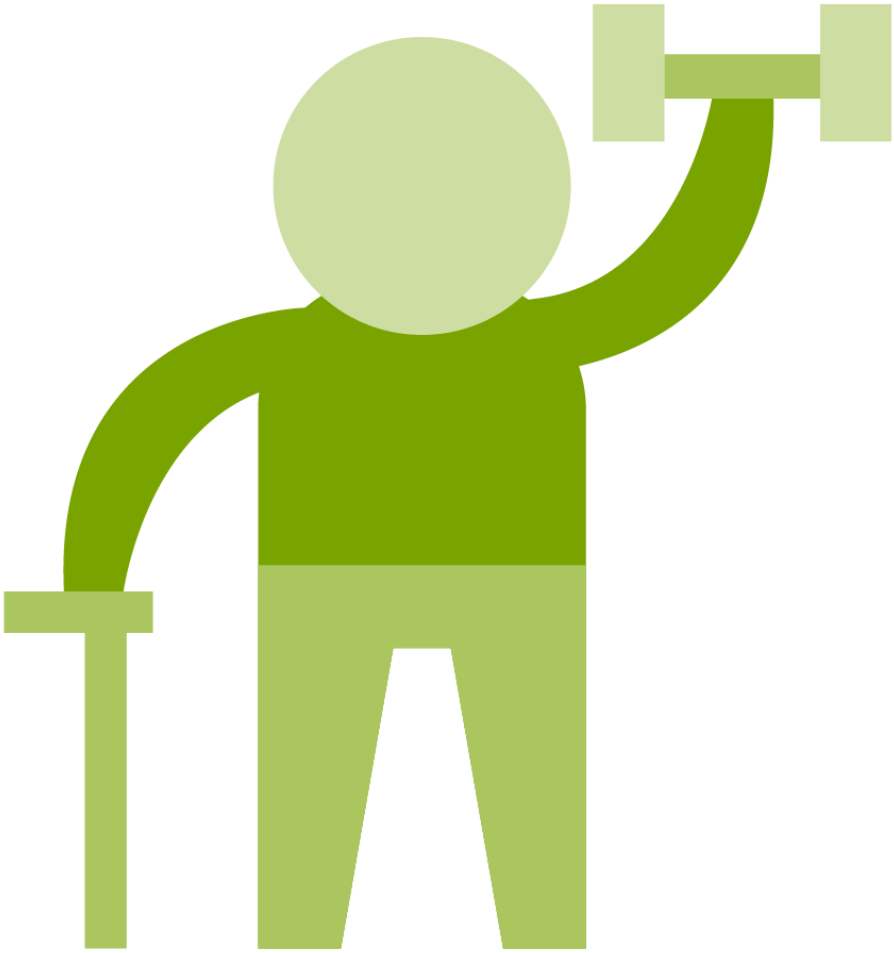


Documentation of BMI components in adolescents by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of BMI components in adolescents by sex, 2017

		Sex		
		Male	Female	Total
10-14	Numerator	50,705	47,892	98,597
	Denominator	58,953	56,252	115,205
	Rate	86.0%	85.1%	85.6%
15-18	Numerator	171,713	165,601	337,314
	Denominator	237,260	227,489	464,749
	Rate	72.4%	72.8%	72.6%
Total	Numerator	222,418	213,493	435,911
	Denominator	296,213	283,741	579,954
	Rate	75.1%	75.2%	75.2%

Elderly Health



Influenza vaccination in older adults (age 65 years or older)

Rationale: Influenza (flu) is a common and contagious respiratory illness caused by a group of viruses that can result in serious complications or death [1]. During influenza seasons, approximately 90% of influenza-related deaths occur in the elderly [2]. A seasonal influenza vaccine is therefore recommended in Israel for the entire population (age 6 months or older), with a special emphasis on several high-risk groups, including all people 65 years or older [3].

Denominator: Individuals 65 years or older

Numerator: Individuals in the denominator who received a seasonal influenza vaccination**.**

Key result: The influenza vaccination rate in older adults (age 65 years or older) increased from 62.4% in 2013 to 64.3% in 2015, and decreased to 61.0% in 2017. The rate was slightly lower for women compared to men (58.9% vs. 63.7%). The rate was similar across all SEP levels.

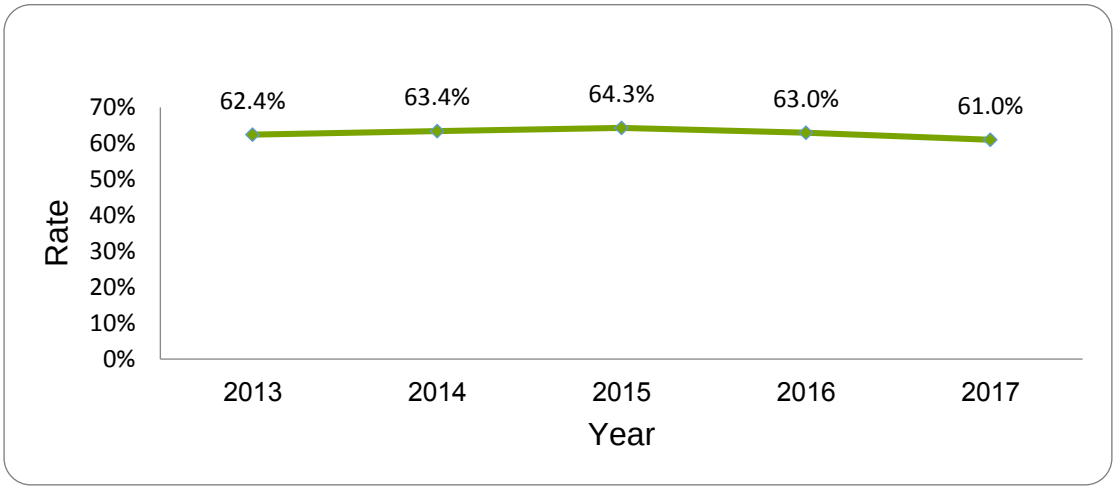
References:

[1] Centers for Disease Control and Prevention (CDC). 2013. "Seasonal Influenza: Flu Basics." Last modified September 12. http://www.cdc.gov/flu/about/disease/index.htm

[2] Epidemiology and Prevention of Vaccine- Preventable Disease: Influenza. (Prevention UCfDCa ed., 13 edition. Washington, DC: Public Health Foundation; 2015.

[3] In Hebrew: 2017 ,"1999 האגף לאפידמיולוגיה משרד הבריאות, "תדריך חיסונים . [Online]. Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 12-June-2018]

Influenza vaccination by year, 2013-2017



Influenza vaccination by socio-economic position (1-lowest, 4-highest) and sex, 2017

Influenza vaccination by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	86,239	92,451	178,690
	Denominator	155,642	178,259	333,901
	Rate	55.4%	51.9%	53.5%
70-74	Numerator	64,164	69,145	133,309
	Denominator	99,358	116,379	215,737
	Rate	64.6%	59.4%	61.8%
75-79	Numerator	50,258	59,721	109,979
	Denominator	73,425	95,801	169,226
	Rate	68.4%	62.3%	65.0%
80-84	Numerator	36,066	46,128	82,194
	Denominator	49,284	70,472	119,756
	Rate	73.2%	65.5%	68.6%
85+	Numerator	28,706	44,138	72,844
	Denominator	39,235	68,379	107,614
	Rate	73.2%	64.5%	67.7%
Total	Numerator	265,433	311,583	577,016
	Denominator	416,944	529,290	946,234
	Rate	63.7%	58.9%	61.0%

Pneumococcal vaccination in older adults (ages 65-74 years)

Rationale: Pneumococcal disease is caused by bacteria and can result in a range of ailments, from mild ear infections to meningitis, sepsis and fatal pneumonia [1]. Adults over the age of 65, especially those with chronic illnesses, are at an increased risk for pneumococcal disease and death [2]. The incidence rate of invasive pneumococcal disease (IPD) in Israel between 2009-2010 for those 65-74 years old was 20 per 100,000 people. The incidence rate increased with age, with a case-fatality rate of 25% among 65-74 year-olds, and 35% among those 85 years-old and above [3]. In addition to the childhood immunization routine, the Israeli Ministry of Health recommends that persons 65 years or older receive the PPV23 pneumococcal vaccine, if more than five years have elapsed from the previous PPV23 vaccination [4].

Denominator: Individuals 65-74 years old.

Numerator: Individuals in the denominator who received a pneumococcal vaccination once after the age of 65 or within the five previous years.

Key result: The pneumococcal vaccination rate in older adults (ages 65-74 years) remained stable during the measurement period (2013-2017), and was 77.7% in 2017. The rate was slightly lower for women compared to men (75.9% vs. 79.7%). The rate in SEP level 1 (lowest, 82.2%) was slightly higher compared to SEP level 4 (highest, 77.8%).

References:

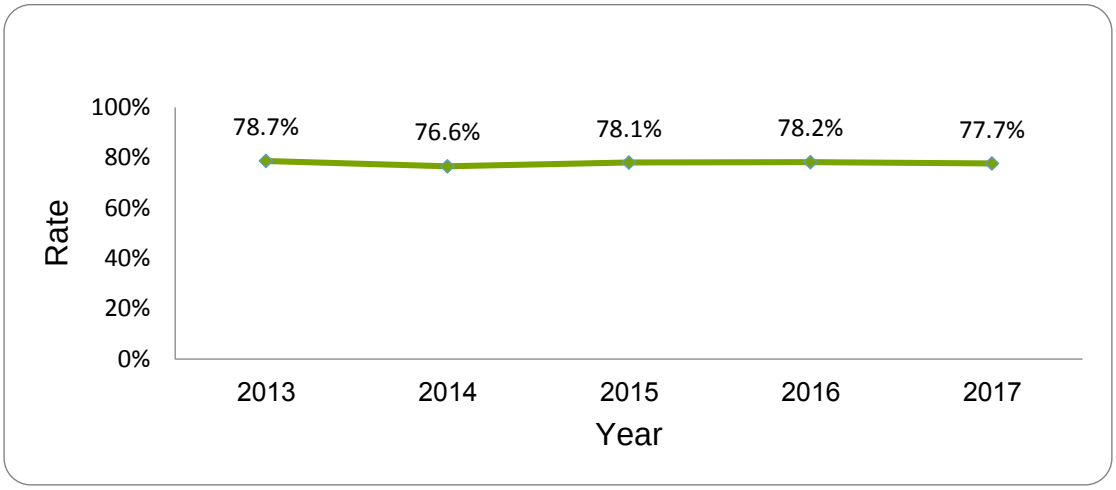
[1] Samir S. Shah, Adam J. Ratner; Trends in Invasive Pneumococcal Disease—Associated Hospitalizations, *Clinical Infectious Diseases*, Volume 42, Issue 1, 1 January 2006, Pages e1–5, https://doi.org/10.1086/498745

[2] Centers for Disease Control and Prevention (CDC). 2014. "Pneumonia Can Be Prevented—Vaccines Can Help." Last modified February 18. http://www.cdc.gov/Features/Pneumonia/

[3] Dwolatzky T, Brodsky J, Azaiza F, Clarfield AM, Jacobs JM, Litwin H: Coming of age: health-care challenges of an ageing population in Israel. The Lancet, 389:2542-2550.

[4] In Hebrew: 2017 ,"1999האגף לאפידמיולוגיה משרד הבריאות, "תדריך חיסונים . [Online]. Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 12-June-2018]

Pneumococcal vaccination by year, 2013-2017



Pneumococcal vaccination by socio-economic position (1-lowest, 4-highest) and sex, 2017

Pneumococcal vaccination by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	110,380	119,607	229,987
	Denominator	147,645	168,628	316,273
	Rate	74.8%	70.9%	72.7%
70-74	Numerator	80,028	89,563	169,591
	Denominator	91,312	106,828	198,140
	Rate	87.6%	83.8%	85.6%
Total	Numerator	190,408	209,170	399,578
	Denominator	238,957	275,456	514,413
	Rate	79.7%	75.9%	77.7%

Documentation of body mass index (BMI), underweight, and significant weight-loss in older adults

Rationale: Monitoring body weight in older adults has an important role in primary care, in facilitating morbidity and mortality prevention. Physiological changes occurring with older age, chronic diseases, use of multiple drugs, dementia, depression, and oral diseases can all lead to weight loss and underweight in the elderly. Even mild underweight (21 Kg/m2≤ BMI ≤22.9 Kg/m2) is known to be associated with increased mortality, compared with normal-range BMI individuals (23 Kg/m2≤ BMI ≤24.9 Kg/m2). Involuntary weight loss may signal frailty requiring medical attention. Both underweight and involuntary weight loss are often underdiagnosed [1].

References:

[1] Winter JE, MacInnis RJ, Wattanapenpaiboon N, Nowson CA. BMI and all-cause mortality in older adults: a metaanalysis. Am J Clin Nutr. 2014; 99(4): 875-90.

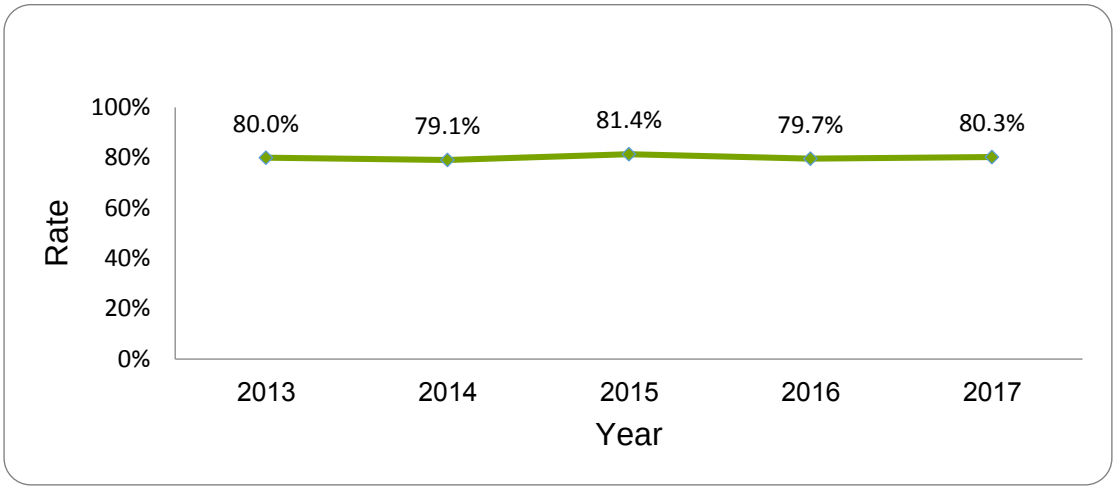
Documentation of body mass index (BMI) components in older adults (ages 65-84 years)

Denominator: Individuals 65-84 years old

Numerator: Individuals in the denominator who had their height and weight documented (height ever after age 65 years and weight in previous year)

Key result: The documentation rate of body mass index (BMI) components in older adults (ages 65-84 years) remained stable during the measurement period (2013-2017), and was 80.3% in 2017. The documentation rate was similar in both genders. The rate in SEP level 1 (lowest, 83.2%) was slightly higher compared to SEP level 4 (highest, 77.1%).

Documentation of BMI components in older adults by year, 2013-2017



Documentation of BMI components in older adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of BMI components by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	118,903	136,619	255,522
	Denominator	155,642	178,259	333,901
	Rate	76.4%	76.6%	76.5%
70-74	Numerator	82,909	97,220	180,129
	Denominator	99,358	116,379	215,737
	Rate	83.4%	83.5%	83.5%
75-79	Numerator	61,089	78,984	140,073
	Denominator	73,425	95,801	169,226
	Rate	83.2%	82.4%	82.8%
80-84	Numerator	35,845	48,582	84,427
	Denominator	42,791	60,426	103,217
	Rate	83.8%	80.4%	81.8%
Total	Numerator	298,746	361,405	660,151
	Denominator	371,216	450,865	822,081
	Rate	80.5%	80.2%	80.3%

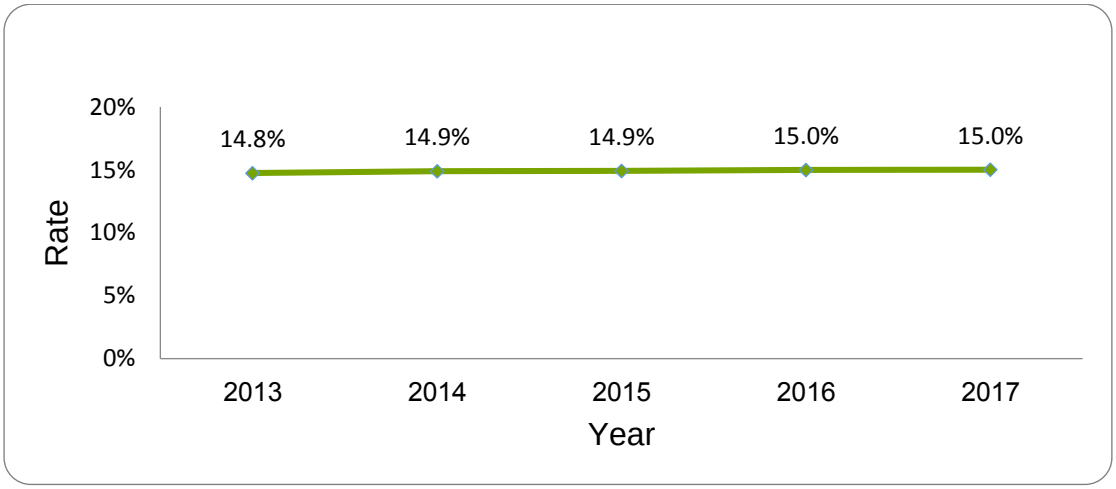
Underweight among older adults (age 75 years or older)

Denominator: Individuals 75 years or older with documented BMI components

Numerator: Individuals in the denominator who were underweight (BMI <23 Kg/m^2)

Key result: The rate of underweight among older adults (75 years or older) remained stable during the measurement period (2013-2017), and was 15.0% in 2017. The rate was slightly higher for women compared to men (15.5% vs. 14.4%). The rate in SEP level 1 (lowest, 13.7%) was lower compared to SEP level 4 (highest, 17.2%).

Underweight in older adults by year, 2013-2017



Underweight in older adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Underweight in older adults by age and sex, 2017

		Sex		
		Male	Female	Total
75-79	Numerator	7,217	10,200	17,417
	Denominator	61,075	78,977	140,052
	Rate	11.8%	12.9%	12.4%
80-84	Numerator	5,765	8,295	14,060
	Denominator	41,372	56,825	98,197
	Rate	13.9%	14.6%	14.3%
85+	Numerator	6,171	10,028	16,199
	Denominator	30,967	48,369	79,336
	Rate	19.9%	20.7%	20.4%
Total	Numerator	19,153	28,523	47,676
	Denominator	133,414	184,171	317,585
	Rate	14.4%	15.5%	15.0%

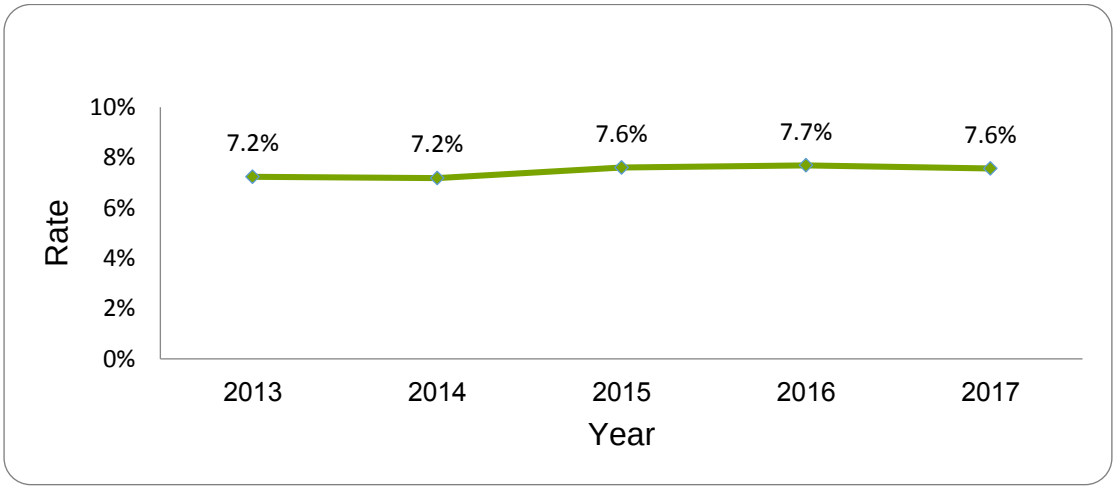
Significant weight-loss in older adults (75 years or older)

Denominator: Individuals 75 years or older with documented BMI components

Numerator: Individuals in the denominator who experienced a significant weight loss (>10% of their body weight within two years)

Key result: The rate of significant weight-loss in older adults (75 years or older) remained stable during the measurement period (2013-2017), and was 7.6% in 2017. The rate was slightly higher for women compared to men (8.1% vs. 6.8%). The rate in SEP level 1 (lowest, 8.3%) was higher compared to SEP level 4 (highest, 6.7%).

Significant weight-loss in older adults by year, 2013-2017



Significant weight-loss in older adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Significant weight-loss in older adults by age and sex, 2017

		Sex		
		Male	Female	Total
75-79	Numerator	3,059	4,615	7,674
	Denominator	52,999	68,678	121,677
	Rate	5.8%	6.7%	6.3%
80-84	Numerator	2,555	4,149	6,704
	Denominator	36,601	49,899	86,500
	Rate	7.0%	8.3%	7.8%
85+	Numerator	2,336	4,221	6,557
	Denominator	27,196	41,257	68,453
	Rate	8.6%	10.2%	9.6%
Total	Numerator	7,950	12,985	20,935
	Denominator	116,796	159,834	276,630
	Rate	6.8%	8.1%	7.6%

Prevalence of obesity among older adults (ages 65-84 years)

Rationale: Monitoring body weight has an important role in primary care. Social inequalities in overweight and obesity are strong, and require attention [1]. Therefore, it is important to monitor BMI and provide guidance for maintaining healthy lifestyles and body weight [2].

Denominator: Individuals 65 years or older with documented BMI components

Numerator: Individuals in the denominator who were obese (BMI ≥30 Kg/m^2)

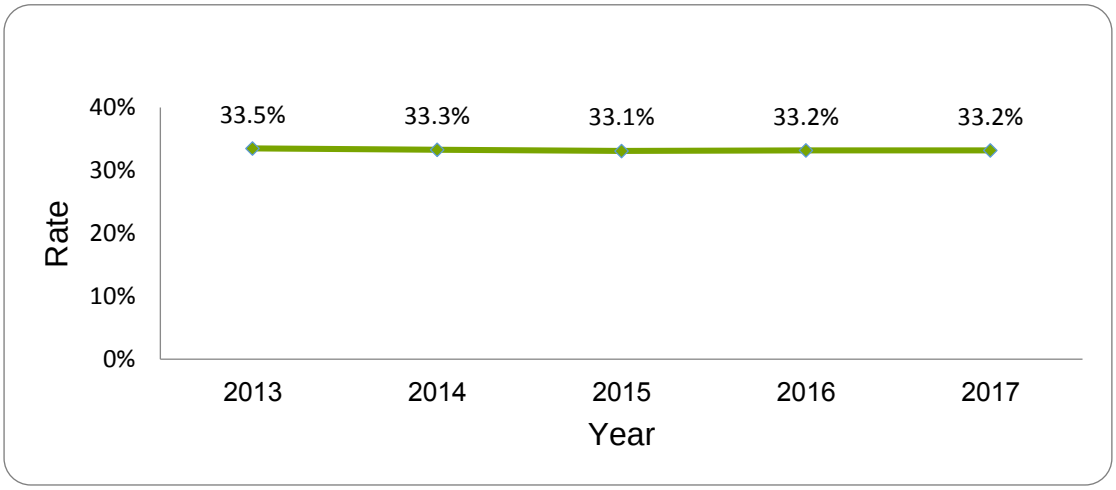
Key result: The prevalence of obesity among older adults (ages 65-84 years) remained stable during the measurement period (2013-2017), and was 33.2% in 2017. The rate was higher for women compared to men (37.5% vs. 28.0%). The rate in SEP level 1 (lowest, 43.3%) was 1.8 times higher compared to SEP level 4 (highest, 24.5%).

References:

[1] "Obesity-Update-2017," OECD, 2017. [Online]. Available: http://www.oecd.org/health/health-systems/Obesity-Update-2017.pdf. [Accessed: 15-Feb-2018].

[2] המלצות כוח המשימה הישראלי בנושא קידום בריאות ורפואה מונעת," ההסתדרות הרפואית בישראל, האגף 2013. למדיניות רפואית, איגוד רופאי המשפחה, [Online] .Available: https://www.wikirefua.org.il/w/index.php.קובץ:המלצות_כוח_המשימה.png .[Accessed: 11Dec-2017].

Prevalence of obesity in older adults by year, 2013-2017



Prevalence of obesity in older adults by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of obesity in older adults by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	36,190	52,218	88,408
	Denominator	118,877	136,604	255,481
	Rate	30.4%	38.2%	34.6%
70-74	Numerator	23,325	36,297	59,622
	Denominator	82,894	97,203	180,097
	Rate	28.1%	37.3%	33.1%
75-79	Numerator	15,642	29,696	45,338
	Denominator	61,075	78,977	140,052
	Rate	25.6%	37.6%	32.4%
80-84	Numerator	8,008	16,765	24,773
	Denominator	34,676	47,150	81,826
	Rate	23.1%	35.6%	30.3%
Total	Numerator	83,165	134,976	218,141
	Denominator	297,522	359,934	657,456
	Rate	28.0%	37.5%	33.2%

Benzodiazepine overuse and use of long-acting benzodiazepines in older adults (65 years or older)

Rationale: Benzodiazepines are sleep-inducing and anti-anxiety drugs. Studies have shown that using benzodiazepines in the elderly increases the risk of accidents, falls and fractures. In addition, using them for extended periods of time may lead to problems associated with discontinuation and withdrawal symptoms [1]. Therefore, several guidelines and expert consensus statements recommend avoiding benzodiazepine use for long periods, especially in the elderly [2]. Furthermore, Elderly persons are particularly sensitive to the side effects of benzodiazepines, due to the increased sensitivity of the nervous system, and a slower metabolism [3]. Consequently, guidelines recommend that the use of long-acting benzodiazepines by older adults be avoided [4].

References:

[1] Olfson M, King M, Schoenbaum M. Benzodiazepine Use in the United States. JAMA Psychiatry. 2015;72(2):136–142. doi:10.1001/jamapsychiatry.2014.1763

[2] American Geriatrics Society 2012 Beers Criteria Update Expert Panel. American Geriatrics Society updated Beers Criteria for potentially inappropriate medication use in older adults. J Am Geriatr Soc. 2012;60(4):616-631.

[3] C. H. Ashton, "Benzodiazepines: How They Work and How to Withdraw," Institute of Neuroscience, Newcastle University, 2002. [Online]. Available: http://www.benzo. org.uk/manual/bzcha01.htm#15. [Accessed: 19-Dec-2017].

[4] Department of Health and Children, "Benzodiazepines : Good Practice Guidelines for Clinicians," 2014. [Online]. Available: http://health.gov.ie/wp-content/uploads/2014/04/Benzodiazepines-Good-Practice-Guidelines.pdf. [Accessed: 27-Feb-2018]

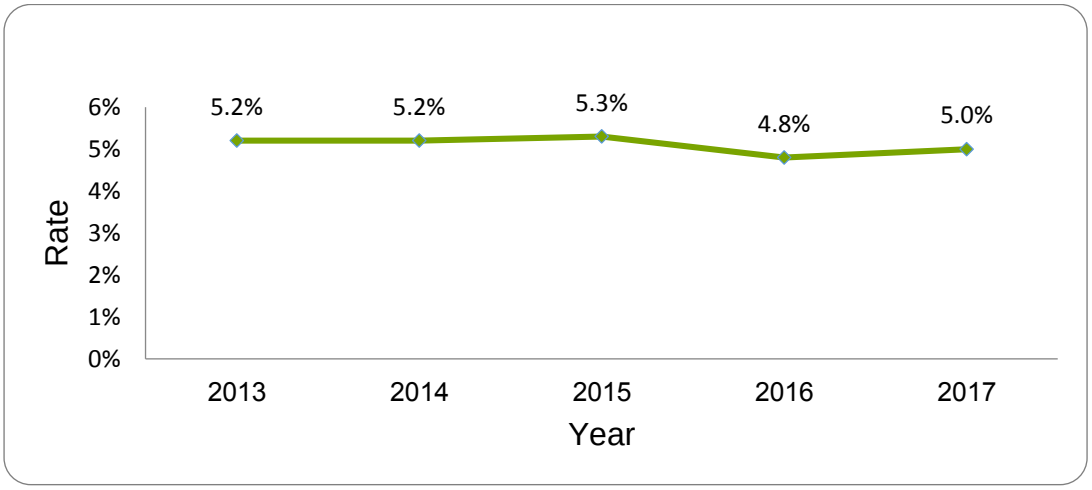
Benzodiazepine overuse in older adults (65 years or older)

Denominator: Individuals 65 years or older

Numerator: Individuals in the denominator who have purchased at least 365 defined daily dose (DDD) of benzodiazepines or Z-drugs during the measurement year

Key result: The rate of benzodiazepine overuse in older adults (65 years or older) remained stable during the measurement period (2013-2017), and was 5.0% in 2017. The rate among women was 1.5 times higher compared to men (5.9% vs. 3.8%). The rate in SEP level 1 (lowest, 3.0%) was 1.8 times lower compared to SEP level 4 (highest, 5.6%).

Benzodiazepine overuse by year, 2013-2017



Benzodiazepine overuse by socio-economic position (1-lowest, 4-highest) and sex, 2017

Benzodiazepine overuse by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	3,042	5,269	8,311
	Denominator	155,642	178,259	333,901
	Rate	2.0%	3.0%	2.5%
70-74	Numerator	2,832	4,698	7,530
	Denominator	99,358	116,379	215,737
	Rate	2.9%	4.0%	3.5%
75-79	Numerator	3,276	6,099	9,375
	Denominator	73,425	95,801	169,226
	Rate	4.5%	6.4%	5.5%
80-84	Numerator	3,026	6,316	9,342
	Denominator	49,284	70,472	119,756
	Rate	6.1%	9.0%	7.8%
85+	Numerator	3,676	8,621	12,297
	Denominator	39,235	68,379	107,614
	Rate	9.4%	12.6%	11.4%
Total	Numerator	15,852	31,003	46,855
	Denominator	416,944	529,290	946,234
	Rate	3.8%	5.9%	5.0%

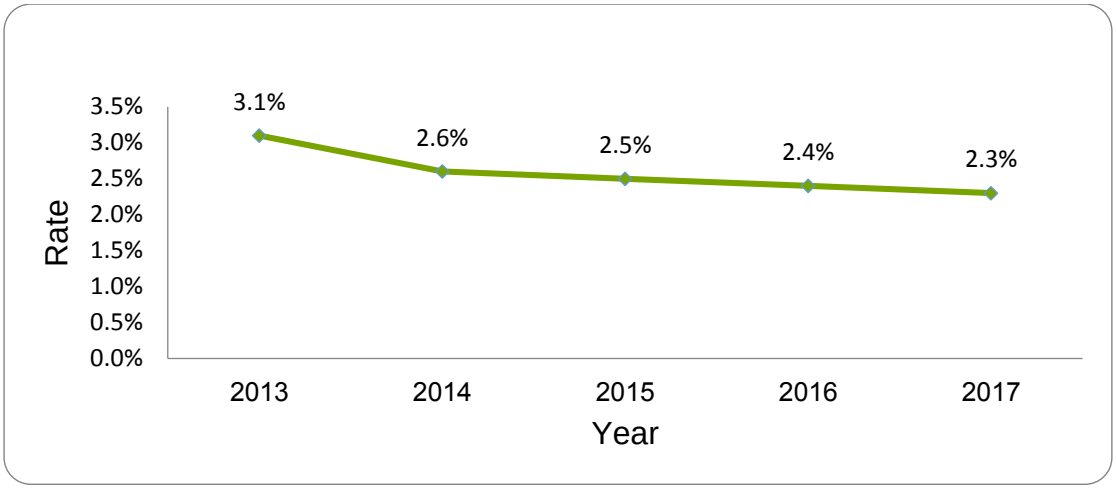
Use of long-acting benzodiazepines in older adults (65 years or older)

Denominator: Individuals 65 years or older

Numerator: Individuals in the denominator who have purchased long-acting benzodiazepines during the measurement year

Key result: The usage rate of long-acting benzodiazepines in older adults (65 years or older) decreased during the measurement period (2013-2017), from 3.1% in 2013 to 2.3% in 2017. The rate was higher for women compared to men (2.6% vs. 1.9%). The rate in SEP level 1 (lowest, 1.9%) was lower compared to SEP level 4 (highest, 2.7%).

Use of long-acting of benzodiazepines by year, 2013-2017



Use of long-acting of benzodiazepines by socio-economic position (1-lowest, 4-highest) and sex, 2017

Use of long-acting of benzodiazepines by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	2,634	4,082	6,716
	Denominator	155,642	178,259	333,901
	Rate	1.7%	2.3%	2.0%
70-74	Numerator	1,812	3,020	4,832
	Denominator	99,358	116,379	215,737
	Rate	1.8%	2.6%	2.2%
75-79	Numerator	1,484	2,770	4,254
	Denominator	73,425	95,801	169,226
	Rate	2.0%	2.9%	2.5%
80-84	Numerator	1,090	1,998	3,088
	Denominator	49,284	70,472	119,756
	Rate	2.2%	2.8%	2.6%
85+	Numerator	894	1,874	2,768
	Denominator	39,235	68,379	107,614
	Rate	2.3%	2.7%	2.6%
Total	Numerator	7,914	13,744	21,658
	Denominator	416,944	529,290	946,234
	Rate	1.9%	2.6%	2.3%

Respiratory Diseases

Persistent asthma (ages 5-45 years)

Rationale: Asthma is one of the most common chronic respiratory diseases. Despite an observed decline in asthma complications in developed countries over the past decade, the condition is associated with an unacceptable burden for patients, families and healthcare systems. Moreover, most asthma associated mortality is preventable with proper management. Regular daily controller therapy is considered the mainstay of persistent asthma management and reduces the risk of complications, including exacerbation, hospitalization, and mortality [1]. Overuse of reliever medications (primarily inhaled short acting beta-agonists) indicates inadequate control and is associated with adverse outcomes [2].

References:

[1] "Asthma: diagnosis, monitoring and chronic asthma management", NICE guideline [NG80], 2017 [Online]. Available: https://www.nice.org.uk/guidance/ng80 [Accessed: 27-Feb-2018]

[2] National Quality Measures Clearinghouse (NQMC). Measure summary: Asthma medication ratio. In: National Quality Measures Clearinghouse (NQMC) [Web site]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2015 Oct 01. Available at: https://www.qualitymeasures.ahrq.gov

Prevalence of persistent asthma (ages 5-45 years)

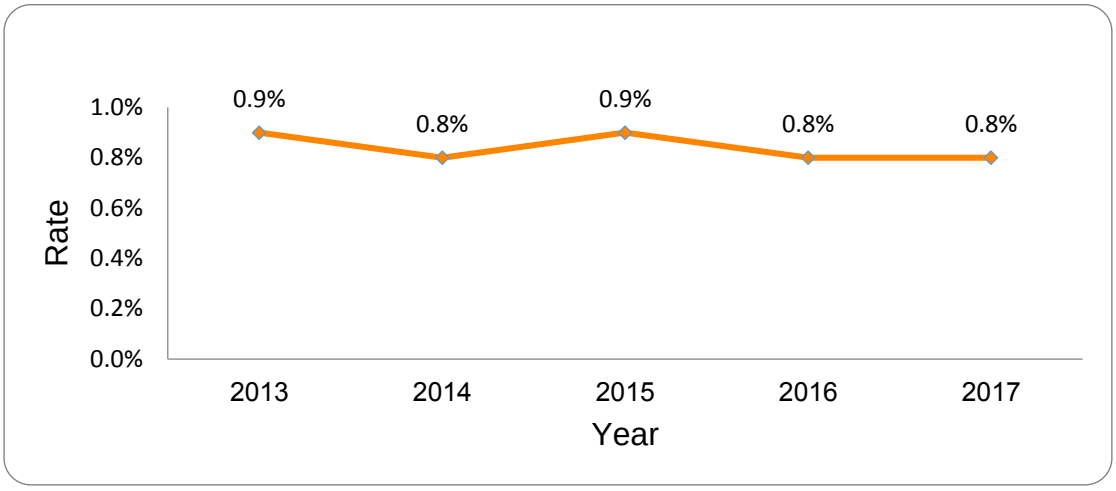
Denominator: individuals 5-45 years old

Numerator: Individuals in the denominator who fulfilled at least one the following criteria in the measurement year and in the year prior to the measurement year:

1. The patient was dispensed at least four prescriptions of asthma medications per year.
2. The patient was dispensed at least two prescriptions of asthma medication and also had at least four outpatient visits with an asthma diagnosis per year.

Key results: The prevalence of persistent asthma in individuals 5-45 years old decreased during the measurement period (2013-2017), from 0.9% in 2013 to 0.8% in 2017. The rate was lower for women compared to men (0.7% vs. 0.9%). The rate in SEP level 1 (lowest, 0.5%) was twice as low compared to SEP level 4 (highest, 1.0%).

Prevalence of persistent asthma by year, 2013-2017



Prevalence of persistent asthma by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of persistent asthma by age and sex, 2017

		Sex		
		Male	Female	Total
5-14	Numerator	8,091	4,315	12,406
	Denominator	760,859	723,282	1,484,141
	Rate	1.1%	0.6%	0.8%
15-24	Numerator	2,801	2,353	5,154
	Denominator	473,087	505,055	978,142
	Rate	0.6%	0.5%	0.5%
25-34	Numerator	3,945	3,762	7,707
	Denominator	535,397	548,171	1,083,568
	Rate	0.7%	0.7%	0.7%
35-45	Numerator	5,330	5,632	10,962
	Denominator	496,825	517,779	1,014,604
	Rate	1.1%	1.1%	1.1%
Total	Numerator	20,167	16,062	36,229
	Denominator	2,266,168	2,294,287	4,560,455
	Rate	0.9%	0.7%	0.8%

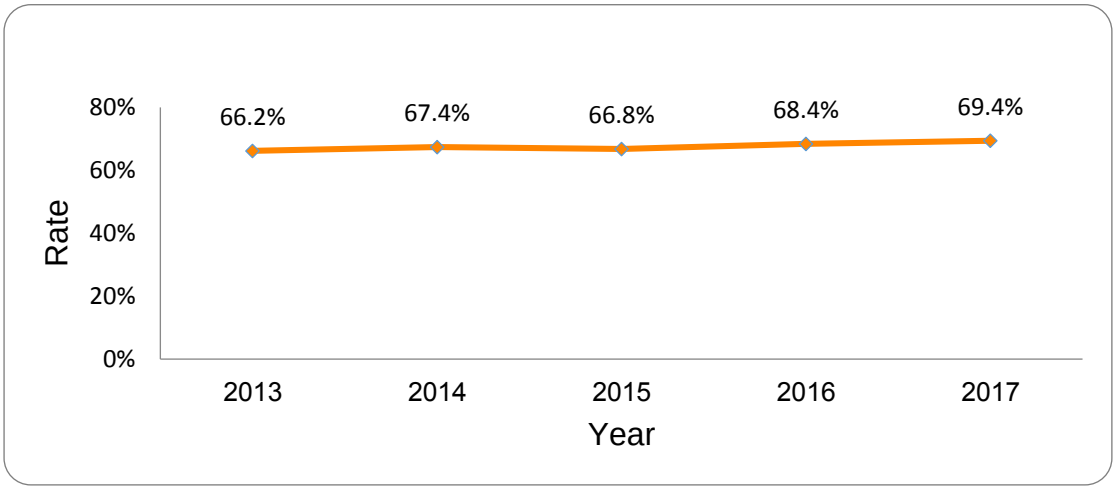
Asthma medication ratio (AMR) greater than or equal to 0.5 (ages 5-45 years)

Denominator: Individuals with persistent asthma, 5-45 years old

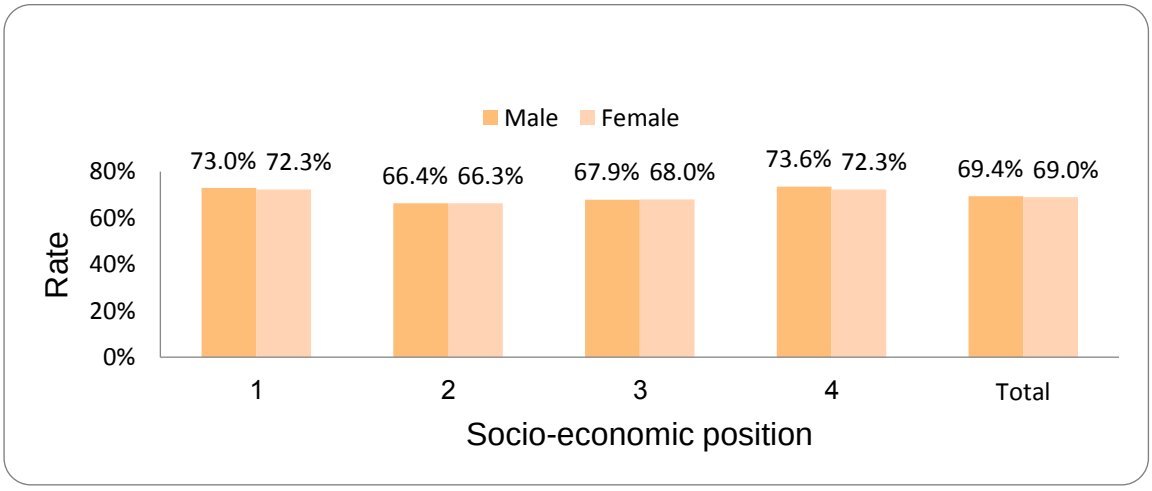
Numerator: Individuals in the denominator with an asthma medication ratio (AMR) greater than or equal to 0.5. AMR is the ratio of controller medications to total asthma medications.

Key results: The rate of persistent asthma patients with proper controller medication use (with an AMR ≥ 0.5) increased during the measurement period (2013-2017), from 66.2% in 2012 to 69.4% in 2017. The rate was similar in both sexes and across SEP levels.

AMR greater than or equal to 0.5 by year, 2013-2017



AMR greater than or equal to 0.5 by socio-economic position (1-lowest, 4-highest) and sex, 2017



AMR greater than or equal to 0.5 by age and sex, 2017

		Sex		
		Male	Female	Total
5-14	Numerator	5,818	3,085	8,903
	Denominator	8,091	4,315	12,406
	Rate	71.9%	71.5%	71.8%
15-24	Numerator	2,052	1,685	3,737
	Denominator	2,801	2,353	5,154
	Rate	73.3%	71.6%	72.5%
25-34	Numerator	2,657	2,535	5,192
	Denominator	3,945	3,762	7,707
	Rate	67.4%	67.4%	67.4%
35-45	Numerator	3,502	3,795	7,297
	Denominator	5,330	5,632	10,962
	Rate	65.7%	67.4%	66.6%
Total	Numerator	14,029	11,100	25,129
	Denominator	20,167	16,062	36,229
	Rate	69.6%	69.1%	69.4%

Influenza vaccination of individuals with persistent asthma (ages 5-45 years)

Rationale: Influenza (flu) is a common, contagious respiratory illness caused by influenza viruses, and may result in serious complications or death [1]. Vaccination has been shown to reduce flu-related hospitalizations by up to 71% [2]. Seasonal influenza vaccination is recommended by the Israeli Ministry of Health for all individuals (above the age of 6 months), and in particular for children, the elderly, and individuals with chronic conditions, including asthma, since Influenza contributes to asthma exacerbations. [3].

Denominator: Individuals with persistent asthma 5-45 years old

Numerator: Individuals in the denominator who received a seasonal influenza vaccination (September 1st to February 28th)

Key results: The rate of influenza vaccination of individuals with persistent asthma (ages 5-45 years) increased from 37.3% in 2013 to 42.1% in 2015 and decreased to 35.2% in 2017. The rate was slightly higher for women compared to men (35.9% vs. 34.7%). The rate in SEP level 1 (lowest, 47.0%) was higher compared to SEP level 4 (highest, 33.1%).

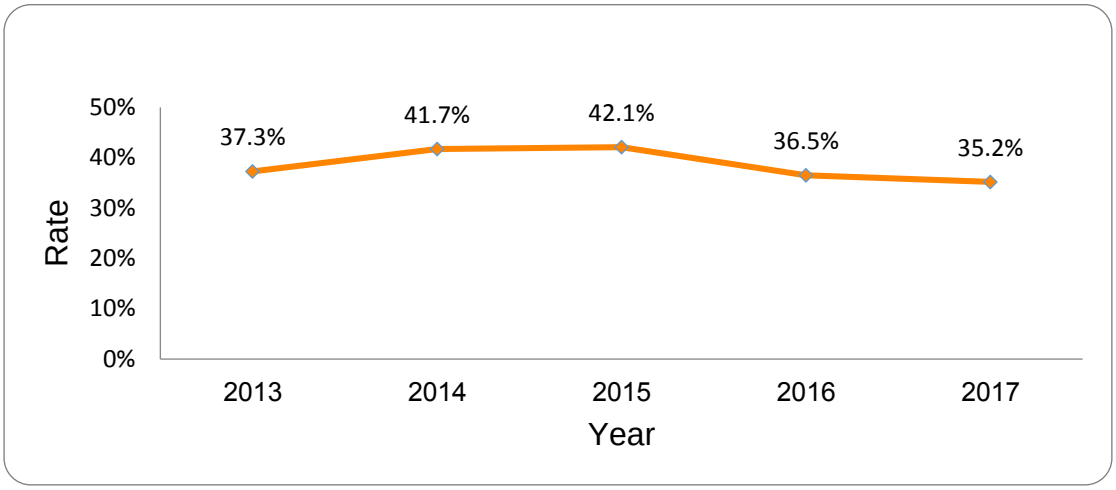
References:

[1] Centers for Disease Control and Prevention (CDC). 2013. “Seasonal Influenza: Flu Basics”. Available: http://www.cdc.gov/flu/about/disease/index.htm

[2] Talbot, H.K., Y. Zhu, Q. Chen, J.V. Williams, M.G. Thompson, M.R. Griffin. “Effectiveness of Influenza Vaccine for Preventing Laboratory Confirmed Influenza Hospitalizations in Adults, 2011–2012 Influenza Season.” Clinical Infectious Diseases 2013, 56(12):1774–7.

[3] In Hebrew: .2017 עדכון .משרד הבריאות ,האגף לאפידמיולוגיה .1999 תדריך חיסונים Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 21-March-2018]

Influenza vaccination by year, 2013-2017



Influenza vaccination by socio-economic position (1-lowest, 4-highest) and sex, 2017

Influenza vaccination by age and sex, 2017

		Sex		
		Male	Female	Total
5-14	Numerator	3,176	1,688	4,864
	Denominator	8,086	4,309	12,395
	Rate	39.3%	39.2%	39.2%
15-24	Numerator	865	724	1,589
	Denominator	2,781	2,335	5,116
	Rate	31.1%	31.0%	31.1%
25-34	Numerator	1,029	1,272	2,301
	Denominator	3,938	3,755	7,693
	Rate	26.1%	33.9%	29.9%
35-45	Numerator	1,907	2,071	3,978
	Denominator	5,325	5,629	10,954
	Rate	35.8%	36.8%	36.3%
Total	Numerator	6,977	5,755	12,732
	Denominator	20,130	16,028	36,158
	Rate	34.7%	35.9%	35.2%

Spirometry testing and documentation in patients with COPD or those at high-risk for COPD (ages 50-74 years)

Rationale: Chronic obstructive pulmonary disease (COPD) is a common respiratory disease characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities. According to WHO data, in 2015, COPD was the fourth leading cause of death worldwide [1]. Despite being the gold standard for the diagnosis and assessment of COPD, spirometry testing is underused. Earlier diagnosis using spirometry testing supports treatment plans that may slow the progression of symptoms and decrease the number of exacerbations [2].

References:

[1] J. B. Soriano et al., "Global, regional, and national deaths, prevalence, disability, adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma: a systematic analysis for the Global Burden of Disease Study 2015," Lancet Respir. Med., 5(9):691–706.

[2] Global Initiative for Chronic Obstructive Lung Disease. 2017. "Global Strategy for the Diagnosis, and Prevention of Chronic Obstructive Pulmonary Disease." Available: http://goldcopd.org/gold-2017-global-strategy-diagnosis-management-prevention-copd/

Spirometry testing in patients with COPD or those at high-risk for COPD (ages 50-74 years)

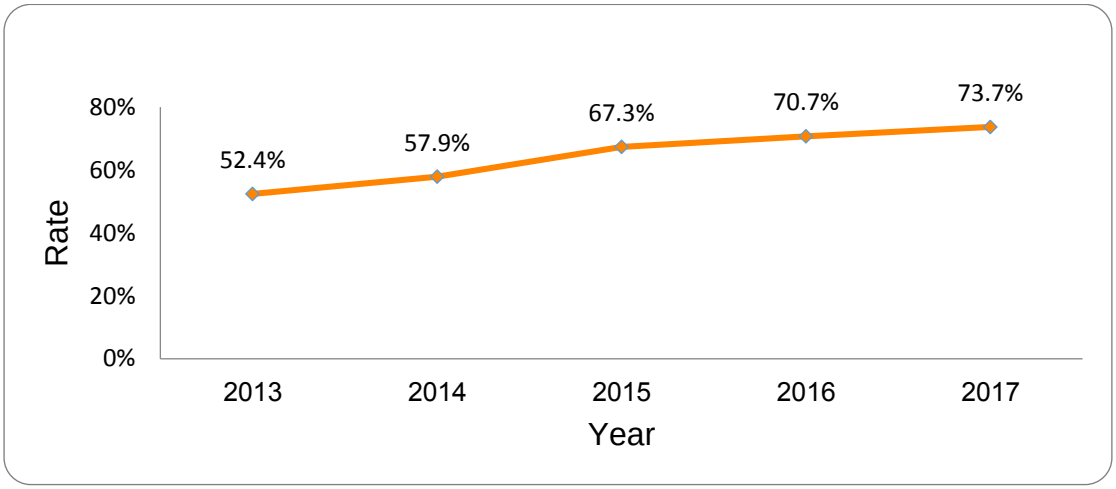
Denominator: Individuals aged 50-74 years diagnosed with COPD or defined at high-risk for COPD ever since 01/01/2012

Numerator: Individuals in the denominator who had at least one spirometry ever since 01/01/2011

Key results: The rate of diagnostic spirometry testing in patients with COPD or those at high-risk for COPD (ages 50-74 years) increased during the measurement period (2013-2017), from 52.4% in 2013 to 73.7% in 2017. The rate was slightly lower for women compared to men (72.1% vs. 74.8%). The rate in SEP level 1 (lowest, 69.7%) was lower compared to SEP level 4 (highest, 75.2%).

Notes: Individuals diagnosed with COPD are defined by a new diagnosis of COPD, chronic bronchitis, pulmonary emphysema or chronic bronchiectasis or by purchasing COPD specific medications. Individuals at high risk for COPD are defined as persons with a history of tobacco smoking that were either diagnosed with asthma or purchased medications for chronic respiratory diseases.

Spirometry testing by year, 2013-2017



Spirometry testing by socio-economic position (1-lowest, 4-highest) and sex, 2017

Spirometry testing by age and sex, 2017

		Sex		
		Male	Female	Total
50-54	Numerator	2,212	1,320	3,532
	Denominator	3,326	2,080	5,406
	Rate	66.5%	63.5%	65.3%
55-59	Numerator	3,166	2,139	5,305
	Denominator	4,375	3,087	7,462
	Rate	72.4%	69.3%	71.1%
60-64	Numerator	4,067	2,826	6,893
	Denominator	5,364	3,884	9,248
	Rate	75.8%	72.8%	74.5%
65-69	Numerator	4,330	2,881	7,211
	Denominator	5,558	3,780	9,338
	Rate	77.9%	76.2%	77.2%
70-74	Numerator	3,318	2,070	5,388
	Denominator	4,224	2,751	6,975
	Rate	78.6%	75.2%	77.2%
Total	Numerator	17,093	11,236	28,329
	Denominator	22,847	15,582	38,429
	Rate	74.8%	72.1%	73.7%

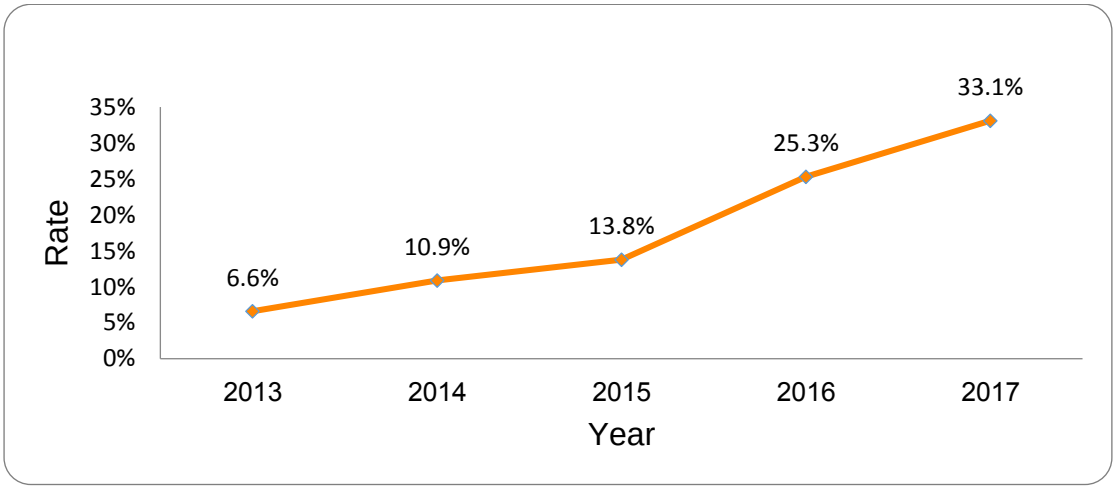
Documentation of spirometry testing in patients with COPD or those at high-risk for COPD (ages 50-74 years)

Denominator: Individuals 50-74 years old diagnosed with or defined as high-risk for COPD who had spirometry ever since 01/01/2011 .

Numerator: Individuals in the denominator whose spirometry results were documented in their medical file.

Key results: The rate of documentation of diagnostic spirometry testing in patients with COPD or those at high-risk for COPD (50-74 years old) increased during the measurement period (2013-2017), from 6.6% in 2013 to 33.1% in 2017. The documentation rate was similar in both genders. The rate in SEP level 1 (lowest, 32.1%) was lower compared to SEP level 4 (highest, 35.1%).

Documentation of spirometry testing by year, 2013-2017

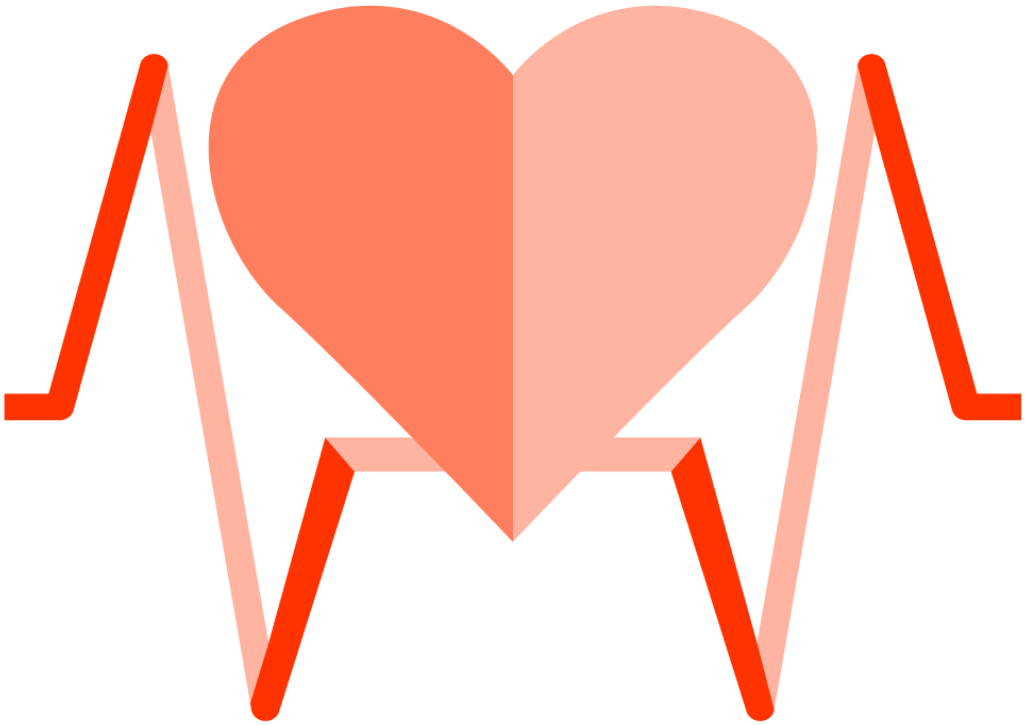


Documentation of spirometry testing by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of spirometry testing by age and sex, 2017

		Sex		
		Male	Female	Total
50-54	Numerator	672	415	1,087
	Denominator	2,212	1,320	3,532
	Rate	30.4%	31.4%	30.8%
55-59	Numerator	1,039	703	1,742
	Denominator	3,166	2,139	5,305
	Rate	32.8%	32.9%	32.8%
60-64	Numerator	1,367	900	2,267
	Denominator	4,067	2,826	6,893
	Rate	33.6%	31.8%	32.9%
65-69	Numerator	1,432	955	2,387
	Denominator	4,330	2,881	7,211
	Rate	33.1%	33.1%	33.1%
70-74	Numerator	1,170	725	1,895
	Denominator	3,318	2,070	5,388
	Rate	35.3%	35.0%	35.2%
Total	Numerator	5,680	3,698	9,378
	Denominator	17,093	11,236	28,329
	Rate	33.2%	32.9%	33.1%

Cardiovascular Health



Cholesterol level testing and achievement of target

Rationale: Atherosclerosis, which may lead to acute myocardial infraction and stroke, is a disease in which plaque accumulates inside arteries, causing them to harden and narrow over time. One of the main causes for plaque accumulation is high blood-cholesterol levels [1]. The current Israeli guidelines (March 2018) set target values for LDL-cholesterol in individuals according to their level of risk for heart disease [2]. This approach is based on the strong evidence for the existence of a causal relationship between blood LDL-cholesterol levels and cardiovascular morbidity, shown by numerous randomized trials that explored the efficacy and safety of cholesterol-lowering treatments [3]. This is also in accordance with the recommendations of the European Society of Cardiology and the European Atherosclerosis Society [4].

References:

[1] Silverman MG et al., Association between Lowering LDL-C and Cardiovascular Risk Reduction among Different Therapeutic Interventions: A Systematic Review and Meta-analysis. JAMA. 2017 Sep 27;316(12):1289-97. doi: 10.1001/jama.2017.13985.

[2] In Hebrew עדכון ההנחיות לטיפול בהיפרליפידמיה 2014 - עיקרי ההמלצות. החברה לחקר מניעה וטיפול באיגוד הישראלי לרפואה פנימית, איגוד רופאי המשפחה, החברה בטרשת העורקים, האיגוד לקרדיולוגיה בישראל האגודה הישראלית לסוכרת, האיגוד לנירולוגיה בישראל, העמותה הרפואית למניעה הישראלית ליתר לחץ דם ולגמילה מעישון בישראל, והחברה הישראלית לתזונה קלינית

[3] Cholesterol Treatment Trialists' (CTT) Collaborators. Efficacy and safety of more intensive lowering of LDL cholesterol: a meta-analysis of data from 170,000 participants in 26 randomised trials. Lancet. 2010; 37:1670-81.

[4] Catapano AL, Reiner Z, De Backer G, et al. ESC/EAS Guidelines for the management of dyslipidaemias: the Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS). Atherosclerosis. 2011; 217:3-46

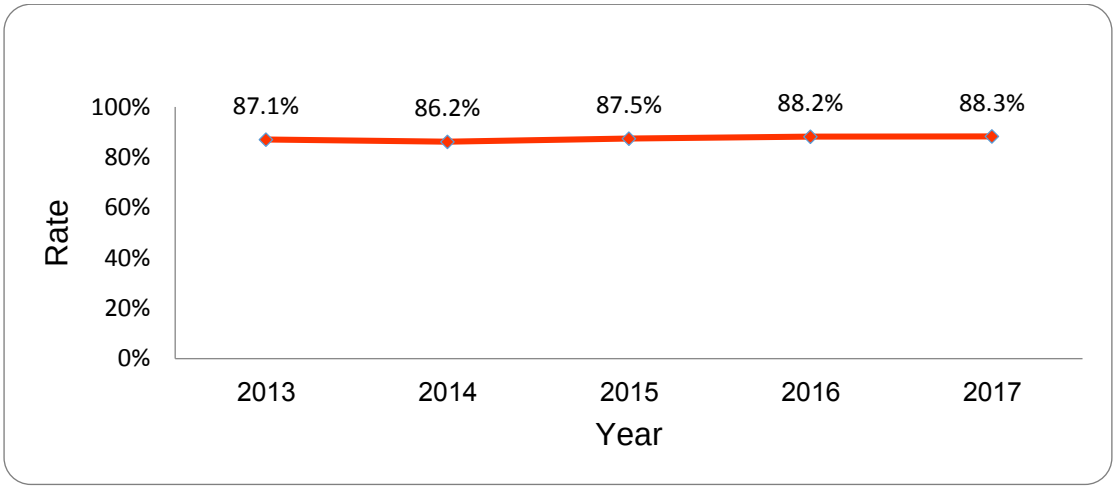
Cholesterol level testing (ages 35-54 years)

Denominator: Individuals 35-54 years old

Numerator: Individuals in the denominator who had at least one cholesterol-level test in the last five years

Key results: The rate of individuals ages 35-54 who underwent LDL-cholesterol level assessment and remained stable during the measurement period (2013-2017), was 88.3% in 2017. The rate was slightly higher for women compared to men (92.1% vs. 84.3%). The rate was similar across SEP levels.

Cholesterol level testing (ages 35-54 years) by year, 2013-2017



Cholesterol level testing (ages 35-54 years) by socio-economic position (1-lowest, 4-highest) and sex, 2017

Cholesterol level testing (ages 35-54 years) by age and sex, 2017

		Sex		
		Male	Female	Total
35-39	Numerator	181,827	216,984	398,811
	Denominator	230,011	243,001	473,012
	Rate	79.1%	89.3%	84.3%
40-44	Numerator	192,134	223,417	415,551
	Denominator	230,559	244,601	475,160
	Rate	83.3%	91.3%	87.5%
45-49	Numerator	175,026	200,877	375,903
	Denominator	202,258	214,874	417,132
	Rate	86.5%	93.5%	90.1%
50-54	Numerator	164,293	183,729	348,022
	Denominator	182,913	193,338	376,251
	Rate	89.8%	95.0%	92.5%
Total	Numerator	713,280	825,007	1,538,287
	Denominator	845,741	895,814	1,741,555
	Rate	84.3%	92.1%	88.3%

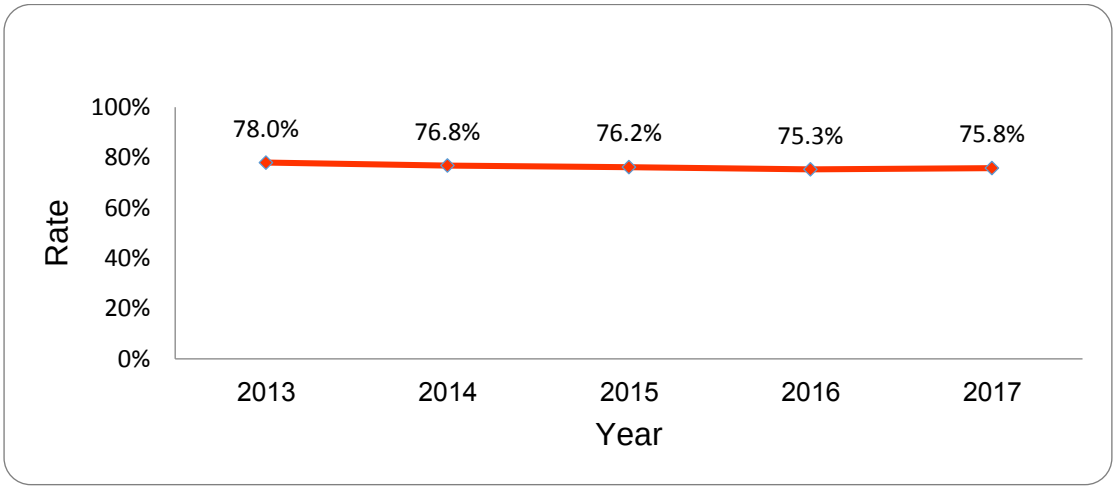
Cholesterol level testing (ages 55-74 years)

Denominator: Individuals 55-74 years old

Numerator: Individuals in the denominator who had at least one cholesterol-level test in the measurement year

Key results: The rate of individuals aged 55-74 who underwent LDL-cholesterol level assessment decreased during the measurement period (2013-2017), from 78.0% in 2013 to 75.8% in 2017. The rate was slightly higher for women compared to men (77.7% vs. 73.7%). The rate in SEP level 1 (lowest, 76.3%) was slightly higher compared to SEP level 4 (highest, 74.3%).

Cholesterol level testing (ages 55-74 years) by year, 2013-2017



Cholesterol level testing (ages 55-74 years) by socio-economic position (1-lowest, 4-highest) and sex, 2017

Cholesterol level testing (ages 55-74 years) by age and sex, 2017

		Sex		
		Male	Female	Total
55-59	Numerator	117,923	139,968	257,891
	Denominator	182,971	198,576	381,547
	Rate	64.4%	70.5%	67.6%
60-64	Numerator	125,149	146,930	272,079
	Denominator	172,657	191,921	364,578
	Rate	72.5%	76.6%	74.6%
65-69	Numerator	123,999	146,187	270,186
	Denominator	155,642	178,259	333,901
	Rate	79.7%	82.0%	80.9%
70-74	Numerator	83,130	99,105	182,235
	Denominator	99,358	116,379	215,737
	Rate	83.7%	85.2%	84.5%
Total	Numerator	450,201	532,190	982,391
	Denominator	610,628	685,135	1,295,763
	Rate	73.7%	77.7%	75.8%

LDL-cholesterol achievement of target (ages 35-74 years, target set by risk-level)

Denominator: Individuals 35-74 years old with documented risk factors for heart disease

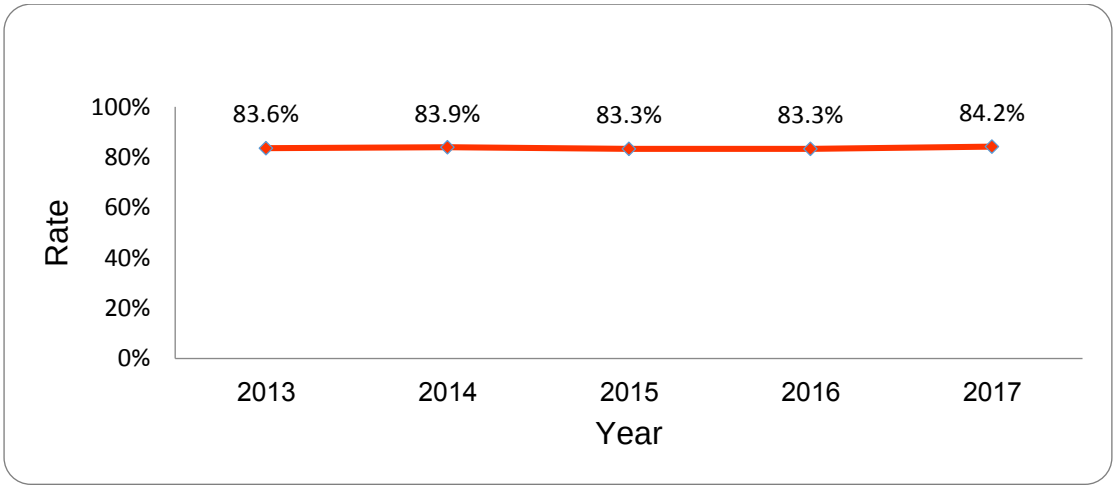
Numerator: Individuals in the denominator who had achieved the identified LDL-cholesterol target

Key results: The overall rate of LDL-cholesterol level target achievement (target is set according to coronary heart disease risk groups based on the Framingham score) remained stable during the measurement period (2013-2017). The target was achieved in 84.2% of the 35-74 years old population in 2017. The rate was slightly higher for women compared to men (86.9% vs. 80.4%). The rate was similar across all SEP levels.

Note: This composed indicator combines the following criteria (for individuals aged 35-74 year):

- LDL-cholesterol level ≤ 160 mg/dL among individuals at low-risk for heart disease
- LDL-cholesterol level ≤ 130 mg/dL among individuals at medium-risk for heart disease
- LDL-cholesterol level ≤100 mg/dL among individuals at high-risk for heart disease

LDL-cholesterol achievement of target by year, 2013-2017



LDL-cholesterol achievement of target by socio-economic position (1-lowest, 4-highest) and sex, 2017

LDL-cholesterol achievement of target by age and sex, 2017

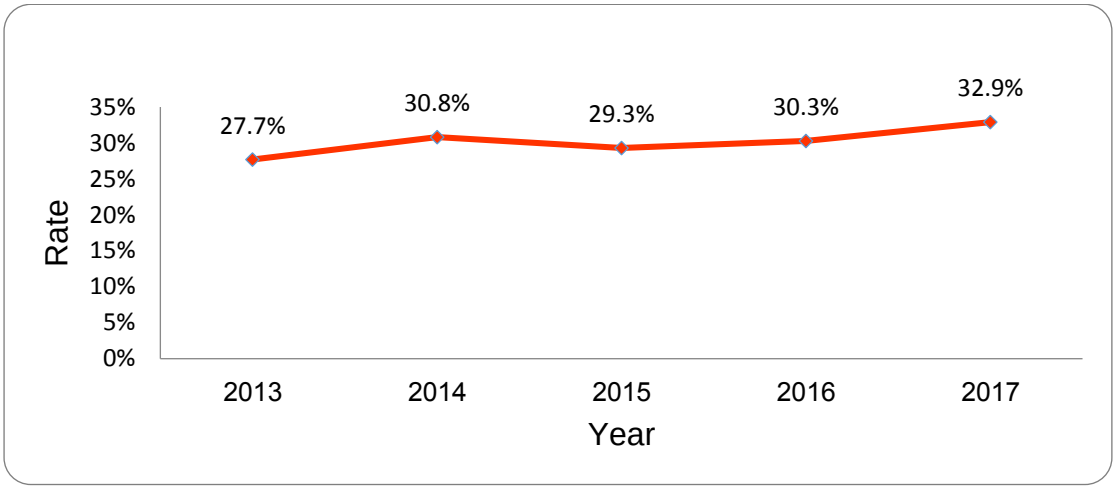
		Sex		
		Male	Female	Total
35-44	Numerator	125,199	192,371	317,570
	Denominator	146,095	203,728	349,823
	Rate	85.7%	94.4%	90.8%
45-54	Numerator	111,293	175,845	287,138
	Denominator	148,091	199,437	347,528
	Rate	75.2%	88.2%	82.6%
55-64	Numerator	118,894	166,494	285,388
	Denominator	150,804	207,866	358,670
	Rate	78.8%	80.1%	79.6%
65-74	Numerator	95,414	136,576	231,990
	Denominator	115,851	161,095	276,946
	Rate	82.4%	84.8%	83.8%
Total	Numerator	450,800	671,286	1,122,086
	Denominator	560,841	772,126	1,332,967
	Rate	80.4%	86.9%	84.2%

LDL-cholesterol achievement of target (less than or equal to 100 mg/dL) among individuals at high-risk for heart disease (ages 35-74 years)

Denominator: Individuals 35-74 years old with documented high risk factors for heart disease

Numerator: Individuals in the denominator who had LDL-cholesterol levels ≤100 mg/dL **Key results:** The rate of LDL-cholesterol levels lower than or equal to 100 mg/dL in a high-risk group of heart disease among individuals 35-74 years old increased during the measurement period (2013-2017), from 27.7% in 2013 to 32.9% in 2017. The rate among women was 4.0 times lower compared to men (8.3% vs. 33.2%). The rate in SEP level 1 (lowest, 26.2%) was 1.5 times lower compared to SEP level 4 (highest, 39.4%).

LDL-cholesterol achievement of target among individuals at high-risk for heart disease, by year



LDL-cholesterol achievement of target among individuals at high-risk for heart disease, by socio-economic position (1-lowest, 4-highest) and sex, 2017

LDL-cholesterol achievement of target among individuals at high-risk for heart disease, by age and sex, 2017

		Sex		
		Male	Female	Total
35-44	Numerator	7	1	8
	Denominator	256	12	268
	Rate	2.7%	8.3%	3.0%
45-54	Numerator	92	2	94
	Denominator	2,567	84	2,651
	Rate	3.6%	2.4%	3.5%
55-64	Numerator	750	1	751
	Denominator	7,072	117	7,189
	Rate	10.6%	0.9%	10.4%
65-74	Numerator	7,700	23	7,723
	Denominator	15,841	111	15,952
	Rate	48.6%	20.7%	48.4%
Total	Numerator	8,549	27	8,576
	Denominator	25,736	324	26,060
	Rate	33.2%	8.3%	32.9%

Documentation of blood pressure

Rationale: Known as the "silent killer," hypertension increases the risk of heart disease and stroke, which respectively were the second and the third leading causes of death in Israel in 2014 [1]. Controlling high blood pressure is an important step in preventing heart attacks, stroke and kidney disease, and in reducing the risk of developing other serious conditions [2]. Health care providers and plans can help individuals manage their high blood pressure by prescribing medications and encouraging life-style adaptations [3].

References:

[1] Centers for Disease Control and Prevention (CDC) 2012. "About High Blood Pressure." http://www.cdc.gov/bloodpressure/about.htm

[2] In Hebrew: Leading causes of death in Israel 2000-2014, Ministry of Health, March 2017. Available at: https://www.health.gov.il/publicationsfiles/leading_causes_2014.pdf

[3] James, P.A., S. Oparil, B.L. Carter, W.C. Cushman, C. Dennison-Himmelfarb, J. Handler, D.T. Lackland, et al. 2014. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults. Report from the Panel Members Appointment to the Eighth Joint National Committee (JNC 8). 311:507–20.

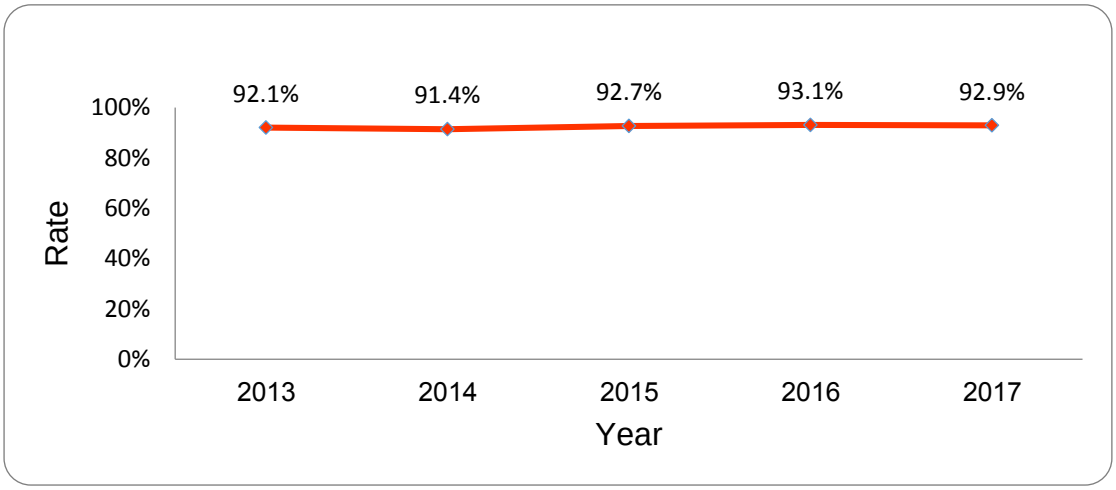
Documentation of blood pressure (ages 20-54 years)

Denominator: Individuals 20-54 years old

Numerator: Individuals in the denominator with documented blood pressure measurements from the five previous years

Key results: The rate of blood pressure documentation in individuals aged 20-54 years remained stable during the measurement period (2013-2017), and was 92.9% in 2017. The rate was slightly higher for women compared to men (95.6% vs. 90.1%). The rate was similar across SEP levels.

Documentation of blood pressure (ages 20-54 years) by year, 2013-2017



Documentation of blood pressure (ages 20-54 years) by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of blood pressure (ages 20-54 years) by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	109,182	153,409	262,591
	Denominator	132,955	167,371	300,326
	Rate	82.1%	91.7%	87.4%
25-34	Numerator	398,605	474,816	873,421
	Denominator	458,070	496,077	954,147
	Rate	87.0%	95.7%	91.5%
35-44	Numerator	419,654	467,087	886,741
	Denominator	460,570	487,602	948,172
	Rate	91.1%	95.8%	93.5%
45-54	Numerator	366,458	395,425	761,883
	Denominator	385,171	408,212	793,383
	Rate	95.1%	96.9%	96.0%
Total	Numerator	1,293,899	1,490,737	2,784,636
	Denominator	1,436,766	1,559,262	2,996,028
	Rate	90.1%	95.6%	92.9%

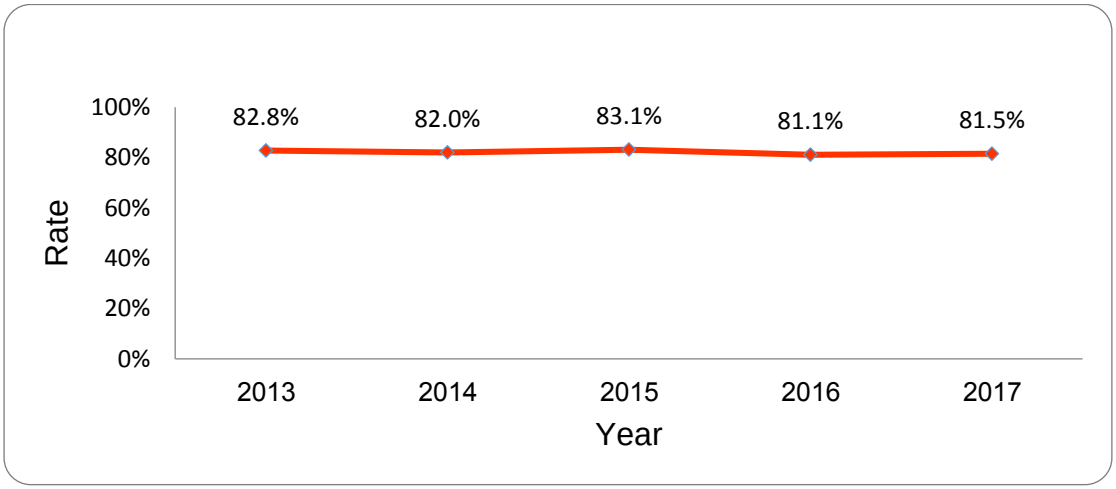
Documentation of blood pressure (ages 55-74 years)

Denominator: Individuals 55-74 years old

Numerator: Individuals in the denominator with documentation of blood pressure measurements in the previous year

Key results: The rate of blood pressure documentation in individuals 55-74 years old remained stable during the measurement period (2013-2017), and was 81.5% in 2017. The rate was slightly higher for women compared to men (82.4% vs. 80.5%). The rate in SEP level 1 (lowest, 84.8%) was slightly higher compared to SEP level 4 (highest, 78.6%).

Documentation of blood pressure (ages 55-74 years) by year, 2013-2017



Documentation of blood pressure (ages 55-74 years) by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of blood pressure (ages 55-74 years) by age and sex, 2017

		Sex		
		Male	Female	Total
55-59	Numerator	134,373	152,346	286,719
	Denominator	182,971	198,576	381,547
	Rate	73.4%	76.7%	75.1%
60-64	Numerator	136,827	155,928	292,755
	Denominator	172,657	191,921	364,578
	Rate	79.2%	81.2%	80.3%
65-69	Numerator	132,644	152,905	285,549
	Denominator	155,642	178,259	333,901
	Rate	85.2%	85.8%	85.5%
70-74	Numerator	87,805	103,405	191,210
	Denominator	99,358	116,379	215,737
	Rate	88.4%	88.9%	88.6%
Total	Numerator	491,649	564,584	1,056,233
	Denominator	610,628	685,135	1,295,763
	Rate	80.5%	82.4%	81.5%

Use of LDL-lowering drug therapy or LDL-cholesterol level control in individuals after CABG and/or angioplasty (ages 35 years or older)

Rationale: Atherosclerosis, which may lead to acute myocardial infraction and stroke, is a disease in which plaque accumulates inside arteries, causing them to harden and narrow over time. One of the main causes for plaque accumulation has been high blood-cholesterol levels [1]. The current Israeli guidelines (March 2018) are in accordance with the 2013 ACC/AHA guideline and set a target for LDL-cholesterol levels in individuals with an established coronary heart disease of 70 mg/dL or less, or a reduction of 50% in LDL values [2]. As the latter cannot be measured in the frame of QICH, it is replaced with the use of high-potency statin therapy .

References:

[1] Silverman MG et al., Association Between Lowering LDL-C and Cardiovascular Risk Reduction Among Different Therapeutic Interventions: A Systematic Review and Meta-analysis. JAMA. 2017 Sep 27;316(12):1289-97. doi: 10.1001/jama.2017.13985.

[2] In Hebrew: 2014 עיקרי ההמלצות. החברה לחקר, מניעה וטיפול - מקור: עדכון ההנחיות לטיפול בהיפרליפידמיה בטרשת העורקים, האיגוד לקרדיולוגיה בישראל, האיגוד הישראלי לרפואה פנימית, איגוד רופאי המשפחה, החברה הישראלית ליתר לחץ דם, האגודה הישראלית לסוכרת, האיגוד לנירולוגיה בישראל, העמותה הרפואית למניעה ולגמילה מעישון בישראל, וההחברה הישראלית לתזונה קלינית

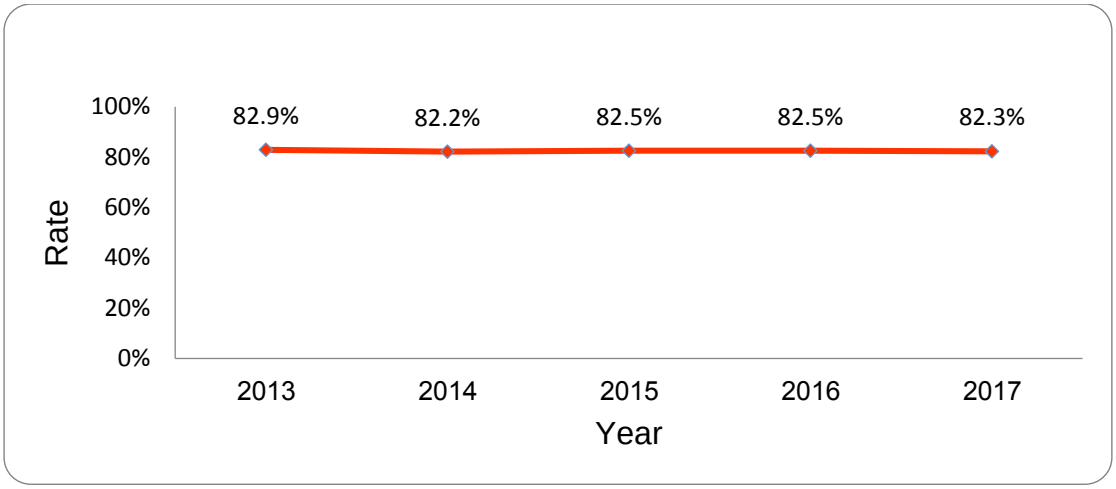
Use of LDL-lowering drug therapy in individuals after CABG and/or angioplasty (ages 35-80 years)

Denominator: Individuals 35-80 years old who had CABG (coronary artery bypass) surgery and/or angioplasty in the five previous years

Numerator: Individuals in the denominator who purchased at least three prescriptions of LDL-lowering medications during the measurement year

Key results: Among patients 35-80 years old who underwent cardiac bypass and/or cardiac catheterization in the five previous years, 82.3% purchased LDL-cholesterol lowering medications in 2017. During the measurement period (2013-2017) the rate remained stable. In 2017, women purchased less medications than men (79.8% vs. 82.9%). The rate in SEP level 1 (lowest, 79.3%) was slightly lower compared to SEP level 4 (highest, 85.3%).

Use of LDL-lowering drug therapy by year, 2013-2017



Use of LDL-lowering drug therapy by socio-economic position (1-lowest, 4-highest) and sex, 2017

Use of LDL-lowering drug therapy by age and sex, 2017

		Sex		
		Male	Female	Total
35-39	Numerator	329	36	365
	Denominator	496	137	633
	Rate	66.3%	26.3%	57.7%
40-49	Numerator	3,658	340	3,998
	Denominator	4,815	678	5,493
	Rate	76.0%	50.1%	72.8%
50-59	Numerator	11,609	1,556	13,165
	Denominator	14,519	2,160	16,679
	Rate	80.0%	72.0%	78.9%
60-69	Numerator	18,730	4,155	22,885
	Denominator	22,443	5,016	27,459
	Rate	83.5%	82.8%	83.3%
70-80	Numerator	12,586	4,478	17,064
	Denominator	14,296	5,246	19,542
	Rate	88.0%	85.4%	87.3%
Total	Numerator	46,912	10,565	57,477
	Denominator	56,569	13,237	69,806
	Rate	82.9%	79.8%	82.3%

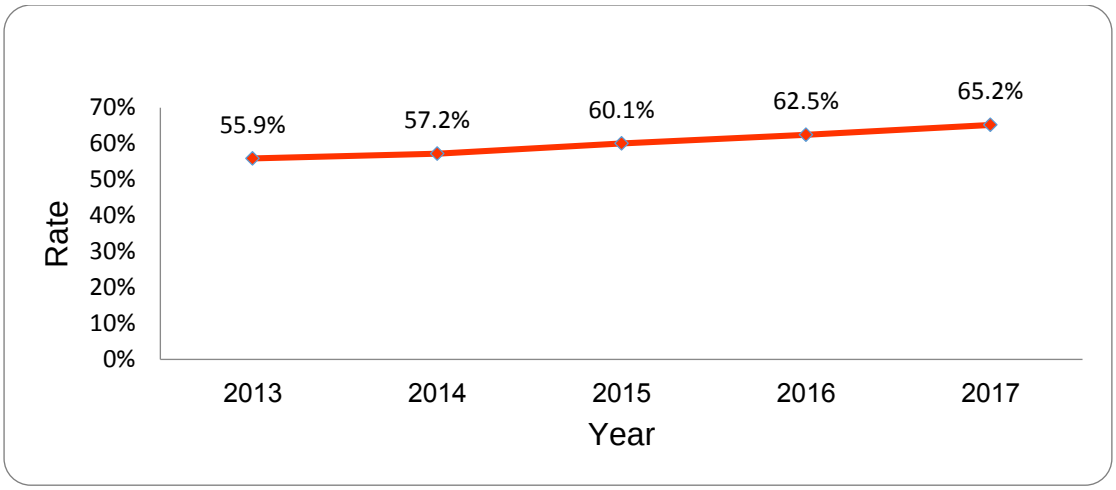
Use of high-potency statin therapy or LDL-cholesterol level less than or equal to 70 mg/dL in individuals after CABG and/or angioplasty (ages 35-80 years)

Denominator: Individuals 35-80 years old who had CABG (coronary artery bypass) surgery and/or angioplasty in the ten previous years and had at least one cholesterol-level test in the measurement year

Numerator: Individuals in the denominator who had an LDL-cholesterol level lower than or equal to 70 mg/dl or purchased at least three prescriptions of high-potency statins in the previous year, and their last LDL-cholesterol level was lower than or equal to 100 mg/dL

Key results: Among patients 35-80 years old who underwent cardiac bypass and/or cardiac catheterization in the five previous years, 65.2% achieved a target LDL-cholesterol level ≤ 70 mg/dL, or were under high-potency statin therapy in 2017. The rate increased from 55.9% in 2013 to 65.2% in 2017. The rate was lower for women compared to men (57.5% vs. 67.1%). The rate in SEP level 1 (lowest, 61.3%) was slightly lower compared to SEP level 4 (highest, 69.5%).

Use of high- potency statin therapy by year, 2013-2017



Use of high- potency statin therapy by socio-economic position (1-lowest, 4-highest) and sex, 2017

Use of high- potency statin therapy by age and sex, 2017

		Sex		
		Male	Female	Total
35-39	Numerator	265	41	306
	Denominator	519	193	712
	Rate	51.1%	21.2%	43.0%
40-49	Numerator	3,275	320	3,595
	Denominator	5,384	891	6,275
	Rate	60.8%	35.9%	57.3%
50-59	Numerator	11,768	1,579	13,347
	Denominator	18,623	3,132	21,755
	Rate	63.2%	50.4%	61.4%
60-69	Numerator	23,335	4,761	28,096
	Denominator	34,170	7,833	42,003
	Rate	68.3%	60.8%	66.9%
70-80	Numerator	16,661	5,212	21,873
	Denominator	23,746	8,665	32,411
	Rate	70.2%	60.2%	67.5%
Total	Numerator	55,304	11,913	67,217
	Denominator	82,442	20,714	103,156
	Rate	67.1%	57.5%	65.2%

Diabetes

Diabetes mellitus: prevalence, HbA1c testing, and disease control

Rationale: Diabetes is a complex group of diseases marked by high blood glucose (blood sugar) due to the body's impaired ability to make or use insulin. Left unmanaged, diabetes can lead to serious micro- and macro-vascular complications, including heart disease, eye disease potentially leading to blindness, kidney disease, diseases of the nervous system (peripheral neuropathy and stroke), amputations, and premature death. During 2012-2014, 5.6% of mortality cases in Israel were attributable to diabetes, thus being the fourth most common cause of death [2]. Proper diabetes management is essential to control blood glucose, reduce risks for complications and prolong life [1]. The continuous efforts to balance between the prevention of long-term micro-and macro-vascular complications associated with uncontrolled diabetes, and the prevention of hypoglycemic events have led to customized target levels for HbA1c [3], also adopted in Israel [4].

References:

[1] American Diabetes Association (ADA), "Standard of medical care in diabetes - 2017," *Diabetes Care*, 40(sup 1):s4–s128, 2017.

[2] In Hebrew: Leading causes of death in Israel 2000-2014, Ministry of Health, March 2017. Available: https://www.health.gov.il/publicationsfiles/leading_causes_2014.pdf

[3] Fang, Hong-Juan et al. Effects of intensive glucose lowering in treatment of type 2 diabetes mellitus on cardiovascular outcomes: A meta-analysis of data from 58,160 patients in 13 randomized controlled trials. International Journal of Cardiology, Volume 218 , 50 – 58.

[4] In Hebrew: Position (1-lowest, 4-highest) paper- יעדי מטרה לאיזון סוכרת 2017, ההסתדרות הרפואית בישראל, המכון לאיכות ברפואה. Available at: https://www.ima.org.il/userfiles/image/Ne60_diabetes.pdf

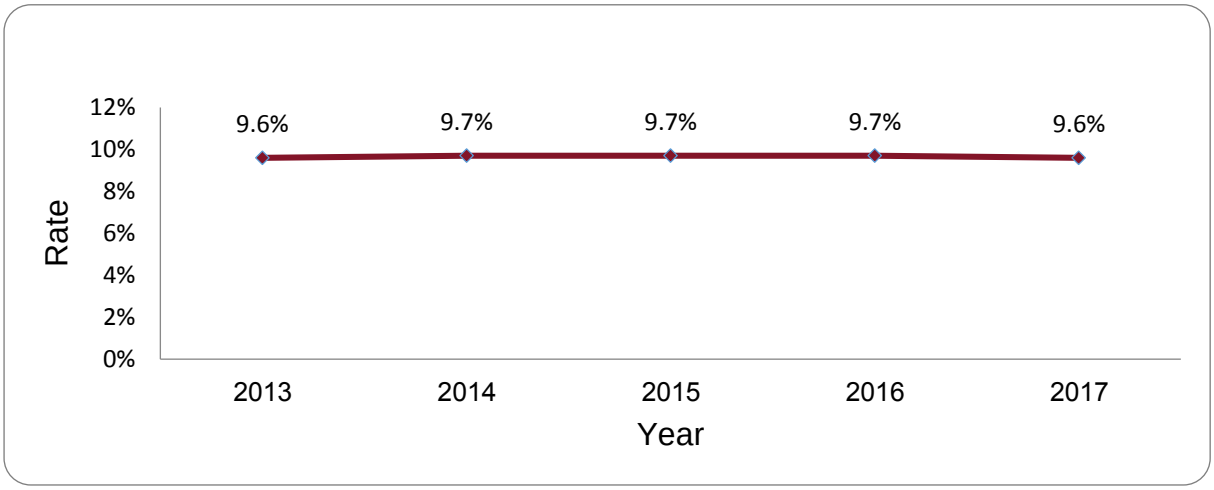
Prevalence of diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18 years or older

Numerator: Individuals in the denominator with diabetes according to one or more of the following criteria: (a) Plasma glucose level ≥200 mg% in at least two tests in the year prior to the measurement year (minimal 30-day interval is required between tests); (b) HbA1c ≥6.5% at least once in the year prior to the measurement year (c) at least three prescriptions of diabetes medications were dispensed during the year prior to the measurement year.

Key results: The prevalence of diabetes mellitus among individuals 18 years or older, remained stable during the years 2013-2017, and was 9.6% in 2017. The rate was slightly lower for women compared to men (8.9% vs. 10.3%). The rate in SEP level 1 (lowest, 9.3%) was higher compared to SEP level 4 (highest, 7.7%).

Prevalence of diabetes mellitus by year, 2013-2017



Prevalence of diabetes mellitus by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of diabetes mellitus by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	1,415	1,458	2,873
	Denominator	276,915	318,961	595,876
	Rate	0.5%	0.5%	0.5%
25-34	Numerator	3,618	3,307	6,925
	Denominator	535,397	548,170	1,083,567
	Rate	0.7%	0.6%	0.6%
35-44	Numerator	13,055	8,924	21,979
	Denominator	496,825	517,779	1,014,604
	Rate	2.6%	1.7%	2.2%
45-54	Numerator	37,043	26,425	63,468
	Denominator	405,465	424,760	830,225
	Rate	9.1%	6.2%	7.6%
55-64	Numerator	71,438	61,136	132,574
	Denominator	351,713	386,255	737,968
	Rate	20.3%	15.8%	18.0%
65-74	Numerator	77,361	74,314	151,675
	Denominator	252,583	292,024	544,607
	Rate	30.6%	25.4%	27.9%
75-84	Numerator	40,717	50,775	91,492
	Denominator	121,776	165,135	286,911
	Rate	33.4%	30.7%	31.9%
85+	Numerator	10,542	15,869	26,411
	Denominator	39,041	68,076	107,117
	Rate	27.0%	23.3%	24.7%
Total	Numerator	255,189	242,208	497,397
	Denominator	2,479,715	2,721,160	5,200,875
	Rate	10.3%	8.9%	9.6%

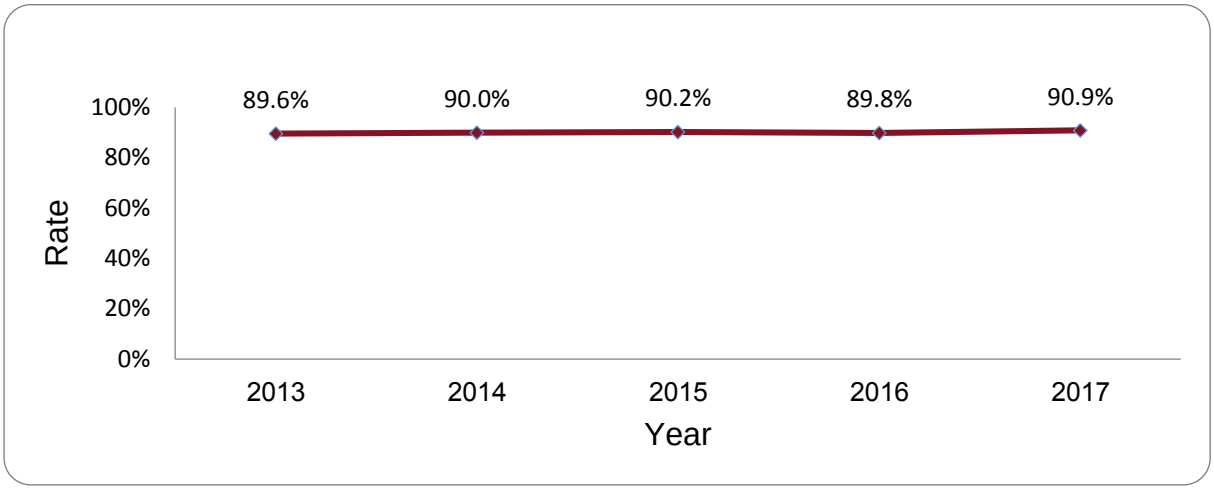
Documentation of hemoglobin A1c (HbA1c) levels in individuals with diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18 years or older with diabetes (see "prevalence of diabetes" for definition)

Numerator: Individuals in the denominator who had at least one documentation of HbA1c-level in the measurement year

Key results: The documentation rate of hemoglobin A1c (HbA1c) levels in individuals with diabetes mellitus 18 years or older remained stable during the measurement period (2013-2017), and was 90.9% in 2017. The rate was similar in both genders and across SEP levels.

Documentation of HbA1c levels by year, 2013-2017



Documentation of HbA1c levels by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of HbA1c levels by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	1,153	1,237	2,390
	Denominator	1,415	1,458	2,873
	Rate	81.5%	84.8%	83.2%
25-34	Numerator	2,928	2,755	5,683
	Denominator	3,618	3,307	6,925
	Rate	80.9%	83.3%	82.1%
35-44	Numerator	10,728	7,749	18,477
	Denominator	13,055	8,924	21,979
	Rate	82.2%	86.8%	84.1%
45-54	Numerator	31,619	23,701	55,320
	Denominator	37,043	26,425	63,468
	Rate	85.4%	89.7%	87.2%
55-64	Numerator	63,794	55,933	119,727
	Denominator	71,438	61,136	132,574
	Rate	89.3%	91.5%	90.3%
65-74	Numerator	71,923	69,666	141,589
	Denominator	77,361	74,314	151,675
	Rate	93.0%	93.7%	93.4%
75-84	Numerator	38,038	47,328	85,366
	Denominator	40,717	50,775	91,492
	Rate	93.4%	93.2%	93.3%
85+	Numerator	9,567	14,030	23,597
	Denominator	10,542	15,869	26,411
	Rate	90.8%	88.4%	89.3%
Total	Numerator	229,750	222,399	452,149
	Denominator	255,189	242,208	497,397
	Rate	90.0%	91.8%	90.9%

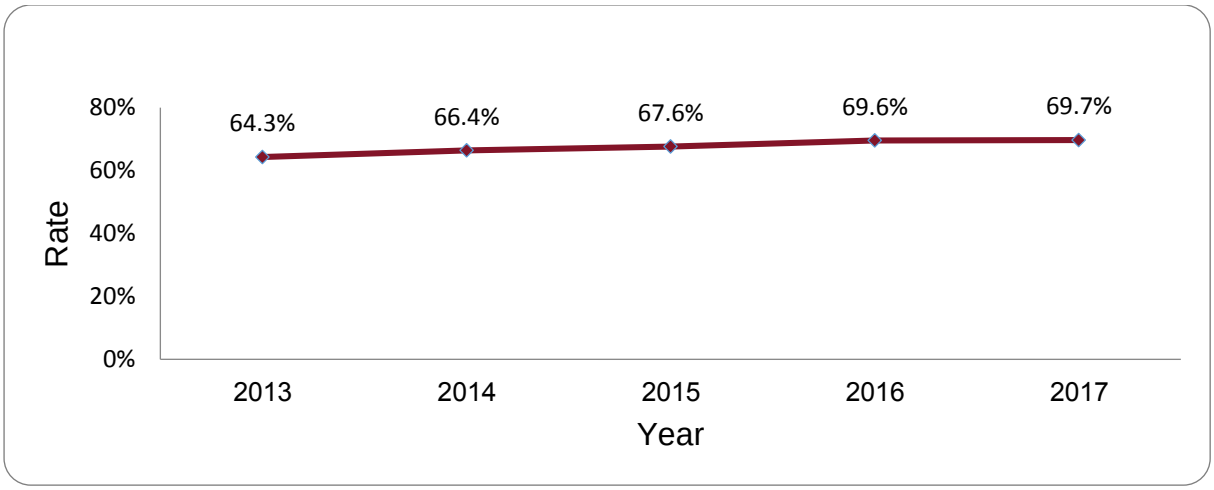
Adequate control of HbA1c in individuals with diabetes mellitus (ages 18-84 years)

Denominator: Individuals 18-84 years old with diabetes who had at least one documentation of HbA1c-levels in the measurement year

Numerator: Individuals in the denominator achieving glycemic control, according to their last hemoglobin A1c level in the measurement year: ≤7% among 18-74 year-old patients who were diabetics for less than 10 years; ≤8% among 18-74 year-old patients who were diabetics for at least 10 years; ≤8% among 75-84 year-old patients.

Key results: The rate of diabetic patients aged 18-84 achieving glycemic control (HbA1c ≤ 7% or 8%, depending on age and length of disease) increased during the measurement period (2013-2017), from 64.3% in 2013 to 69.7% in 2017. The rate was slightly higher for women compared to men (72.0% vs. 67.6%). The rate in SEP level 1 (lowest, 58.5%) was lower compared to SEP level 4 (highest, 78.4%).

Adequate control of HbA1c by year, 2013-2017



Adequate control of HbA1c by socio-economic position (1-lowest, 4-highest) and sex, 2017

Adequate control of HbA1c by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	480	600	1,080
	Denominator	1,153	1,237	2,390
	Rate	41.6%	48.5%	45.2%
25-34	Numerator	1,391	1,670	3,061
	Denominator	2,928	2,755	5,683
	Rate	47.5%	60.6%	53.9%
35-44	Numerator	5,259	4,325	9,584
	Denominator	10,728	7,749	18,477
	Rate	49.0%	55.8%	51.9%
45-54	Numerator	16,679	13,252	29,931
	Denominator	31,619	23,701	55,320
	Rate	52.7%	55.9%	54.1%
55-64	Numerator	39,593	36,429	76,022
	Denominator	63,794	55,933	119,727
	Rate	62.1%	65.1%	63.5%
65-74	Numerator	52,718	52,908	105,626
	Denominator	71,923	69,666	141,589
	Rate	73.3%	75.9%	74.6%
75-84	Numerator	32,839	40,944	73,783
	Denominator	38,278	47,591	85,869
	Rate	85.8%	86.0%	85.9%
Total	Numerator	148,959	150,128	299,087
	Denominator	220,423	208,632	429,055
	Rate	67.6%	72.0%	69.7%

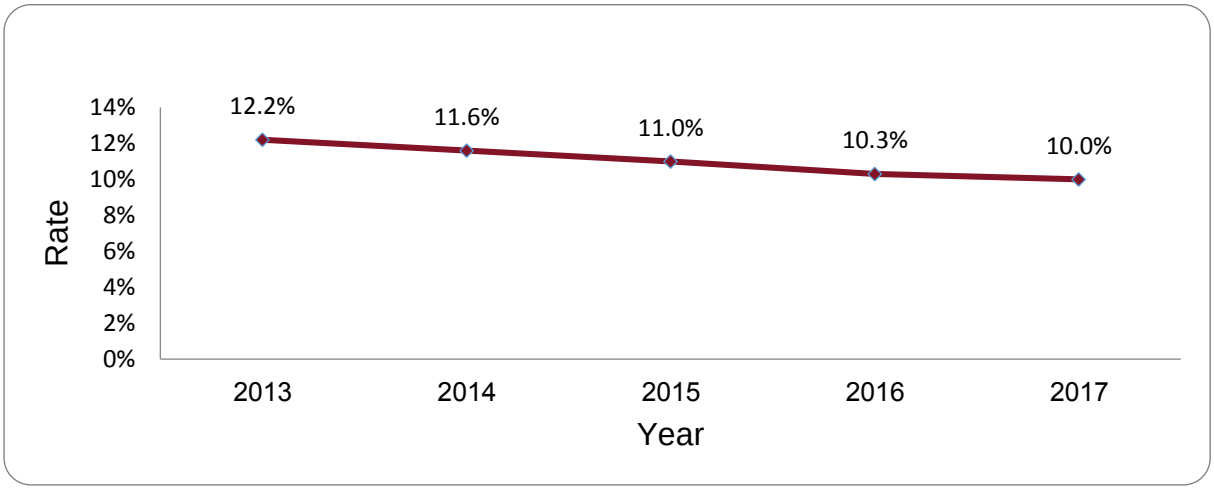
Uncontrolled diabetes: HbA1c greater than 9% in individuals with diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18-84 years old with diabetes who had at least one documentation of HbA1c-level in the measurement year

Numerator: Individuals in the denominator with uncontrolled diabetes (HbA1c greater than 9%)

Key results: The rate of uncontrolled diabetes among diabetics 18 years and older (HbA1c > 9%) decreased during the measurement period (2013-2017), from 12.2% in 2013 to 10.0% in 2017. The rate was lower for women compared to men (9.4% vs. 10.5%). The rate in SEP level 1 (lowest, 16.2%) was almost three times higher compared to SEP level 4 (highest, 5.6%).

Uncontrolled diabetes by year, 2013-2017



Uncontrolled diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Uncontrolled diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	295	308	603
	Denominator	1,153	1,237	2,390
	Rate	25.6%	24.9%	25.2%
25-34	Numerator	688	465	1,153
	Denominator	2,928	2,755	5,683
	Rate	23.5%	16.9%	20.3%
35-44	Numerator	2,253	1,375	3,628
	Denominator	10,728	7,749	18,477
	Rate	21.0%	17.7%	19.6%
45-54	Numerator	5,586	4,026	9,612
	Denominator	31,619	23,701	55,320
	Rate	17.7%	17.0%	17.4%
55-64	Numerator	7,723	6,487	14,210
	Denominator	63,794	55,933	119,727
	Rate	12.1%	11.6%	11.9%
65-74	Numerator	5,091	4,891	9,982
	Denominator	71,923	69,666	141,589
	Rate	7.1%	7.0%	7.0%
75-84	Numerator	2,071	2,571	4,642
	Denominator	38,038	47,328	85,366
	Rate	5.4%	5.4%	5.4%
85+	Numerator	510	725	1,235
	Denominator	9,567	14,030	23,597
	Rate	5.3%	5.2%	5.2%
Total	Numerator	24,217	20,848	45,065
	Denominator	229,750	222,399	452,149
	Rate	10.5%	9.4%	10.0%

Monitoring Diabetes mellitus complications: Diabetic retinopathy

Rationale: Diabetic retinopathy is a major cause of blindness in developed countries. The risk for retinopathy is higher in diabetes patients with poor blood glucose control, uncontrolled blood pressure and hyperlipidemia. The risk also increases with the duration of the disease. Since retinopathy can remain asymptomatic even in advanced stages, it is essential to conduct routine eye examinations (which include thorough dilated examination of the retina).

The original quality measure referred to a yearly examination. However, updated guidelines recommend an eye examination every two years in patients with controlled diabetes, whose previous eye examination was normal [1]. Since data regarding the results of eye examinations cannot be retrieved uniformly from the HMOs databases, the updated quality measure uses as a proxy diabetes duration an annual eye exam for individuals who have had diabetes for at least 10 years, and an eye exam once in two years for those who have had diabetes for less than 10 years.

Documentation of eye exams for individuals with diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18-84 years old with diabetes (see "prevalence of diabetes" for definition)

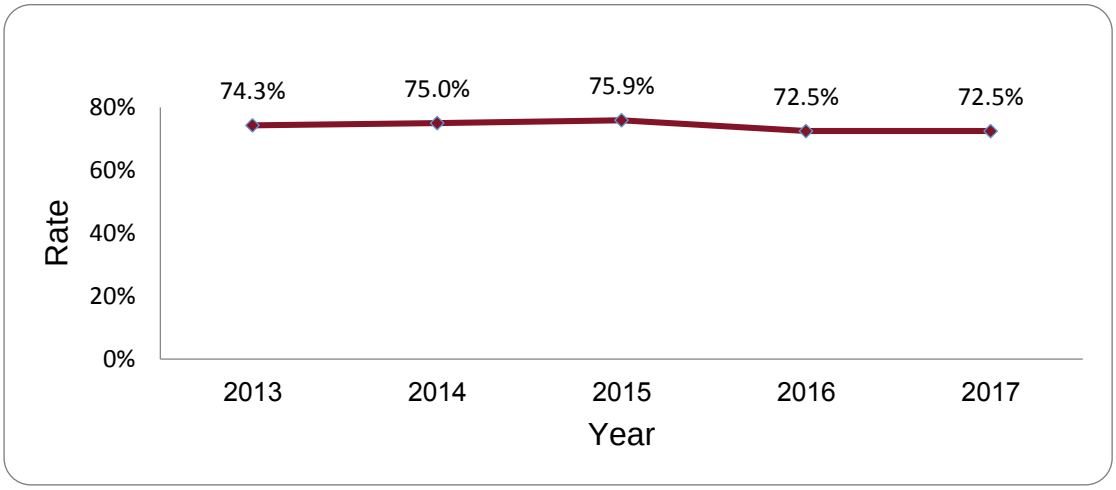
Numerator: Individuals in the denominator with a documented eye exam of at least once during the measurement year for individuals who who have had diabetes for at least 10 years and at least once in the previous two years for individuals who have had diabetes for less than 10 years

Key results: The documentation rate of eye exam for individuals with diabetes mellitus (ages 18-84 years) decreased from 75.9% in 2015 to 72.5% in 2016 and 2017. The rate was slightly higher for women compared to men (73.9% vs. 71.1%). The rate in SEP level 1 (lowest, 71.2%) was slightly lower compared to SEP level 4 (highest, 75.0%).

References:

[1] American Diabetes Association (ADA), “Standard of medical care in diabetes - 2017,” *Diabetes Care*, vol. 40 (sup 1), no. January, pp. s4–s128, 2017.

Documentation of eye exam by year, 2013-2017



Documentation of eye exam by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of eye exam by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	879	957	1,836
	Denominator	1,415	1,458	2,873
	Rate	62.1%	65.6%	63.9%
25-34	Numerator	2,157	2,174	4,331
	Denominator	3,618	3,307	6,925
	Rate	59.6%	65.7%	62.5%
35-44	Numerator	8,337	6,092	14,429
	Denominator	13,055	8,924	21,979
	Rate	63.9%	68.3%	65.6%
45-54	Numerator	24,629	19,104	43,733
	Denominator	37,043	26,425	63,468
	Rate	66.5%	72.3%	68.9%
55-64	Numerator	49,375	45,398	94,773
	Denominator	71,438	61,136	132,574
	Rate	69.1%	74.3%	71.5%
65-74	Numerator	58,098	57,427	115,525
	Denominator	77,361	74,314	151,675
	Rate	75.1%	77.3%	76.2%
75-84	Numerator	30,501	36,141	66,642
	Denominator	40,717	50,775	91,492
	Rate	74.9%	71.2%	72.8%
Total	Numerator	173,976	167,293	341,269
	Denominator	244,647	226,339	470,986
	Rate	71.1%	73.9%	72.5%

Monitoring Diabetes mellitus complications: Diabetic nephropathy

Rationale: Chronic kidney disease attributed to diabetes, occurs in 20–40% of patients with diabetes. It is the leading cause of end-stage renal disease in Israel [1]. The progression of kidney damage can be delayed with appropriate management, making monitoring and early detection important goals.

The condition is diagnosed by the presence of elevated urinary albumin excretion (albuminuria), low estimated glomerular filtration rate (eGFR), or other manifestations of kidney damage. It is therefore recommended to document urinary protein levels and GFR for individuals with diabetes at least once a year. Upon diagnosis, it is recommended to optimize glucose and blood pressure control to slow the progression of the kidney disease. Hypertension is a strong risk factor for the development and progression of diabetic kidney disease. Angiotensin-converting enzyme inhibitors or angiotensin receptor blockers (ACEI/ARBs) are the preferred first-line agents for blood pressure treatment among patients with diabetes, hypertension, and kidney disease, as they were shown to prevent the progression of kidney disease and prevent major cardiovascular events [2].

References:

[1] In Hebrew: Leading causes of death in Israel 2000-2014, Ministry of Health, March 2017. Available at: https://www.health.gov.il/publicationsfiles/leading_causes_2014.pdf

[2] American Diabetes Association. Microvascular complications and foot care. Sec. 10. In "Standards of Medical Care in Diabetes- 2017". *Diabetes Care* 2017;40(Suppl. 1): S88–S98

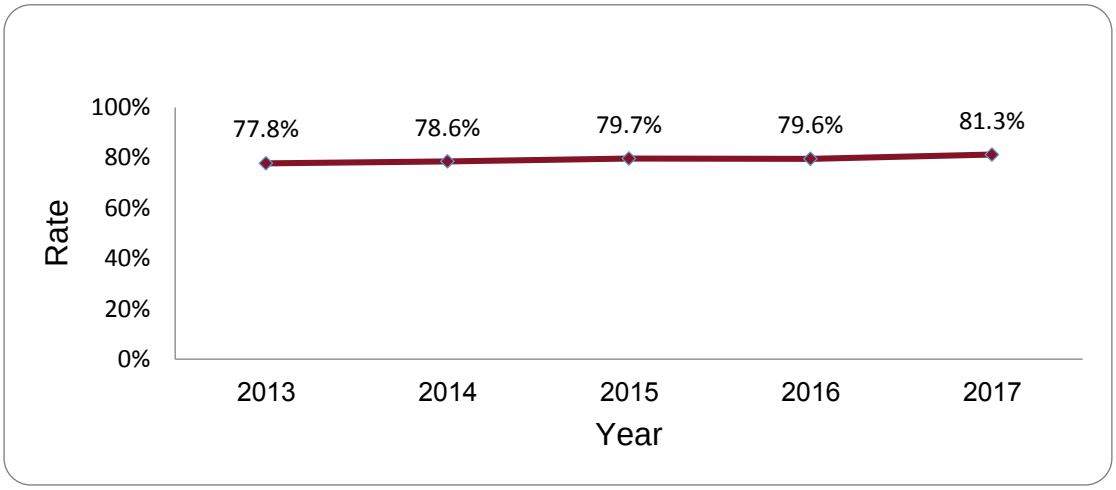
Documentation of urinary protein levels for individuals with diabetes mellitus (ages 18-84 years)

Denominator: Individuals 18-84 years old with diabetes (see "prevalence of diabetes" for definition)

Numerator: Individuals in the denominator with documentation of urinary protein excretion (total protein, microalbumin, albumin/creatinine ratio, or protein/creatinine ratio) in the measurement year

Key results: The documentation rate of urinary protein levels for individuals with diabetes mellitus (ages 18-84 years) remained stable during the measurement period (2013-2017), and was 81.3% in 2017. The rate was similar in both genders and across SEP levels.

Documentation of urinary protein levels by year, 2013-2017



Documentation of urinary protein levels by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of urinary protein levels by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	979	994	1,973
	Denominator	1,415	1,458	2,873
	Rate	69.2%	68.2%	68.7%
25-34	Numerator	2,566	2,230	4,796
	Denominator	3,618	3,307	6,925
	Rate	70.9%	67.4%	69.3%
35-44	Numerator	9,503	6,517	16,020
	Denominator	13,055	8,924	21,979
	Rate	72.8%	73.0%	72.9%
45-54	Numerator	28,515	20,799	49,314
	Denominator	37,043	26,425	63,468
	Rate	77.0%	78.7%	77.7%
55-64	Numerator	58,058	50,204	108,262
	Denominator	71,438	61,136	132,574
	Rate	81.3%	82.1%	81.7%
65-74	Numerator	65,933	62,582	128,515
	Denominator	77,361	74,314	151,675
	Rate	85.2%	84.2%	84.7%
75-84	Numerator	34,055	39,841	73,896
	Denominator	40,717	50,775	91,492
	Rate	83.6%	78.5%	80.8%
Total	Numerator	199,609	183,167	382,776
	Denominator	244,647	226,339	470,986
	Rate	81.6%	80.9%	81.3%

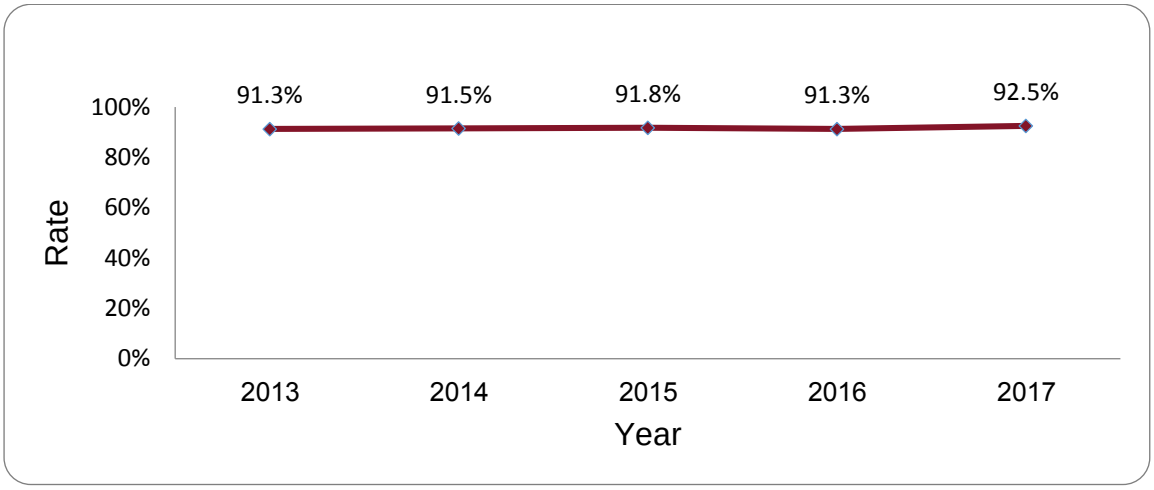
Documentation of glomerular filtration rate (GFR/eGFR) in individuals with diabetes mellitus (ages 18-84 years)

Denominator: Individuals 18-84 years old with diabetes (see "prevalence of diabetes" for definition)

Numerator: Individuals in the denominator with documentation of GFR/eGFR or serum creatinine levels in the measurement year

Key results: The documentation rate of GFR/eGFR or serum creatinine levels in individuals with diabetes mellitus (ages 18-84 years) remained stable during the measurement period (2013-2017), and was 92.5% in 2017. The rate was slightly higher for women compared to men (93.7% vs. 91.4%). The rate in SEP level 1 (lowest, 91.6%) was slightly lower compared to SEP level 4 (highest, 93.1%).

Documentation of GFR/eGFR by year, 2013-2017



Documentation of GFR by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of GFR by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	1,155	1,255	2,410
	Denominator	1,415	1,458	2,873
	Rate	81.6%	86.1%	83.9%
25-34	Numerator	2,966	2,858	5,824
	Denominator	3,618	3,307	6,925
	Rate	82.0%	86.4%	84.1%
35-44	Numerator	10,864	7,897	18,761
	Denominator	13,055	8,924	21,979
	Rate	83.2%	88.5%	85.4%
45-54	Numerator	31,950	24,009	55,959
	Denominator	37,043	26,425	63,468
	Rate	86.3%	90.9%	88.2%
55-64	Numerator	64,623	56,602	121,225
	Denominator	71,438	61,136	132,574
	Rate	90.5%	92.6%	91.4%
65-74	Numerator	72,966	70,762	143,728
	Denominator	77,361	74,314	151,675
	Rate	94.3%	95.2%	94.8%
75-84	Numerator	39,061	48,691	87,752
	Denominator	40,717	50,775	91,492
	Rate	95.9%	95.9%	95.9%
Total	Numerator	223,585	212,074	435,659
	Denominator	244,647	226,339	470,986
	Rate	91.4%	93.7%	92.5%

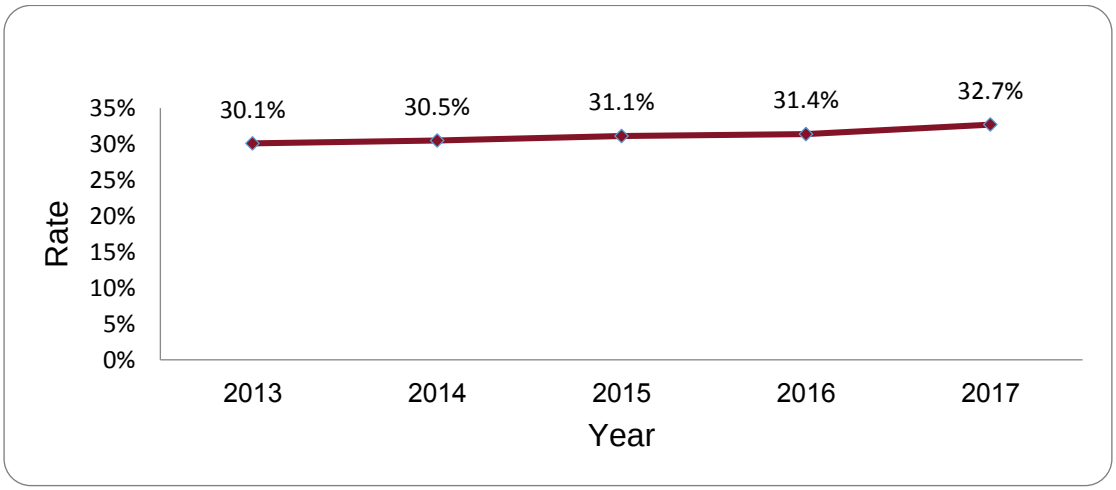
Chronic kidney disease in individuals with diabetes mellitus (ages 18-84 years)

Denominator: Individuals 18-84 years old with diabetes who had at least one of the following test values documented in the year prior to the measurement year: total urinary protein, microalbumin, albumin/creatinine ratio, protein/creatinine ratio, or serum creatinine or GFR/eGFR values.

Numerator: Individuals in the denominator who had diabetic nephropathy, defined according to the last value of: urinary protein (total protein value >150 mg/day, or microalbumin >30 mg/day, or albumin/creatinine ratio >30 mg/g, or protein/creatinine ratio >200 mg/g), or serum creatinine >1.5 mg/dL (only if GFR value is unavaliable), or GFR/eGFR value <60 ml/min/1.73m^2

Key results: The rate of diabetic nephropathy in individuals with diabetes mellitus (ages 18-84 years) increased moderately during the measurement period (2013-2017) from 30.1% in 2013 to 32.7% in 2017. The rate was lower for women compared to men (30.4% vs. 34.8%). The rate in SEP level 1 (lowest, 33.3%) was slightly higher compared to SEP level 4 (highest, 30.7%).

Chronic kidney disease in individuals with diabetes by year, 2013-2017



Chronic kidney disease in individuals with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Chronic kidney disease in individuals with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	111	173	284
	Denominator	1,207	1,307	2,514
	Rate	9.2%	13.2%	11.3%
25-34	Numerator	502	486	988
	Denominator	3,200	3,052	6,252
	Rate	15.7%	15.9%	15.8%
35-44	Numerator	2,560	1,548	4,108
	Denominator	11,809	8,372	20,181
	Rate	21.7%	18.5%	20.4%
45-54	Numerator	8,342	5,209	13,551
	Denominator	33,731	24,857	58,588
	Rate	24.7%	21.0%	23.1%
55-64	Numerator	19,146	13,059	32,205
	Denominator	66,370	57,916	124,286
	Rate	28.8%	22.5%	25.9%
65-74	Numerator	28,092	21,545	49,637
	Denominator	73,781	71,505	145,286
	Rate	38.1%	30.1%	34.2%
75-84	Numerator	21,141	23,678	44,819
	Denominator	39,502	49,151	88,653
	Rate	53.5%	48.2%	50.6%
Total	Numerator	79,894	65,698	145,592
	Denominator	229,600	216,160	445,760
	Rate	34.8%	30.4%	32.7%

Treatment with ACEI/ARB for chronic kidney disease in individuals with diabetes mellitus (ages 18-74 years)

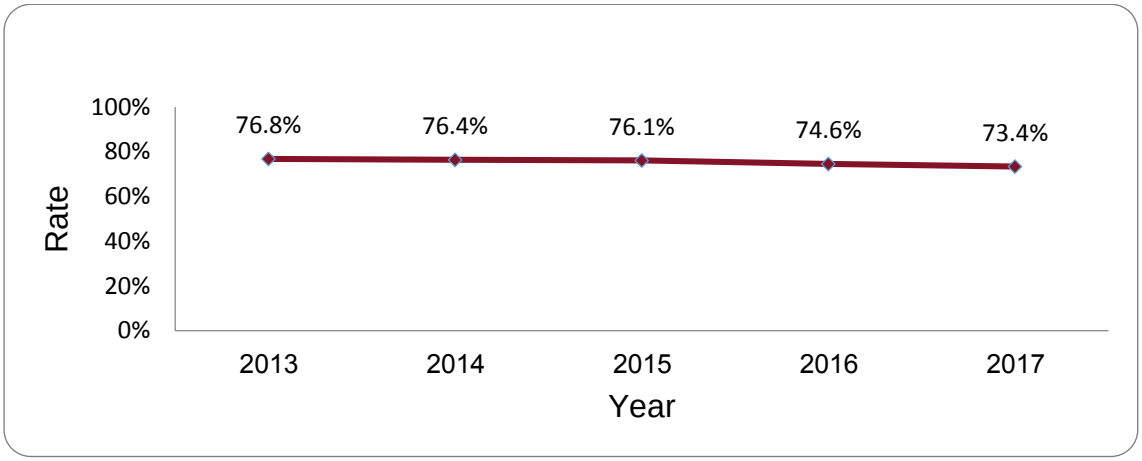
Note: The definition of this measure is currently under revision, as it does not specifically exclude the relatively rare cases of normotensive individuals with diabetic nephropathy.

Denominator: Individuals 18-74 years old with diabetes and chronic kidney disease (for full definition see "chronic kidney disease in individuals with diabetes" measure)

Numerator: Individuals in the denominator who purchased at least three ACEI/ARB medications during the measurement year (in separate months)

Key results: Among diabetic patients with chronic kidney disease aged 18-74, the rate of those treated with ACEI/ARB medications decreased during the measurement period (2013-2017), from 76.8% in 2013 to 73.4% in 2017. The rate was slightly lower for women compared to men (72.2% vs.74.2%). The rate was similar across SEP levels.

Treatment with ACEI/ARB by year, 2013-2017



Treatment with ACEI/ARB by socio-economic position (1-lowest, 4-highest) and sex, 2017

Treatment with ACEI/ARB by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	23	35	58
	Denominator	107	164	271
	Rate	21.5%	21.3%	21.4%
25-34	Numerator	172	108	280
	Denominator	482	455	937
	Rate	35.7%	23.7%	29.9%
35-44	Numerator	1,260	619	1,879
	Denominator	2,412	1,479	3,891
	Rate	52.2%	41.9%	48.3%
45-54	Numerator	5,146	3,048	8,194
	Denominator	7,787	4,914	12,701
	Rate	66.1%	62.0%	64.5%
55-64	Numerator	12,631	8,376	21,007
	Denominator	16,900	11,547	28,447
	Rate	74.7%	72.5%	73.8%
65-74	Numerator	18,113	13,057	31,170
	Denominator	22,635	16,395	39,030
	Rate	80.0%	79.6%	79.9%
Total	Numerator	37,345	25,243	62,588
	Denominator	50,323	34,954	85,277
	Rate	74.2%	72.2%	73.4%

Monitoring common comorbidities of diabetes mellitus

Rationale: During 2012-2014, 5.6% of mortality cases in Israel were attributable to diabetes, making it the fourth most common cause of death [2]. Three common diabetes comorbidities are included in the set of quality measures for individuals with diabetes: hypertension, dyslipidemia, and obesity. These conditions act as independent risk factors for cardiovascular morbidity and mortality, impede the achievement of glycemic control, and enhance the damage caused by high blood glucose to the vessels, thereby increasing diabetes-related complications. Therefore, continuous monitoring and control of these conditions are important elements in the treatment of individuals with diabetes [1]. The initial definition of this quality measure in 2005 was based on cut-off values of 130/80 mmHg. However, later studies such as the ACCORD study [3] showed that tight blood pressure control conferred no advantage in the prevention of cardiovascular disease, compared to looser control. This lead to updates in most guidelines, suggesting a target blood pressure value of 140/90 mmHg in individuals with diabetes, similar to the target in the general population [1]. The quality indicator was modified accordingly in 2012.

References:

[1] American Diabetes Association (ADA), "Standard of medical care in diabetes - 2017," *Diabetes Care*, vol. 40 (sup 1), s4–s128, 2017.

[2] In Hebrew: Leading causes of death in Israel 2000-2014, Ministry of Health, March 2017. Available at: https://www.health.gov.il/publicationsfiles/leading_causes_2014.pdf

[3] The ACCORD Study Group**,** Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus. N Engl J Med 2010; 362: 1575-1585. DOI: 10.1056/NEJMoa1001286

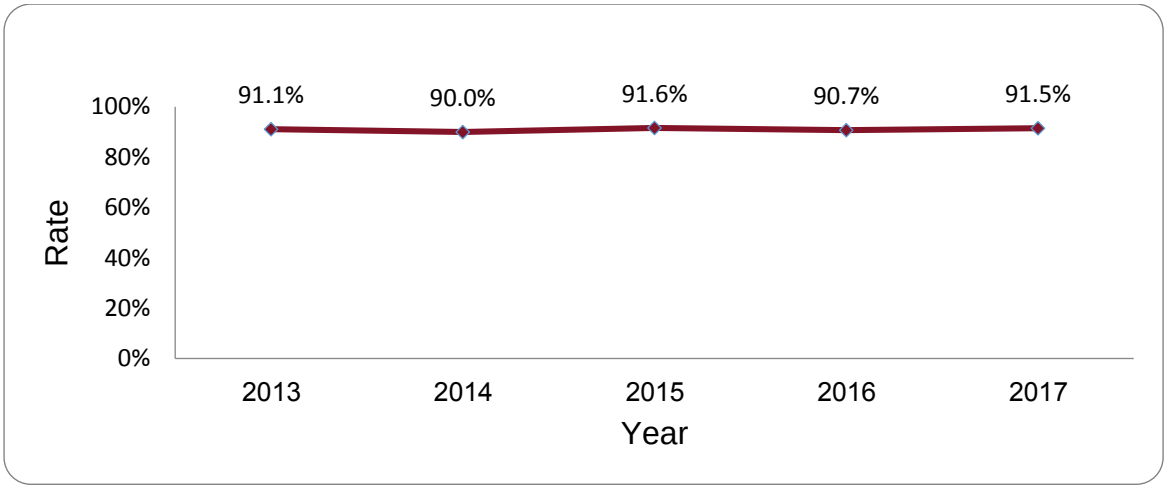
Documentation of blood pressure for individuals with diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18 years or older with diabetes

Numerator: Individuals in the denominator who had at least one documentation of blood pressure values in the measurement year

Key results: The documentation rate of blood pressure for individuals with diabetes mellitus (ages 18 years or older) remained stable during the measurement period (2013-2017), and was 91.5% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 92.6%) was slightly higher compared to SEP level 4 (highest, 90.1%).

Documentation of blood pressure by year, 2013-2017



Documentation of blood pressure by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of blood pressure by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	1,071	1,158	2,229
	Denominator	1,415	1,458	2,873
	Rate	75.7%	79.4%	77.6%
25-34	Numerator	2,848	2,716	5,564
	Denominator	3,618	3,307	6,925
	Rate	78.7%	82.1%	80.3%
35-44	Numerator	10,843	7,687	18,530
	Denominator	13,055	8,924	21,979
	Rate	83.1%	86.1%	84.3%
45-54	Numerator	32,151	23,729	55,880
	Denominator	37,043	26,425	63,468
	Rate	86.8%	89.8%	88.0%
55-64	Numerator	64,815	56,416	121,231
	Denominator	71,438	61,136	132,574
	Rate	90.7%	92.3%	91.4%
65-74	Numerator	72,528	69,921	142,449
	Denominator	77,361	74,314	151,675
	Rate	93.8%	94.1%	93.9%
75-84	Numerator	38,498	47,308	85,806
	Denominator	40,717	50,775	91,492
	Rate	94.6%	93.2%	93.8%
85+	Numerator	9,656	13,657	23,313
	Denominator	10,542	15,869	26,411
	Rate	91.6%	86.1%	88.3%
Total	Numerator	232,410	222,592	455,002
	Denominator	255,189	242,208	497,397
	Rate	91.1%	91.9%	91.5%

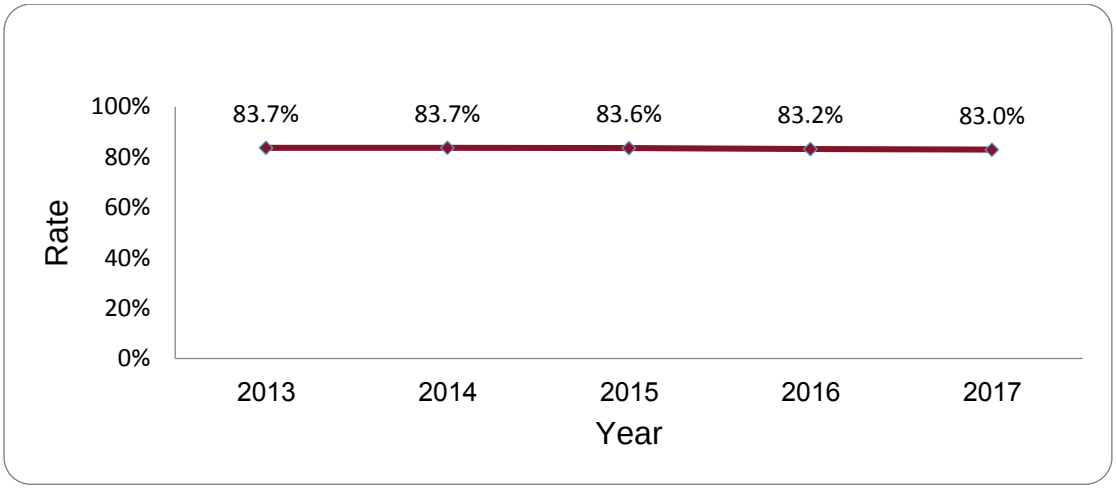
Blood pressure control (less than or equal to 140/90 mmHg) in individuals with diabetes mellitus (18 years or older)

Denominator: Individuals 18 years or older with diabetes who had a documentation of blood pressure values in the measurement year

Numerator: Individuals in the denominator with last systolic BP ≤140 mm Hg and last diastolic BP ≤90 mm Hg

Key results: The target blood pressure rate (blood pressure ≤140/90 mmHg) was achieved in 2017 for 83.0% of diabetic patients aged 18 and above. The rate remained stable during the measurement period 2013-2017 and was similar in both genders. The rate in SEP level 1 (lowest, 85.8%) was slightly higher compared to SEP level 4 (highest, 82.2%).

Blood pressure control by year, 2013-2017



Blood pressure control by socio-economic position (1-lowest, 4-highest) and sex, 2017

Blood pressure control by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	1,039	1,137	2,176
	Denominator	1,071	1,158	2,229
	Rate	97.0%	98.2%	97.6%
25-34	Numerator	2,664	2,607	5,271
	Denominator	2,848	2,716	5,564
	Rate	93.5%	96.0%	94.7%
35-44	Numerator	9,605	7,025	16,630
	Denominator	10,843	7,687	18,530
	Rate	88.6%	91.4%	89.7%
45-54	Numerator	27,650	21,008	48,658
	Denominator	32,151	23,729	55,880
	Rate	86.0%	88.5%	87.1%
55-64	Numerator	54,031	48,309	102,340
	Denominator	64,815	56,416	121,231
	Rate	83.4%	85.6%	84.4%
65-74	Numerator	59,646	57,703	117,349
	Denominator	72,528	69,921	142,449
	Rate	82.2%	82.5%	82.4%
75-84	Numerator	30,872	36,443	67,315
	Denominator	38,498	47,308	85,806
	Rate	80.2%	77.0%	78.5%
85+	Numerator	7,743	10,354	18,097
	Denominator	9,656	13,657	23,313
	Rate	80.2%	75.8%	77.6%
Total	Numerator	193,250	184,586	377,836
	Denominator	232,410	222,592	455,002
	Rate	83.2%	82.9%	83.0%

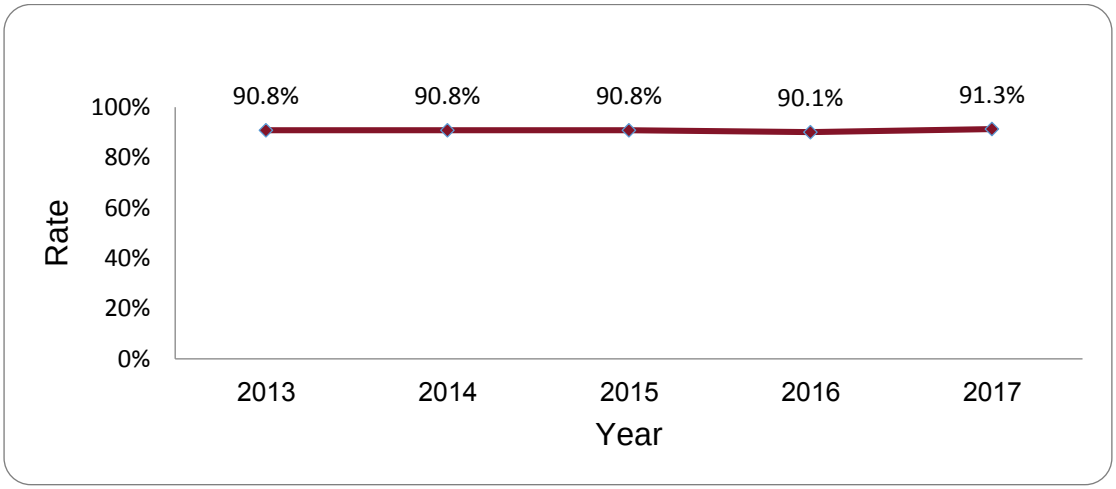
Documentation of LDL-cholesterol levels in individuals with diabetes mellitus (18 years or older)

Denominator: Individuals 18 years or older with diabetes

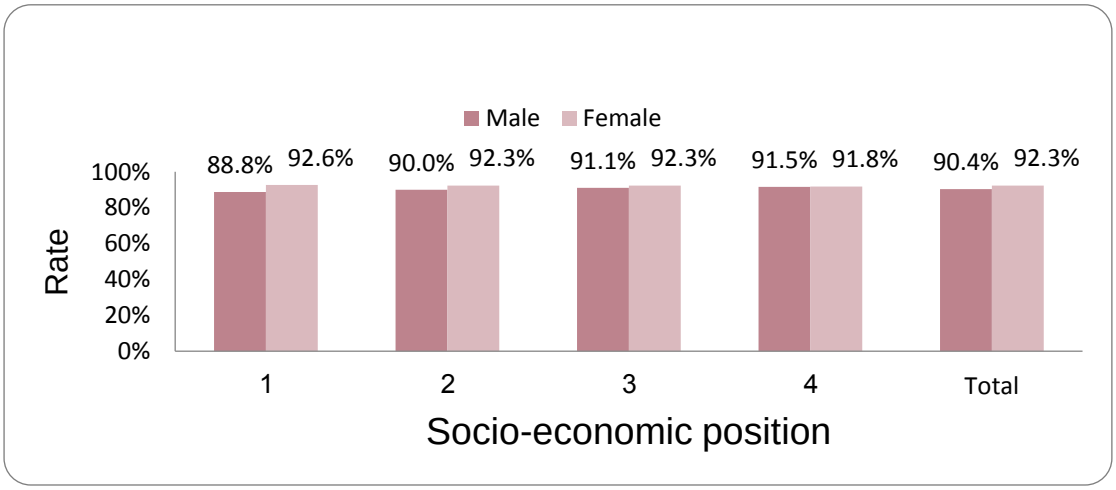
Numerator: Individuals in the denominator who had at least one documentation of LDL-cholesterol values in the measurement year

Key results: The documentation rate of LDL-cholesterol levels in individuals with diabetes mellitus (18 years or older) remained stable during the measurement period (2013-2017), and was 91.3% in 2017. The rate was slightly higher for women compared to men (92.3% vs. 90.4%). The rate was similar across SEP levels.

Documentation of LDL-cholesterol levels by year, 2013-2017



Documentation of LDL-cholesterol levels by socio-economic position and sex, 2017



Documentation of LDL-cholesterol levels by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	1,113	1,191	2,304
	Denominator	1,415	1,458	2,873
	Rate	78.7%	81.7%	80.2%
25-34	Numerator	2,894	2,691	5,585
	Denominator	3,618	3,307	6,925
	Rate	80.0%	81.4%	80.6%
35-44	Numerator	10,702	7,737	18,439
	Denominator	13,055	8,924	21,979
	Rate	82.0%	86.7%	83.9%
45-54	Numerator	31,608	23,752	55,360
	Denominator	37,043	26,425	63,468
	Rate	85.3%	89.9%	87.2%
55-64	Numerator	64,043	56,211	120,254
	Denominator	71,438	61,136	132,574
	Rate	89.6%	91.9%	90.7%
65-74	Numerator	72,229	70,075	142,304
	Denominator	77,361	74,314	151,675
	Rate	93.4%	94.3%	93.8%
75-84	Numerator	38,344	47,740	86,084
	Denominator	40,717	50,775	91,492
	Rate	94.2%	94.0%	94.1%
85+	Numerator	9,655	14,163	23,818
	Denominator	10,542	15,869	26,411
	Rate	91.6%	89.2%	90.2%
Total	Numerator	230,588	223,560	454,148
	Denominator	255,189	242,208	497,397
	Rate	90.4%	92.3%	91.3%

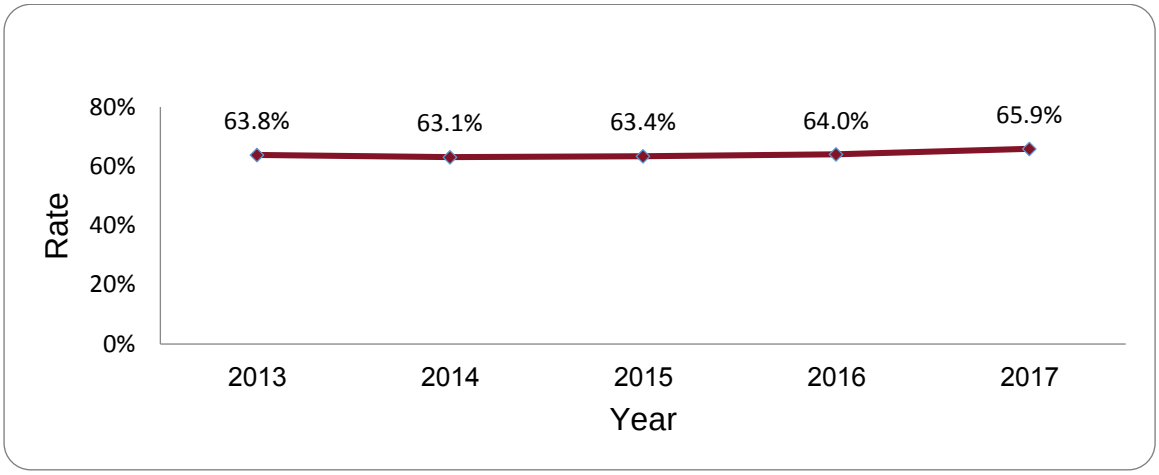
LDL-cholesterol target achievement (less than or equal to 100 mg/dL) in individuals with diabetes mellitus (18 years or older)

Denominator: Individuals 18 years or older with diabetes who had at least one documentation of LDL-cholesterol values in the measurement year

Numerator: Individuals in the denominator with last valid LDL-cholesterol value ≤100 mg/dL (valid LDL value: if total triglycerides < 300md/dL; else non-HDL ≤130 mg/dL)

Key results: LDL-cholesterol target achievement (less than or equal to 100 mg/dL) in individuals with diabetes mellitus (18 years or older) remained stable during the measurement period (2013-2017), and was 65.9% in 2017. The rate was lower for women compared to men (62.6% vs. 69.0%). The gap was especially noticeable from the age of 45 years and above. The rate in SEP level 1 (lowest, 64.2%) was slightly lower compared to SEP level 4 (highest, 67.9%).

LDL-cholesterol target achievement by year, 2013-2017



LDL-cholesterol target achievement by socio-economic position (1-lowest, 4-highest) and sex, 2017

LDL-cholesterol target achievement by age and sex, 2017

		Sex		
		Male	Female	Total
18-19	Numerator	232	192	424
	Denominator	340	330	670
	Rate	68.2%	58.2%	63.3%
20-29	Numerator	1,067	1,020	2,087
	Denominator	1,870	1,938	3,808
	Rate	57.1%	52.6%	54.8%
30-39	Numerator	2,558	2,009	4,567
	Denominator	5,299	4,299	9,598
	Rate	48.3%	46.7%	47.6%
40-49	Numerator	10,639	7,034	17,673
	Denominator	19,672	13,896	33,568
	Rate	54.1%	50.6%	52.6%
50-59	Numerator	29,207	21,458	50,665
	Denominator	46,874	38,315	85,189
	Rate	62.3%	56.0%	59.5%
60-69	Numerator	56,212	46,916	103,128
	Denominator	77,729	72,347	150,076
	Rate	72.3%	64.8%	68.7%
70-79	Numerator	42,122	39,755	81,877
	Denominator	54,048	58,107	112,155
	Rate	77.9%	68.4%	73.0%
Total	Numerator	142,037	118,384	260,421
	Denominator	205,832	189,232	395,064
	Rate	69.0%	62.6%	65.9%

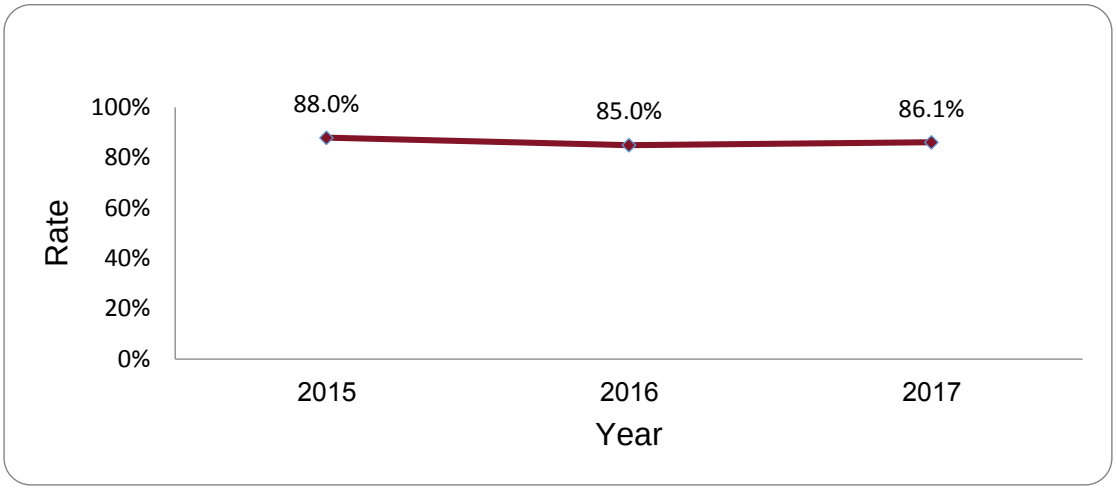
Documentation of body mass index (BMI) components in individuals with diabetes mellitus (ages 20-64 years)

Denominator: Individuals 20-64 years old with diabetes

Numerator: Individuals in the denominator with a documentation of BMI components in the measurement year (height ever after the age of 18 years; height in the measurement year)

Key results: The documentation rate of body mass index (BMI) components in individuals with diabetes mellitus (ages 20-64 years) was 86.1% in 2017. The rate was slightly higher for women compared to men (87.6% vs. 84.9%). The rate in SEP level 1 (lowest, 89.0%) was slightly higher compared to SEP level 4 (highest, 82.3%).

Documentation of BMI components by year, 2013-2017



Documentation of BMI components by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of BMI components by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	758	841	1,599
	Denominator	975	1,063	2,038
	Rate	77.7%	79.1%	78.5%
25-34	Numerator	2,819	2,689	5,508
	Denominator	3,618	3,307	6,925
	Rate	77.9%	81.3%	79.5%
35-44	Numerator	10,618	7,499	18,117
	Denominator	13,055	8,924	21,979
	Rate	81.3%	84.0%	82.4%
45-54	Numerator	30,808	22,975	53,783
	Denominator	37,043	26,425	63,468
	Rate	83.2%	86.9%	84.7%
55-64	Numerator	54,466	47,633	102,099
	Denominator	62,524	53,432	115,956
	Rate	87.1%	89.1%	88.0%
Total	Numerator	99,469	81,637	181,106
	Denominator	117,215	93,151	210,366
	Rate	84.9%	87.6%	86.1%

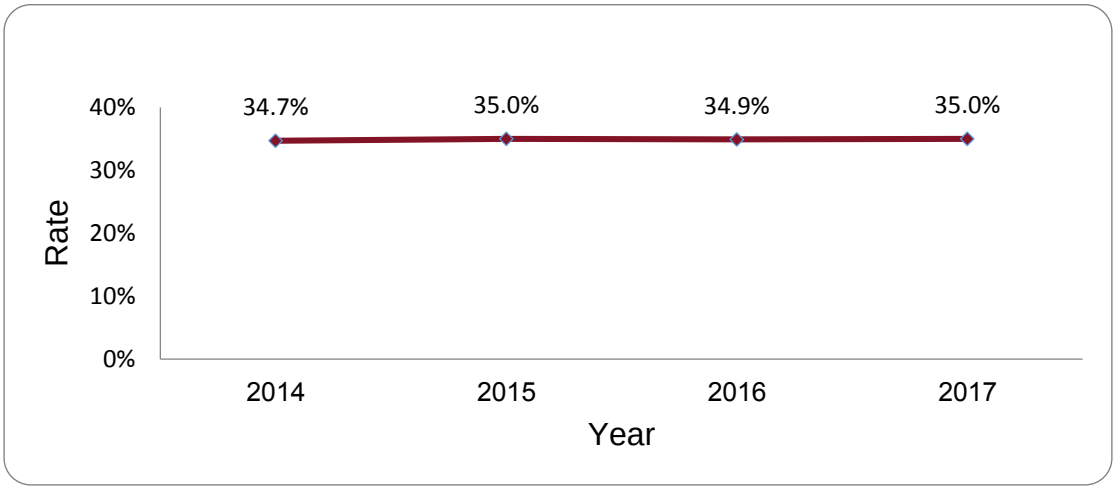
Prevalence of overweight in individuals with diabetes mellitus (ages 20-64 years)

Denominator: Individuals 20-64 years or older with diabetes and documentation of BMI in the measurement year

Numerator: Individuals in the denominator who were overweight (last BMI ≥ 25 kg/m^2 and <30 kg/m^2)

Key results: The prevalence of overweight among individuals with diabetes mellitus (ages 20-64 years) remained stable during the measurement period (2014-2017), and was 35.0% in 2017. The rate was significantly lower for women compared to men (28.6% vs. 40.3%). The rate in SEP level 1 (lowest, 31.9%) was lower compared to SEP level 4 (highest, 39.7%).

Prevalence of overweight in individuals with diabetes by year, 2014-2017



Prevalence of overweight in individuals with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of overweight in individuals with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	201	234	435
	Denominator	758	841	1,599
	Rate	26.5%	27.8%	27.2%
25-34	Numerator	892	717	1,609
	Denominator	2,819	2,689	5,508
	Rate	31.6%	26.7%	29.2%
35-44	Numerator	3,768	1,986	5,754
	Denominator	10,618	7,499	18,117
	Rate	35.5%	26.5%	31.8%
45-54	Numerator	12,075	6,193	18,268
	Denominator	30,808	22,975	53,783
	Rate	39.2%	27.0%	34.0%
55-64	Numerator	23,143	14,202	37,345
	Denominator	54,466	47,633	102,099
	Rate	42.5%	29.8%	36.6%
Total	Numerator	40,079	23,332	63,411
	Denominator	99,469	81,637	181,106
	Rate	40.3%	28.6%	35.0%

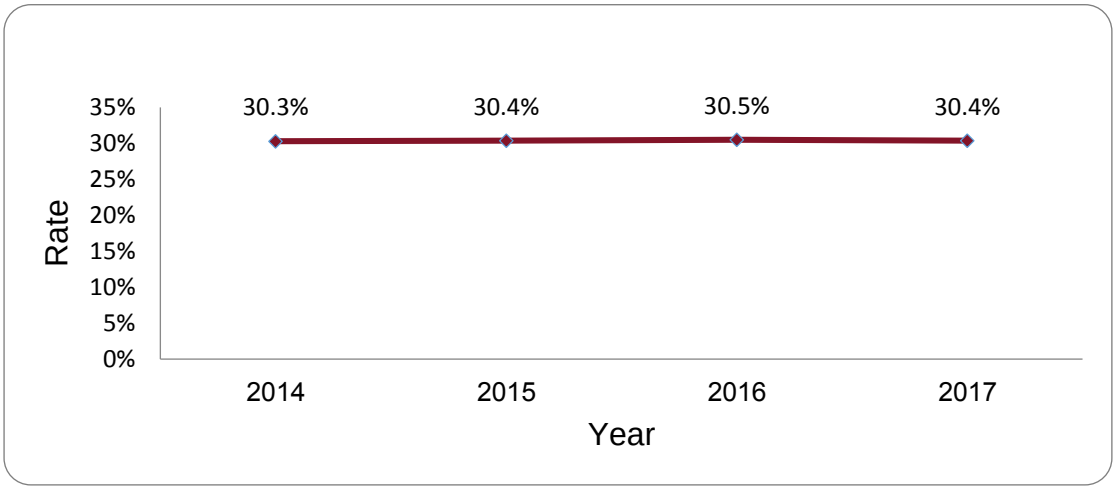
Prevalence of obesity in individuals with diabetes mellitus (ages 20-64 years)

Denominator: Individuals 20-64 years or older with diabetes and documentation of BMI in the measurement year

Numerator: Individuals in the denominator who were obese (last BMI ≥30 kg/m^2 and <35 kg/m^2)

Key results: The prevalence of obesity among individuals with diabetes mellitus (ages 20-64 years) remained stable during the measurement period (2014-2017), and was 30.4% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 31.7%) was slightly higher compared to SEP level 4 (highest, 28.8%).

Prevalence of obesity in individuals with diabetes by year, 2014-2017



Prevalence of obesity in individuals with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of obesity in individuals with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	65	105	170
	Denominator	758	841	1,599
	Rate	8.6%	12.5%	10.6%
25-34	Numerator	543	573	1,116
	Denominator	2,819	2,689	5,508
	Rate	19.3%	21.3%	20.3%
35-44	Numerator	3,189	2,138	5,327
	Denominator	10,618	7,499	18,117
	Rate	30.0%	28.5%	29.4%
45-54	Numerator	9,687	7,305	16,992
	Denominator	30,808	22,975	53,783
	Rate	31.4%	31.8%	31.6%
55-64	Numerator	16,434	14,982	31,416
	Denominator	54,466	47,633	102,099
	Rate	30.2%	31.5%	30.8%
Total	Numerator	29,918	25,103	55,021
	Denominator	99,469	81,637	181,106
	Rate	30.1%	30.7%	30.4%

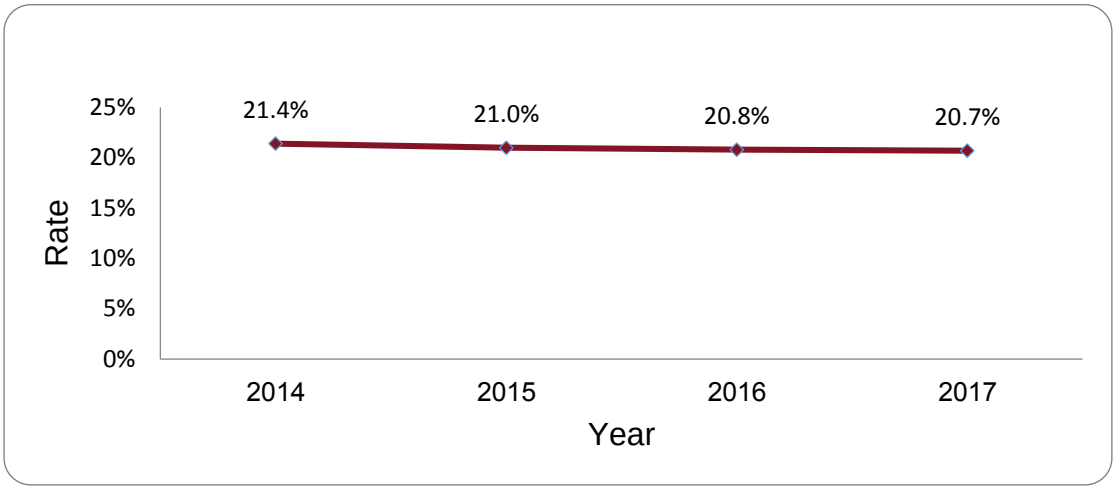
Prevalence of morbid obesity in individuals with diabetes mellitus (ages 20-64 years)

Denominator: Individuals 20-64 years or older with diabetes and documentation of BMI in the measurement year

Numerator: Individuals in the denominator with morbid obesity (last BMI ≥35 kg/m^2)

Key results: The prevalence of morbid obesity among individuals with diabetes mellitus (ages 20-64 years) remained stable during the measurement period (2014-2017), and was 20.7% in 2017. The rate among women was about twice as high compared to men (28.2% vs. 14.6%). The rate in SEP level 1 (lowest, 24.8%) was 1.7 times higher compared to SEP level 4 (highest, 14.3%).

Prevalence of morbid obesity in individuals with diabetes by year, 2014-2017



Prevalence of morbid obesity in individuals with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of morbid obesity in individuals with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	62	91	153
	Denominator	758	841	1,599
	Rate	8.2%	10.8%	9.6%
25-34	Numerator	410	545	955
	Denominator	2,819	2,689	5,508
	Rate	14.5%	20.3%	17.3%
35-44	Numerator	2,063	2,280	4,343
	Denominator	10,618	7,499	18,117
	Rate	19.4%	30.4%	24.0%
45-54	Numerator	4,994	7,094	12,088
	Denominator	30,808	22,975	53,783
	Rate	16.2%	30.9%	22.5%
55-64	Numerator	6,986	13,013	19,999
	Denominator	54,466	47,633	102,099
	Rate	12.8%	27.3%	19.6%
Total	Numerator	14,515	23,023	37,538
	Denominator	99,469	81,637	181,106
	Rate	14.6%	28.2%	20.7%

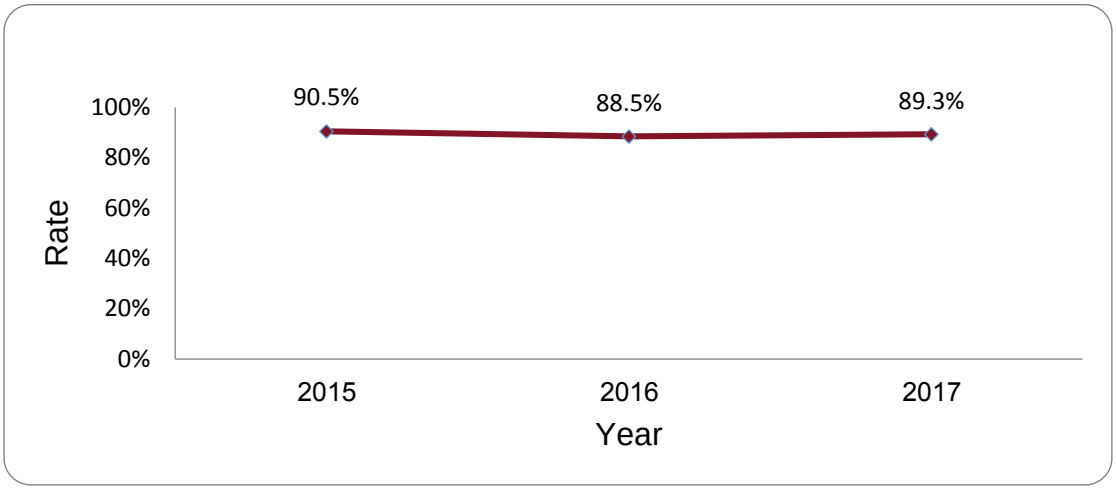
Documentation of body mass index (BMI) components in individuals with diabetes mellitus (ages 65-84 years)

Denominator: Individuals 65-84 years old with diabetes

Numerator: Individuals in the denominator with documentation of BMI components in the measurement year (height ever between the ages of 65-83 years; height in the measurement year)

Key results: The documentation rate of body mass index (BMI) components in individuals with diabetes mellitus (ages 65-84 years) was 89.3% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 91.2%) was slightly higher compared to SEP level 4 (highest, 87.5%).

Documentation of BMI components in older persons with diabetes by year, 2013-2017



Documentation of BMI components in older persons with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of BMI components in older persons with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	39,090	37,237	76,327
	Denominator	44,628	42,097	86,725
	Rate	87.6%	88.5%	88.0%
70-74	Numerator	29,883	29,406	59,289
	Denominator	32,733	32,217	64,950
	Rate	91.3%	91.3%	91.3%
75-79	Numerator	22,258	26,100	48,358
	Denominator	24,633	29,177	53,810
	Rate	90.4%	89.5%	89.9%
80-84	Numerator	12,286	15,499	27,785
	Denominator	13,634	18,004	31,638
	Rate	90.1%	86.1%	87.8%
Total	Numerator	103,517	108,242	211,759
	Denominator	115,628	121,495	237,123
	Rate	89.5%	89.1%	89.3%

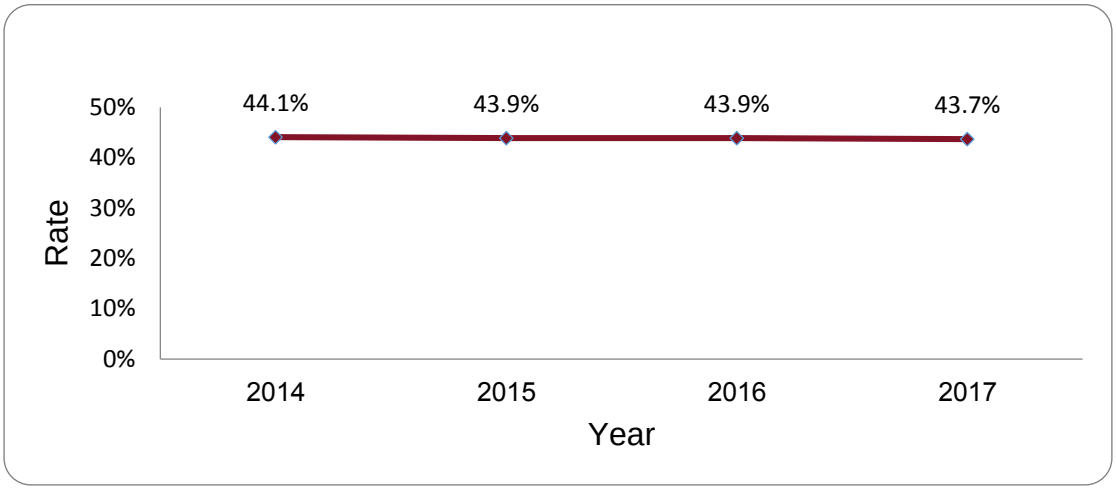
Prevalence of obesity and morbid obesity in individuals with diabetes mellitus (ages 65-84 years)

Denominator: Individuals 65-84 years or older with diabetes and documentation of BMI in the measurement year

Numerator: Individuals in the denominator with obesity or morbid obesity (last BMI≥ 30 kg/m^2)

Key results: The prevalence of obesity and morbid obesity among individuals with diabetes mellitus (ages 65-84 years) remained stable during the measurement period (2014-2017), and was 43.7% in 2017. The rate was significantly higher for women compared to men (51.0% vs. 36.1%). The rate in SEP level 1 (lowest, 51.3%) was 1.5 times higher compared to SEP level 4 (highest, 35.7%).

Prevalence of obesity in older persons with diabetes by year, 2014-2017



Prevalence of obesity in older persons with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of obesity in older persons with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	15,596	20,312	35,908
	Denominator	39,090	37,237	76,327
	Rate	39.9%	54.5%	47.0%
70-74	Numerator	10,787	15,169	25,956
	Denominator	29,883	29,406	59,289
	Rate	36.1%	51.6%	43.8%
75-79	Numerator	7,348	12,700	20,048
	Denominator	22,258	26,100	48,358
	Rate	33.0%	48.7%	41.5%
80-84	Numerator	3,679	6,978	10,657
	Denominator	12,286	15,499	27,785
	Rate	29.9%	45.0%	38.4%
Total	Numerator	37,410	55,159	92,569
	Denominator	103,517	108,242	211,759
	Rate	36.1%	51.0%	43.7%

Influenza vaccination in individuals with diabetes mellitus (aged 18 years or older)

Rational: Influenza (flu) is a common and contagious respiratory illness caused by a set of viruses that can result in serious complications or death [1]. During influenza seasons, approximately 90% of influenza-related deaths occur in the elderly [2]. A seasonal influenza vaccine is therefore recommended in Israel for the entire population (aged 6 months or older), with a special emphasis on several high-risk groups, including those with chronic conditions, including diabetes [3].

Denominator: Individuals 18 years or older with diabetes (see "prevalence of diabetes" for definition)

Numerator: Individuals in the denominator who received a seasonal influenza vaccination (between September 1st and February 28th)

Key results: The rate of individuals with diabetes mellitus (18 years or older) who received an influenza vaccination increased from 61.2% in 2013 to 63.6% in 2015, and decreased in 2017 to 61.0%. The rate was slightly lower for women compared to men (60.3% vs. 61.8%). The rate was similar across SEP levels.

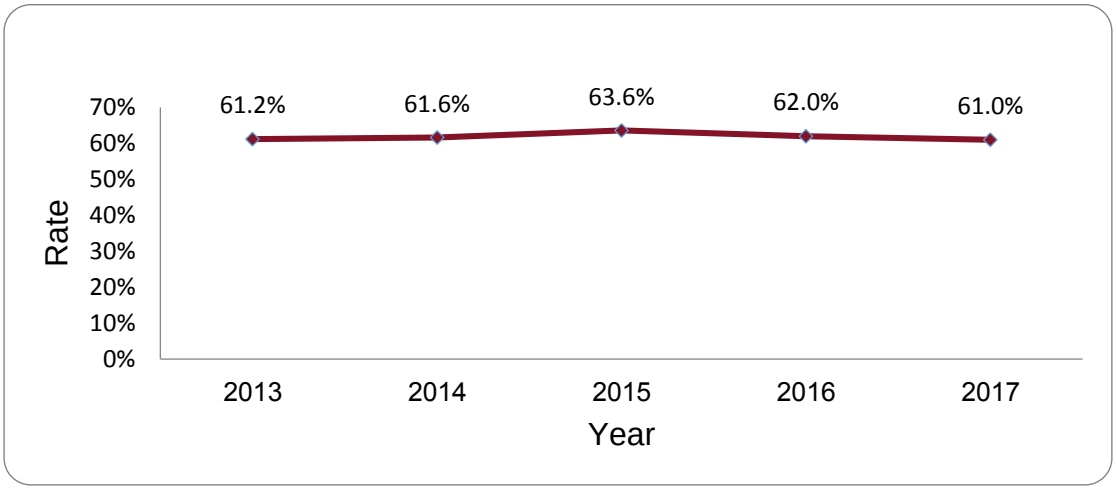
References:

[1] Centers for Disease Control and Prevention (CDC). 2013. "Seasonal Influenza: Flu Basics." Last modified September 12. http://www.cdc.gov/flu/about/disease/index.htm

[2] Epidemiology and Prevention of Vaccine- Preventable Disease: Influenza. (Prevention UCfDCa ed., 13 edition. Washington, DC: Public Health Foundation; 2015.

[3] In Hebrew: 2017 ,"1999 האגף לאפידמיולוגיה משרד הבריאות, "תדריך חיסונים . [Online]. Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 12-June-2018]

Influenza vaccination in individuals with diabetes by year, 2013-2017



Influenza vaccination in individuals with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Influenza vaccination in individuals with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	624	674	1,298
	Denominator	1,414	1,452	2,866
	Rate	44.1%	46.4%	45.3%
25-34	Numerator	1,512	1,404	2,916
	Denominator	3,611	3,298	6,909
	Rate	41.9%	42.6%	42.2%
35-44	Numerator	5,849	4,297	10,146
	Denominator	13,036	8,919	21,955
	Rate	44.9%	48.2%	46.2%
45-54	Numerator	18,099	13,657	31,756
	Denominator	36,995	26,386	63,381
	Rate	48.9%	51.8%	50.1%
55-64	Numerator	39,573	33,124	72,697
	Denominator	71,304	61,045	132,349
	Rate	55.5%	54.3%	54.9%
65-74	Numerator	52,805	47,166	99,971
	Denominator	77,118	74,115	151,233
	Rate	68.5%	63.6%	66.1%
75-84	Numerator	30,472	34,389	64,861
	Denominator	40,353	50,406	90,759
	Rate	75.5%	68.2%	71.5%
85+	Numerator	7,997	10,679	18,676
	Denominator	10,279	15,539	25,818
	Rate	77.8%	68.7%	72.3%
Total	Numerator	156,931	145,390	302,321
	Denominator	254,110	241,160	495,270
	Rate	61.8%	60.3%	61.0%

Pneumococcal vaccination in individuals with diabetes mellitus (ages 65-74 years)

Rationale: Pneumococcal disease is caused by bacteria and can result in a range of ailments, from mild ear infections to meningitis, sepsis and fatal pneumonia [1]. Adults over the age of 65, especially those with chronic illnesses, are at an increased risk for pneumococcal disease and death [2]. The incidence rate of invasive pneumococcal disease (IPD) in Israel between 2009-2010 for those aged 65-74 years was 20 per 100,000 people. The incidence rate increased with age, with a case-fatality rate of 25% among 65-74 years-old [3]. In addition to the childhood immunization routine, the Israeli Ministry of Health recommends that people 65 years or older receive the PPV23 pneumococcal vaccine, if more than five years have elapsed from the previous PPV23 vaccination [4].

Denominator: Individuals 65-74 years old with diabetes

Numerator: Individuals in the denominator who received a pneumococcal vaccination once after age 65 or in the last five years

Key results: The rate of pneumococcal vaccination in individuals with diabetes mellitus (ages 65-74 years) remained stable during the measurement period (2013-2017) and was 84.8% in 2017. The rate was slightly lower for women compared to men (83.3% vs. 86.2%). The rate in SEP level 1 (lowest, 89.0%) was higher compared to SEP level 4 (highest, 84.3%).

References:

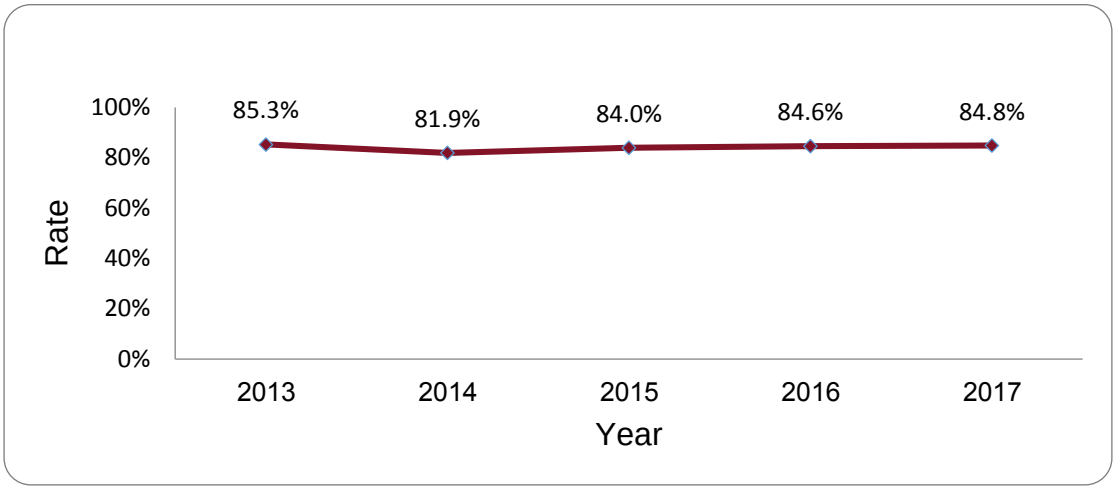
[1] Samir S. Shah, Adam J. Ratner; Trends in Invasive Pneumococcal Disease—Associated Hospitalizations, *Clinical Infectious Diseases*, Volume 42, Issue 1, 1 January 2006, Pages e1–5, https://doi.org/10.1086/498745

[2] Centers for Disease Control and Prevention (CDC). 2014. “Pneumonia Can Be Prevented—Vaccines Can Help.” Last modified February 18. http://www.cdc.gov/Features/Pneumonia/

[3] Dwolatzky T, Brodsky J, Azaiza F, Clarfield AM, Jacobs JM, Litwin H: Coming of age: health-care challenges of an ageing population in Israel. The Lancet, 389:2542-2550.

[4] In Hebrew: 2017 ,“1999האגף לאפידמיולוגיה משרד הבריאות, “תדריך חיסונים . [Online]. Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 12-June-2018]

Pneumococcal vaccination in individuals with diabetes by year, 2013-2017



Pneumococcal vaccination in individuals with diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Pneumococcal vaccination in individuals with diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
65-69	Numerator	35,344	31,969	67,313
	Denominator	43,027	40,380	83,407
	Rate	82.1%	79.2%	80.7%
70-74	Numerator	28,151	26,757	54,908
	Denominator	30,620	30,081	60,701
	Rate	91.9%	88.9%	90.5%
Total	Numerator	63,495	58,726	122,221
	Denominator	73,647	70,461	144,108
	Rate	86.2%	83.3%	84.8%

Diabetes mellitus in children

Rationale: Diabetes in youth presents a substantial clinical and public health burden. The incidence of type 1 diabetes in youth (aged 0-17 years) in Israel have steadily increased, from 8.0 newly diagnosed cases per 100,000 in 1997 to 13.1 per 100,000 in 2012 [1]. Similar increases in incidence, and even more pronounced increases, were observed in other developed countries, including the US with an annual increase of 1.5% between 2002 and 2012 [2]. Due to the complexity of managing diabetes in children, the ADA recommends that multidisciplinary professionals, within specialized diabetes clinics, follow up and care for children with diabetes [3]. This is the standard practice in Israel. Additionally, a seasonal influenza vaccine is recommended in Israel for the whole population, with a special emphasis on children and on people of all ages with chronic diseases [4].

References:

[1] Blumenfeld O, Dichtiar R, Shohat T; The Israel IDDM Registry Study Group (IIRSG). Trends in the incidence of type 1 diabetes among Jews and Arabs in Israel. Pediatr Diabetes. 2013 Nov 27. doi: 10.1111/pedi.12101.

[2] Mayer-Davis EJ et al., Incidence Trends of Type 1 and Type 2 Diabetes among Youths, 2002–2012. N Engl J Med 2017; 376:1419-1429. DOI: 10.1056/NEJMoa1610187

[3] American Diabetes Association (ADA), "Standard of medical care in diabetes - 2017," *Diabetes Care*, vol. 40 (sup 1), no. January, pp. s4–s128, 2017.

[4] In Hebrew: 2017 ,"1999האגף לאפידמיולוגיה משרד הבריאות, "תדריך חיסונים . [Online]. Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 12-June-2018]

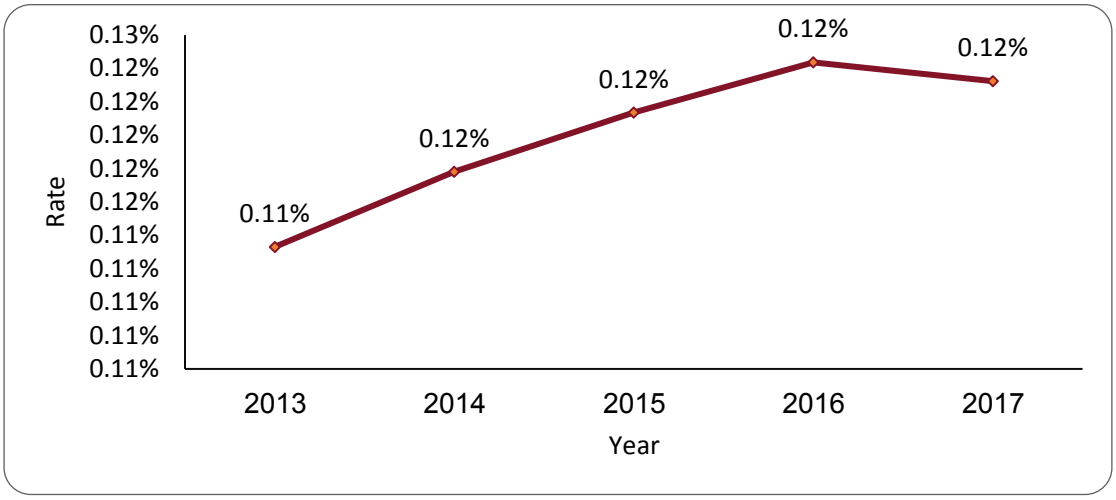
Prevalence of diabetes mellitus (ages 2-17 years)

Denominator: Individuals 2-17 years old

Numerator: Individuals in the denominator with diabetes, defined according to the purchase of at least three insulin prescriptions (in separate months) in the year prior to the measurement year.

Key results: The prevalence of diabetes mellitus (among individuals aged 2-17 years) remained stable during the measurement period (2013-2017), and was 0.1% in 2017. The rate was similar in both genders and across SEP levels.

Prevalence of diabetes mellitus ages 2-17 years by year, 2013-2017



Prevalence of diabetes mellitus ages 2-17 years by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of diabetes mellitus ages 2-17 years by age and sex, 2017

		Sex		
		Male	Female	Total
2-4	Numerator	36	37	73
	Denominator	255,695	242,275	497,970
	Rate	0.0%	0.0%	0.0%
5-9	Numerator	258	265	523
	Denominator	397,841	378,349	776,190
	Rate	0.1%	0.1%	0.1%
10-14	Numerator	622	656	1,278
	Denominator	363,018	344,932	707,950
	Rate	0.2%	0.2%	0.2%
15-17	Numerator	541	499	1,040
	Denominator	196,172	186,092	382,264
	Rate	0.3%	0.3%	0.3%
Total	Numerator	1,457	1,457	2,914
	Denominator	1,212,726	1,151,648	2,364,374
	Rate	0.1%	0.1%	0.1%

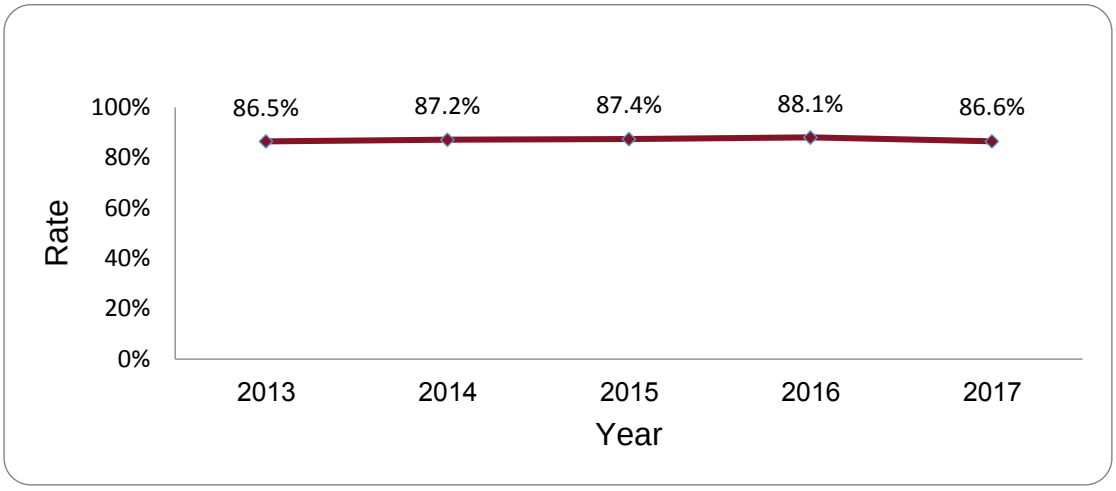
Diabetes clinic visits in children with diabetes mellitus (ages 2-17 years)

Denominator: Individuals 2-17 years old with diabetes

Numerator: Individuals in the denominator who visited a pediatric diabetes clinic in the measurement year (either outpatient or community-based clinics)

Key results: The rate of children and adolescents 2-17 years old with diabetes who had a least one visit to a pediatric diabetic clinic remained stable during the measurement period (2013-2017), and was 86.6% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 81.4%) was lower compared to SEP level 4 (highest, 91.7%).

Diabetes clinic visits in children by year, 2013-2017



Diabetes clinic visits in children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Diabetes clinic visits in children by age and sex, 2017

		Sex		
		Male	Female	Total
2-4	Numerator	34	31	65
	Denominator	36	37	73
	Rate	94.4%	83.8%	89.0%
5-9	Numerator	227	237	464
	Denominator	258	265	523
	Rate	88.0%	89.4%	88.7%
10-14	Numerator	553	572	1,125
	Denominator	622	656	1,278
	Rate	88.9%	87.2%	88.0%
15-17	Numerator	447	422	869
	Denominator	541	499	1,040
	Rate	82.6%	84.6%	83.6%
Total	Numerator	1,261	1,262	2,523
	Denominator	1,457	1,457	2,914
	Rate	86.5%	86.6%	86.6%

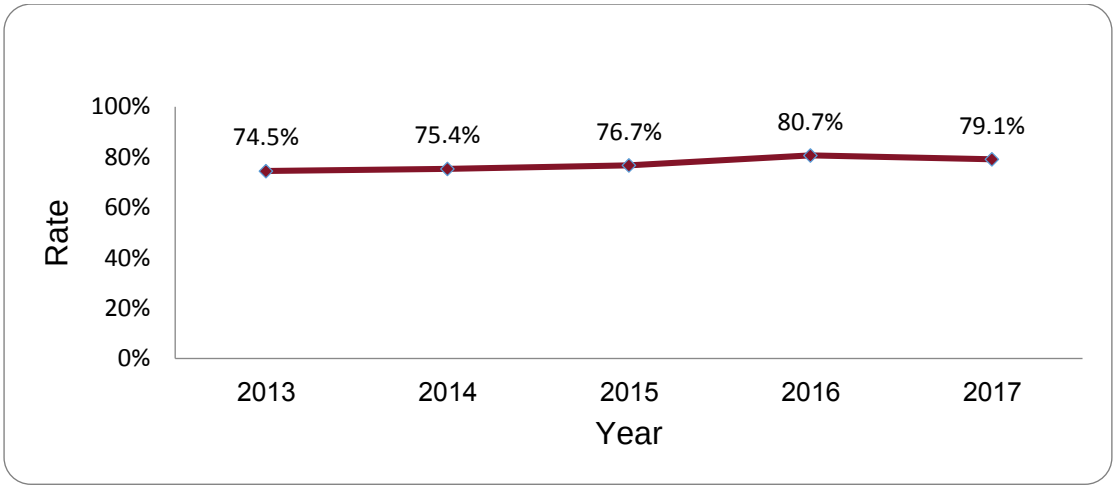
Documentation of HbA1c levels in children with diabetes mellitus (ages 2-17 years)

Denominator: Individuals 2-17 years old with diabetes

Numerator: Individuals in the denominator with at least one documentation of HbA1c levels in the measurement year

Key results: The documentation rate of HbA1c levels in children with diabetes (ages 2-17 years) increased during the measurement period (2013-2017), from 74.5% in 2013 to 79.1% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 85.3%) was higher compared to SEP level 4 (highest, 75.8%).

Documentation of HbA1c levels in children by year, 2013-2017



Documentation of HbA1c levels in children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of HbA1c levels in children by age and sex, 2017

		Sex		
		Male	Female	Total
2-4	Numerator	21	30	51
	Denominator	36	37	73
	Rate	58.3%	81.1%	69.9%
5-9	Numerator	197	210	407
	Denominator	258	265	523
	Rate	76.4%	79.2%	77.8%
10-14	Numerator	488	495	983
	Denominator	622	656	1,278
	Rate	78.5%	75.5%	76.9%
15-17	Numerator	434	429	863
	Denominator	541	499	1,040
	Rate	80.2%	86.0%	83.0%
Total	Numerator	1,140	1,164	2,304
	Denominator	1,457	1,457	2,914
	Rate	78.2%	79.9%	79.1%

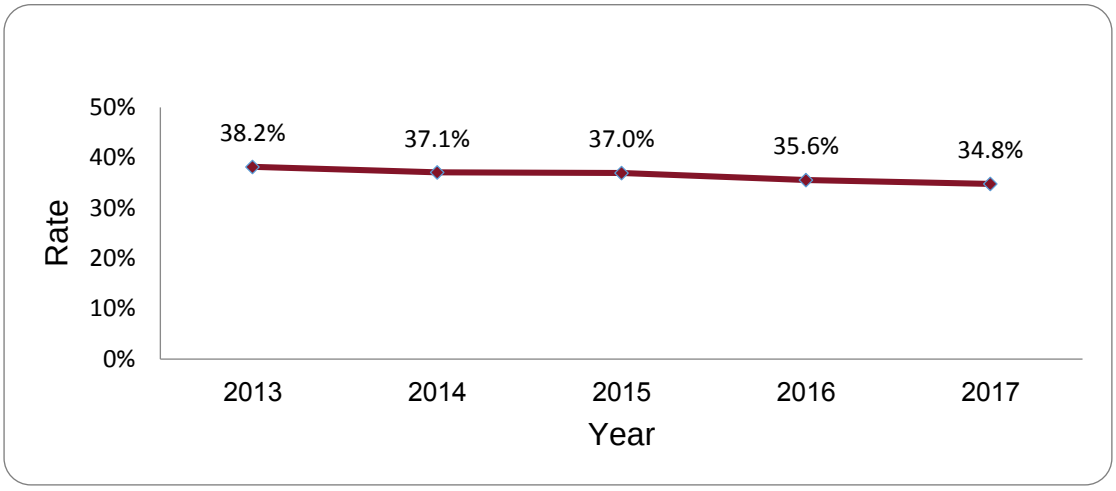
Uncontrolled diabetes: HbA1c greater than 9% in children with diabetes mellitus (ages 2-17 years)

Denominator: Individuals 2-17 years old with diabetes and documentation of HbA1c levels in the measurement year

Numerator: Individuals in the denominator with uncontrolled diabetes (defined as HbA1c levels >9%)

Key results: The rate of uncontrolled diabetes (HbA1c >9%) among children and adolescents (aged 2-17) decreased during the measurement period (2013-2017), from 38.2% in 2013 to 34.8% in 2017. The rate was similar in both genders. The rate in SEP level 1 (lowest, 49.4%) was 2.5 times higher than SEP level 4 (highest, 19.9%).

Uncontrolled diabetes in children by year, 2013-2017



Uncontrolled diabetes in children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Uncontrolled diabetes in children by age and sex, 2017

		Sex		
		Male	Female	Total
2-4	Numerator	4	7	11
	Denominator	21	30	51
	Rate	19.0%	23.3%	21.6%
5-9	Numerator	54	49	103
	Denominator	197	210	407
	Rate	27.4%	23.3%	25.3%
10-14	Numerator	198	188	386
	Denominator	488	495	983
	Rate	40.6%	38.0%	39.3%
15-17	Numerator	143	159	302
	Denominator	434	429	863
	Rate	32.9%	37.1%	35.0%
Total	Numerator	399	403	802
	Denominator	1,140	1,164	2,304
	Rate	35.0%	34.6%	34.8%

Influenza vaccination in children with diabetes mellitus (ages 2-17 years)

Denominator: Individuals 2-17 years old with diabetes

Numerator: Individuals in the denominator who received a seasonal influenza vaccination (between September 1st and February 28th)

Key results: The rate of influenza vaccination in children and adolescents with diabetes mellitus (ages 2-17 years) increased from 48.3% in 2013 to 54.8% in 2015, and decreased in 2017 to 41.5%. The rate was slightly higher for girls compared to boys (42.5% vs. 40.5%). The rate in SEP level 1 (lowest, 52.6%) was 1.5 times higher compared to SEP level 4 (highest, 34.9%).

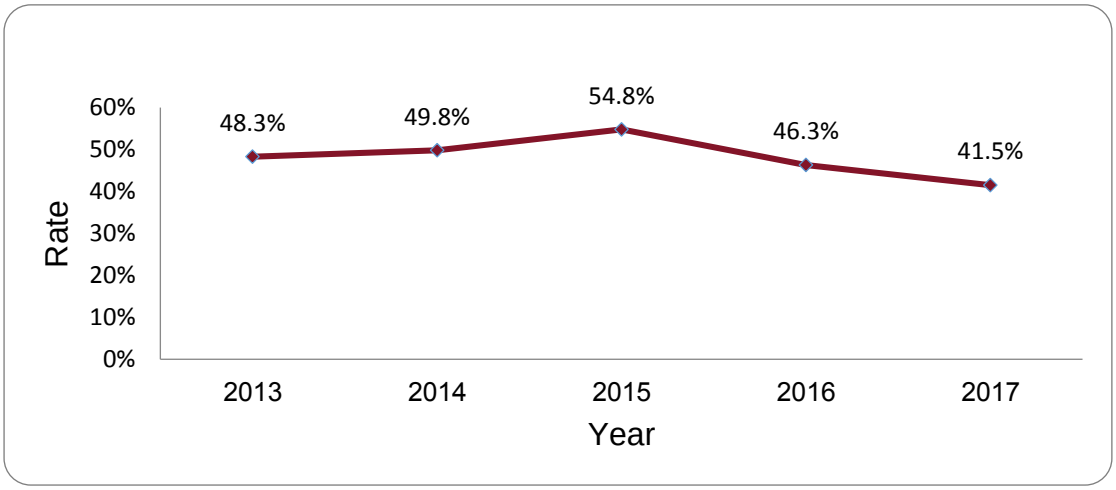
References:

[1] Centers for Disease Control and Prevention (CDC). 2013. "Seasonal Influenza: Flu Basics." Last modified September 12. http://www.cdc.gov/flu/about/disease/index.htm

[2] Epidemiology and Prevention of Vaccine- Preventable Disease: Influenza. (Prevention UCfDCa ed., 13 edition. Washington, DC: Public Health Foundation; 2015.

[3] In Hebrew: 2017 ,"1999 האגף לאפידמיולוגיה משרד הבריאות, "תדריך חיסונים . [Online]. Available: https://www.health.gov.il/UnitsOffice/HD/PH/epidemiology/td/docs/tadrich_Chisunim.pdf [Accessed: 12-June-2018]

Influenza vaccination in children by year, 2013-2017



Influenza vaccination in children by socio-economic position (1-lowest, 4-highest) and sex, 2017

Influenza vaccination in children sby age and sex, 2017

		Sex		
		Male	Female	Total
2-4	Numerator	14	14	28
	Denominator	36	37	73
	Rate	38.9%	37.8%	38.4%
5-9	Numerator	114	128	242
	Denominator	258	265	523
	Rate	44.2%	48.3%	46.3%
10-14	Numerator	246	264	510
	Denominator	621	656	1,277
	Rate	39.6%	40.2%	39.9%
15-17	Numerator	216	213	429
	Denominator	541	499	1,040
	Rate	39.9%	42.7%	41.3%
Total	Numerator	590	619	1,209
	Denominator	1,456	1,457	2,913
	Rate	40.5%	42.5%	41.5%

Antibiotics

Total and second-line antibiotic use

Rationale: Antibiotics are among the most commonly used drugs. However, their effectiveness is consistently decreasing due to an increasing global spread of antimicrobial resistance. The antimicrobial resistance crisis depends on the scope and way antibiotics are used, making careful follow-up of their use a public health priority. Unnecessary use of broad-spectrum antimicrobials is a major contributor to the emergence and spread of antimicrobial resistance [1].

Reference:

[1] Michael, Carolyn & Dominey-Howes, Dale & Labbate, Maurizio. (2014). The Antimicrobial Resistance Crisis: Causes, Consequences, and Management. Frontiers in public health. 2. 145. 10.3389/fpubh.2014.00145.

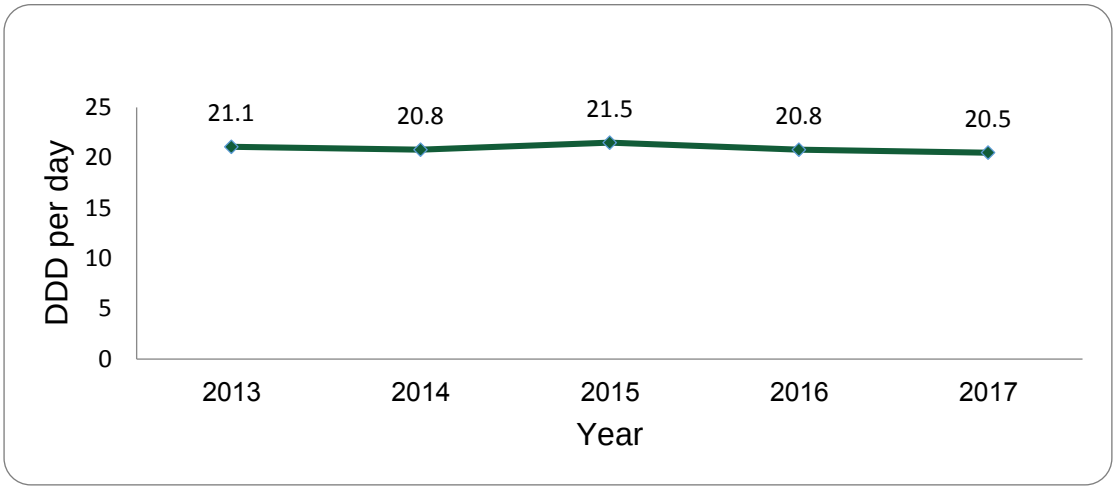
Total antibiotic use per 1000 persons per day

Denominator: The total population

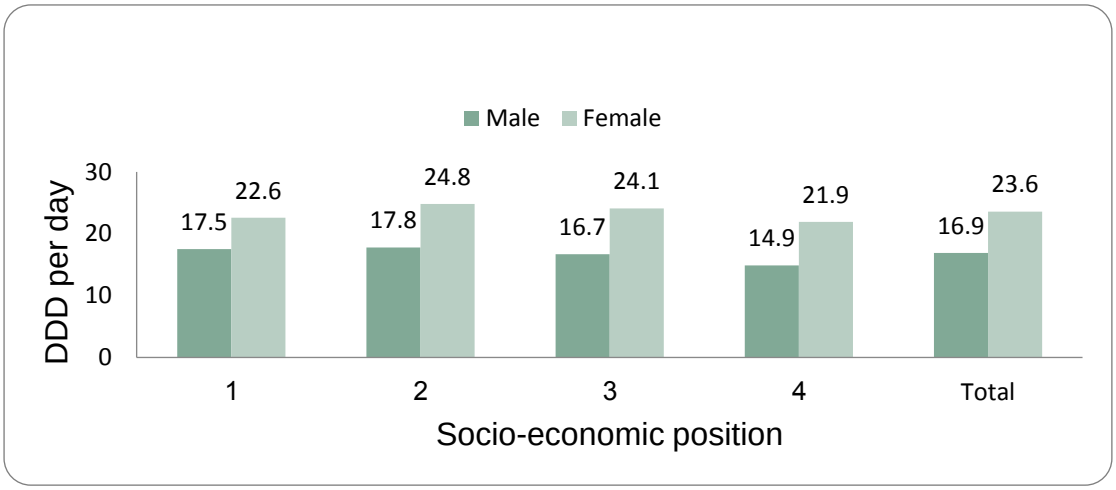
Numerator: Total defined daily dose (DDD) purchases of systemic antibiotic drugs prescriptions in the measurement year

Key results: The rate of the total antibiotic use per 1000 persons per day remained stable during the measurement period (2013-2017), and was 20.5 DDD/1000 persons/day in 2017. The rate was higher for women compared to men (23.8 vs. 17.1 DDD/1000 persons/day). The rate in SEP level 1 (lowest, 20.0 DDD/1000 persons/day) was slightly higher compared to SEP level 4 (highest, 18.5 DDD/1000 persons/day).

Total antibiotic use by year, 2013-2017



Total antibiotic use by socio-economic position (1-lowest, 4-highest) and sex, 2017



Total antibiotic use by age and sex, 2017

		Sex		
		Male	Female	Total
0-9	Numerator	4,013,945	3,706,192	7,720,137
	Denominator	852,334	808,327	1,660,661
	Rate	12.9	12.6	12.7
10-19	Numerator	2,454,067	2,810,274	5,264,342
	Denominator	645,100	619,286	1,264,386
	Rate	10.4	12.4	11.4
20-29	Numerator	2,482,085	4,600,209	7,082,294
	Denominator	524,159	561,975	1,086,134
	Rate	13.0	22.4	17.9
30-39	Numerator	3,097,485	5,054,121	8,151,606
	Denominator	533,422	546,825	1,080,247
	Rate	15.9	25.3	20.7
40-49	Numerator	2,953,051	4,584,091	7,537,142
	Denominator	471,647	491,107	962,754
	Rate	17.2	25.6	21.4
50-59	Numerator	2,947,099	4,606,375	7,553,474
	Denominator	376,749	401,532	778,281
	Rate	21.4	31.4	26.6
60-69	Numerator	3,375,510	5,034,652	8,410,161
	Denominator	328,299	370,180	698,479
	Rate	28.2	37.3	33.0
70-79	Numerator	2,245,865	3,286,073	5,531,938
	Denominator	172,783	212,180	384,963
	Rate	35.6	42.4	39.4
80-84	Numerator	706,353	1,170,654	1,877,007
	Denominator	49,284	70,472	119,756
	Rate	39.3	45.5	42.9
85+	Numerator	624,883	1,215,545	1,840,428
	Denominator	39,236	68,379	107,615
	Rate	43.6	48.7	46.9
Total	Numerator	24,900,343	36,068,186	60,968,529
	Denominator	3,993,013	4,150,263	8,143,276
	Rate	17.1	23.8	20.5

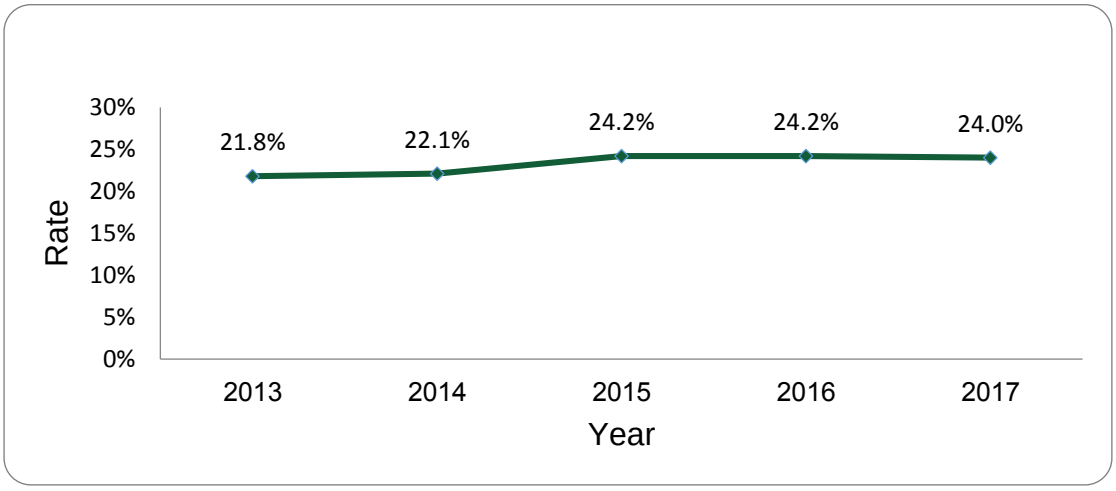
Proportion of cephalosporins and quinolones of total antibiotic drugs used

Denominator: Total defined daily dose (DDD) purchases of systemic antibiotic drugs prescriptions in the measurement year

Numerator: Total DDD purchases of broad-spectrum systemic antibiotics (cephalosporins and quinolones) in the measurement year

Key results: The proportion of cephalosporin and quinolones usage increased during the measurement period (2013-2017), from 21.8% in 2013 to 24.0% in 2017. The proportion was higher for women compared to men (25.8% vs. 21.4%). The proportion in SEP level 1 (lowest, 21.0%) was lower compared to SEP level 4 (highest, 26.4%).

Proportion of cephalosporins and quinolones by year, 2013-2017



Proportion of cephalosporins and quinolones by socio-economic position (1-lowest, 4-highest) and sex, 2017

Proportion of cephalosporins and quinolones by age and sex, 2017

		Sex		
		Male	Female	Total
0-9	Numerator	189,227	267,608	456,835
	Denominator	4,013,945	3,706,192	7,720,137
	Rate	4.7%	7.2%	5.9%
10-19	Numerator	288,716	408,668	697,384
	Denominator	2,454,067	2,810,274	5,264,342
	Rate	11.8%	14.5%	13.2%
20-29	Numerator	429,801	1,151,336	1,581,137
	Denominator	2,482,085	4,600,209	7,082,294
	Rate	17.3%	25.0%	22.3%
30-39	Numerator	562,242	1,244,926	1,807,168
	Denominator	3,097,485	5,054,121	8,151,606
	Rate	18.2%	24.6%	22.2%
40-49	Numerator	642,320	1,195,464	1,837,784
	Denominator	2,953,051	4,584,091	7,537,142
	Rate	21.8%	26.1%	24.4%
50-59	Numerator	769,580	1,316,856	2,086,436
	Denominator	2,947,099	4,606,375	7,553,474
	Rate	26.1%	28.6%	27.6%
60-69	Numerator	1,044,805	1,582,148	2,626,953
	Denominator	3,375,510	5,034,652	8,410,161
	Rate	31.0%	31.4%	31.2%
70-79	Numerator	820,982	1,150,017	1,970,999
	Denominator	2,245,865	3,286,073	5,531,938
	Rate	36.6%	35.0%	35.6%
80-84	Numerator	297,715	459,046	756,760
	Denominator	706,353	1,170,654	1,877,007
	Rate	42.1%	39.2%	40.3%
85+	Numerator	294,428	522,041	816,469
	Denominator	624,883	1,215,545	1,840,428
	Rate	47.1%	42.9%	44.4%
Total	Numerator	5,339,816	9,298,109	14,637,925
	Denominator	24,900,343	36,068,186	60,968,529
	Rate	21.4%	25.8%	24.0%

Mental Health

Mental health follow-up in the community within 14 days after discharge from psychiatric hospitalization (ages 18 years or older)

Rationale: Medical follow-up after an acute event such as hospitalization is an accepted practice, and has been shown to reduce the risk of negative health outcomes. Improving the continuity of care between inpatient and outpatient healthcare settings reduces post-acute phase complications. This period also represents a window of opportunity for strengthening the patient's cooperation and adherence to treatment [73]. In addition to physical ailments, the rates of suicide attempts and psychiatric readmissions were also significantly reduced in people with mental illnesses who received active follow-up and outreach, including a face-to-face encounter with a mental health professional in the community after discharge from psychiatric hospitalization [74] [75].

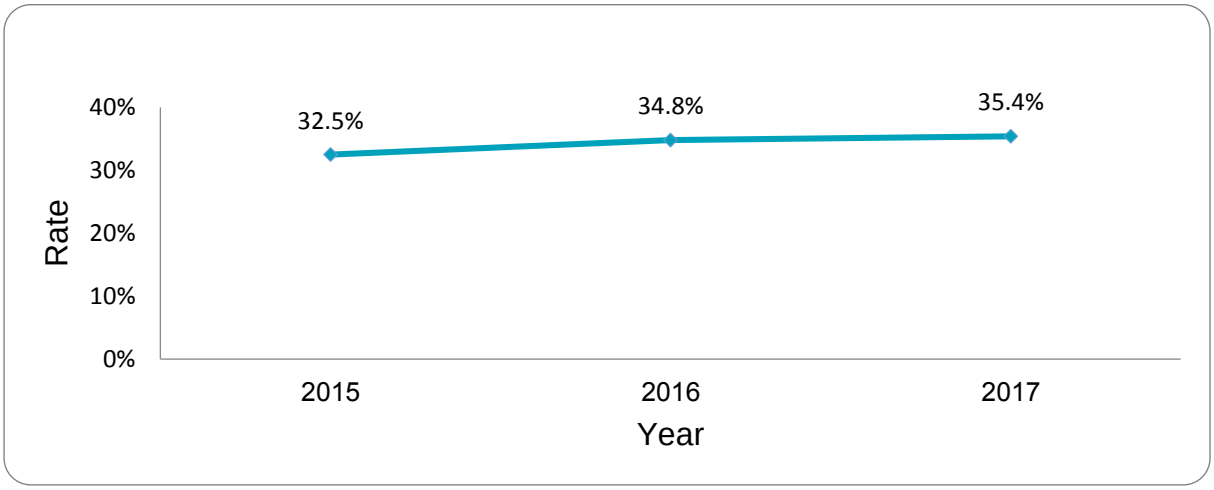
Denominator: Individuals 18 years or older discharged from a psychiatric hospitalization of 14 to 365 days

Numerator: Individuals in the denominator who had an encounter with a mental healthcare professional in the community within 14 days of discharge

Notes: (1) "Psychiatric hospitalization" includes hospitalizations in psychiatric institutes or in psychiatric wards in general, tertiary hospitals. (2) "An encounter with a mental health care professional in the community" includes: (2a) visits in ambulatory settings in psychiatric institutes (2b) visits in mental healthcare units in the community, including an encounter with any professional, except for general practitioners/family doctors, or (2c) visits in other community healthcare settings, including an encounter with a psychiatrist, psychologist, mental health-specialized social worker, or mental health-specialized nurse. (3) Only face-to-face encounters are included.

Key results: The rate of encounter with a mental health care professional in the community within 14 days of discharge from psychiatric hospitalization (in adults 18 years or older) in 2017 was 35.4%. The rate was slightly higher for women (37.3%) compared to men .(34.0%) The rate in SEP level 1 (lowest, 33.8%). was slightly lower compared to SEP level 4 (highest, 37.6%).

Mental health follow-up by year, 2015-2017



Mental health follow-up by socio-economic position (1-lowest, 4-highest) and sex, 2017

Mental health follow-up by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	226	153	379
	Denominator	656	452	1,108
	Rate	34.5%	33.8%	34.2%
25-34	Numerator	393	236	629
	Denominator	1,201	598	1,799
	Rate	32.7%	39.5%	35.0%
35-44	Numerator	341	249	590
	Denominator	982	616	1,598
	Rate	34.7%	40.4%	36.9%
45-54	Numerator	248	229	477
	Denominator	752	589	1,341
	Rate	33.0%	38.9%	35.6%
55-64	Numerator	199	206	405
	Denominator	510	564	1,074
	Rate	39.0%	36.5%	37.7%
65-74	Numerator	76	121	197
	Denominator	243	306	549
	Rate	31.3%	39.5%	35.9%
75-84	Numerator	21	37	58
	Denominator	79	168	247
	Rate	26.6%	22.0%	23.5%
85+	Numerator	5	6	11
	Denominator	14	23	37
	Rate	35.7%	26.1%	29.7%
Total	Numerator	1,509	1,237	2,746
	Denominator	4,437	3,316	7,753
	Rate	34.0%	37.3%	35.4%

Monitoring physical heath in individuals with severe mental Illnesses (SMI)

Rationale: Severe mental illness (SMI) includes schizophrenia, schizoaffective disorders, and bi-polar disorders. Individuals with SMI are at a higher risk of poor physical health and of premature death. It is estimated that for people with SMI, two out of three deaths are from physical illnesses that can be prevented [1]. Cardiovascular disease and cardiovascular risk factors are more common in people with SMI compared with the general population. For instance, the prevalence of obesity is 1.5-2 fold higher in persons with SMI compared with the general population, and the prevalence of diabetes is 2-3 times higher. Additionally, the age of diabetes onset is earlier in persons with SMI, and the incidence and severity of complications are higher as well, including micro- and macro-vascular complications, acute metabolic dysregulation, and diabetes-associated mortality. The underlying mechanisms relating cardiovascular risk factors and SMI are complex, and include genetic, environmental, and behavioral aspects, as well as aspects related to anti-psychotic drug therapy [2].

References:

[1] Severe mental illness (SMI) and physical health inequalities: briefing. Public Heath England, September 2018. Available at: https://www.gov.uk/government/publications/severe-mental-illness-smi-physical-health-inequalities/severe-mental-illness-and-physical-health-inequalities-briefing

[2] Holt RI, Mitchell AJ, Diabetes mellitus and severe mental illness: mechanisms and clinical implications. Nat Rev Endocrinol. 2015 Feb;11(2):79-89

Measures:

- Prevalence of severe mental Illness in persons (ages 18 or higher)
- Prevalence of diabetes mellitus in persons with SMI (ages 18 or higher)
- Hemoglobin A1c testing in persons with SMI and diabetes mellitus (ages 18 or higher)
- Controlled diabetes in persons with SMI and diabetes mellitus (ages 18-84)
- Uncontrolled diabetes (HbA1c >9%) in persons with SMI and diabetes mellitus (ages 18 years or older)
- Documentation of body mass index (BMI) components in adults with SMI (ages 20-64 years)
- Prevalence of obesity among adults with SMI (ages 20-64 years)

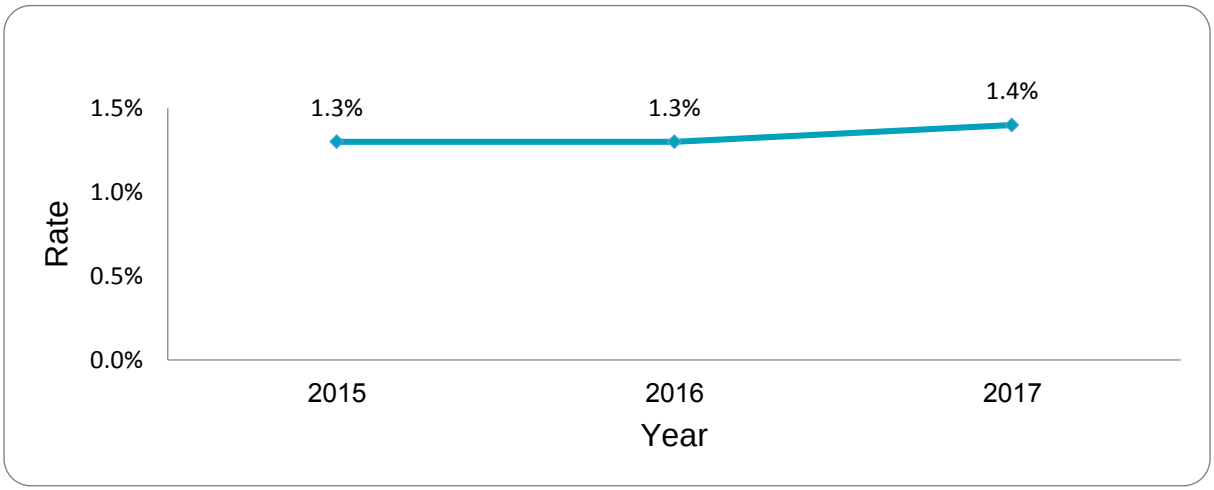
Prevalence of severe mental Illness in adults (ages 18 or higher)

Denominator: Individuals aged 18 or older

Numerator: Individuals in the denominator with one or more of the following diagnoses in their HMO medical record: schizophrenia, schizoaffective disorder, or bi-polar disorder.

Key results: The prevalence of severe mental illness (SMI) in adults (ages 18 or older) was 1.4% in 2017. The rate was lower in women compared to men (1.2% vs. 1.5%). The highest rate was observed in SEP level 2 (middle-low, 1.8% in men; 1.4% in women), and decreased with increasing SEP-level. The lowest rate was observed in SEP level 4 (highest, 1.1% in both sexes). Prevalence rates in SEP level 1 (lowest) were 1.5% in men and 1.0% in women, and may represent underdiagnoses in some social groups highly represented in the lower SEP level.

Prevalence of Severe mental Illness by year, 2015-2017



Prevalence of Severe mental Illness by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of Severe mental Illness by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	3,187	1,765	4,952
	Denominator	337,051	372,984	710,035
	Rate	0.9%	0.5%	0.7%
25-34	Numerator	8,097	4,919	13,016
	Denominator	558,645	567,408	1,126,053
	Rate	1.4%	0.9%	1.2%
35-44	Numerator	9,336	6,661	15,997
	Denominator	510,376	529,161	1,039,537
	Rate	1.8%	1.3%	1.5%
45-54	Numerator	7,846	6,908	14,754
	Denominator	413,016	431,276	844,292
	Rate	1.9%	1.6%	1.7%
55-64	Numerator	6,193	7,045	13,238
	Denominator	355,629	390,497	746,126
	Rate	1.7%	1.8%	1.8%
65-74	Numerator	3,521	4,619	8,140
	Denominator	255,000	294,638	549,638
	Rate	1.4%	1.6%	1.5%
75-84	Numerator	1,116	2,193	3,309
	Denominator	122,709	166,273	288,982
	Rate	0.9%	1.3%	1.1%
85+	Numerator	223	597	820
	Denominator	39,236	68,379	107,615
	Rate	0.6%	0.9%	0.8%
Total	Numerator	39,519	34,707	74,226
	Denominator	2,591,662	2,820,616	5,412,278
	Rate	1.5%	1.2%	1.4%

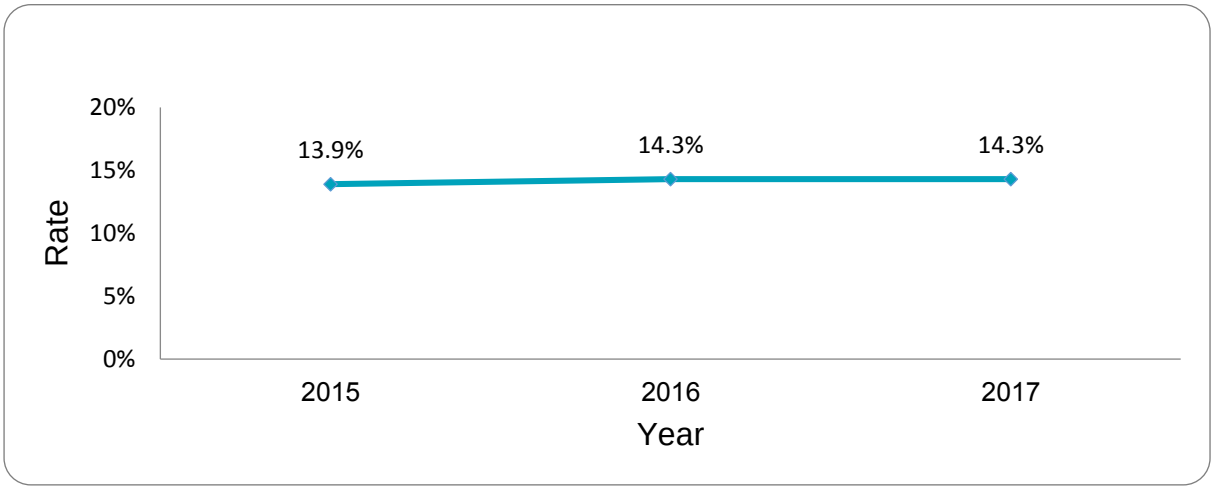
Prevalence of diabetes mellitus in individuals with SMI (ages 18 or older)

Denominator: Individuals with SMI 18 years or older

Numerator: Individuals in the denominator with diabetes according to one or more of the following criteria: (a) Plasma glucose level ≥200 mg% in at least two tests in the year prior to the measurement year (minimal 30-day interval is required between tests); (b) HbA1c ≥6.5% at least once in the year prior to the measurement year; (c) at least three prescriptions of diabetes medications being dispensed during the year prior to the measurement year.

Key results: The prevalence of diabetes mellitus in adults with SMI (ages 18 or older) was 14.3% in 2017, 1.5 fold higher compared to the prevalence of this condition in the general adult population that year (9.7%). The rate was higher in women compared to men (15.6% vs. 13.2%). The rate in SEP level 1 (lowest, 14.4%) was higher compared to SEP level 4 (highest, 11.5%).

Prevalence of diabetes mellitus in individuals with SMI by year, 2015-2017



Prevalence of diabetes mellitus in individuals with SMI by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of diabetes mellitus in individuals with SMI by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	23	16	39
	Denominator	3,115	1,723	4,838
	Rate	0.7%	0.9%	0.8%
25-34	Numerator	164	127	291
	Denominator	8,017	4,873	12,890
	Rate	2.0%	2.6%	2.3%
35-44	Numerator	600	393	993
	Denominator	9,274	6,615	15,889
	Rate	6.5%	5.9%	6.2%
45-54	Numerator	1,280	977	2,257
	Denominator	7,792	6,877	14,669
	Rate	16.4%	14.2%	15.4%
55-64	Numerator	1,586	1,680	3,266
	Denominator	6,170	7,024	13,194
	Rate	25.7%	23.9%	24.8%
65-74	Numerator	1,138	1,420	2,558
	Denominator	3,517	4,602	8,119
	Rate	32.4%	30.9%	31.5%
75-84	Numerator	316	654	970
	Denominator	1,113	2,187	3,300
	Rate	28.4%	29.9%	29.4%
85+	Numerator	58	127	185
	Denominator	223	597	820
	Rate	26.0%	21.3%	22.6%
Total	Numerator	5,165	5,394	10,559
	Denominator	39,221	34,498	73,719
	Rate	13.2%	15.6%	14.3%

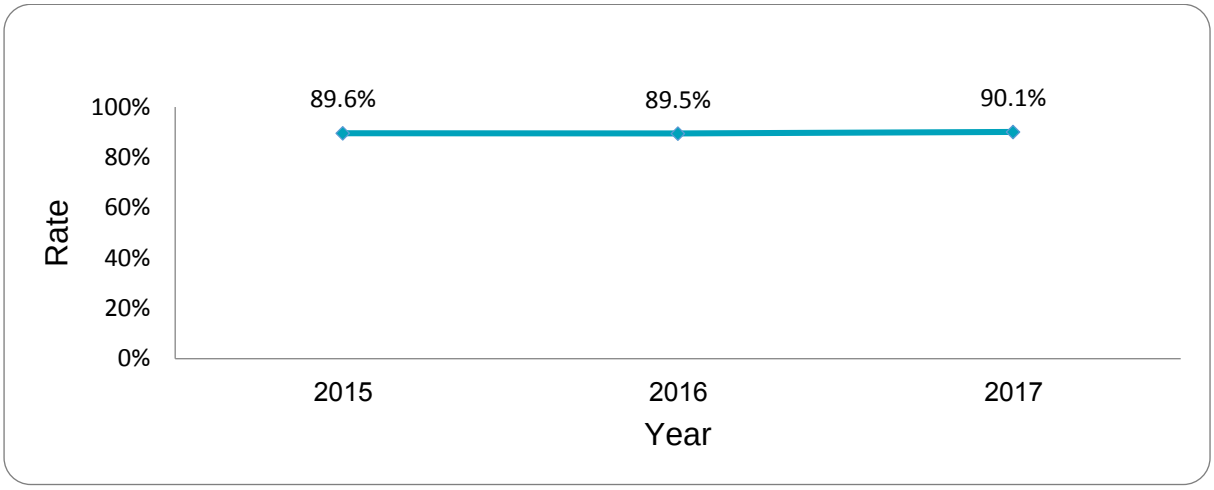
Documentation of hemoglobin A1c (HbA1c) levels in individuals with SMI and diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18 years or older with SMI and diabetes (see "prevalence of diabetes in persons with SMI" for definition)

Numerator: Individuals in the denominator who had at least one documentation of HbA1c-levels in the measurement year

Key results: Documentation of HbA1c-level in adults with SMI and diabetes mellitus (ages 18 or older) was performed for 90.1% of individuals during 2017, similar to the rate for diabetics in the general population (90.9% in 2017). The rate was slightly higher in women compared to men (91.6% vs. 88.7%). The rate was similar across all SEP levels.

Documentation of hemoglobin A1c levels individuals with SMI and diabetes by year, 2015-2017



Documentation of hemoglobin A1c levels individuals with SMI and diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of hemoglobin A1c levels individuals with SMI and diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	21	15	36
	Denominator	23	16	39
	Rate	91.3%	93.8%	92.3%
25-34	Numerator	134	104	238
	Denominator	164	127	291
	Rate	81.7%	81.9%	81.8%
35-44	Numerator	502	352	854
	Denominator	600	393	993
	Rate	83.7%	89.6%	86.0%
45-54	Numerator	1,113	889	2,002
	Denominator	1,280	977	2,257
	Rate	87.0%	91.0%	88.7%
55-64	Numerator	1,413	1,537	2,950
	Denominator	1,586	1,680	3,266
	Rate	89.1%	91.5%	90.3%
65-74	Numerator	1,052	1,336	2,388
	Denominator	1,138	1,420	2,558
	Rate	92.4%	94.1%	93.4%
75-84	Numerator	289	599	888
	Denominator	316	654	970
	Rate	91.5%	91.6%	91.5%
85+	Numerator	55	107	162
	Denominator	58	127	185
	Rate	94.8%	84.3%	87.6%
Total	Numerator	4,579	4,939	9,518
	Denominator	5,165	5,394	10,559
	Rate	88.7%	91.6%	90.1%

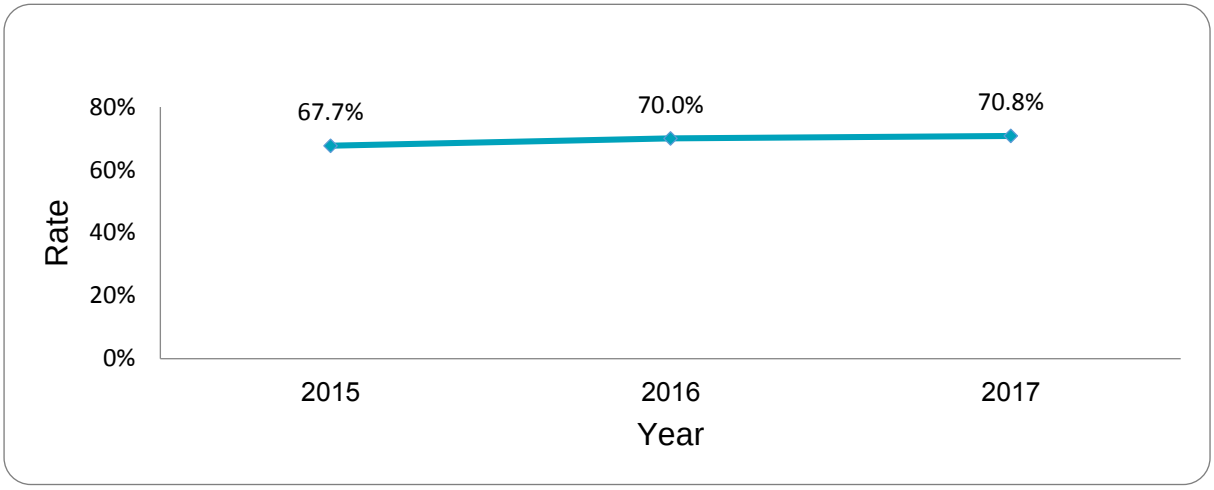
Adequate control of HbA1c in individuals with SMI and diabetes mellitus (ages 18-84 years)

Denominator: Individuals 18-84 years old with SMI and diabetes mellitus who had at least one documentation of HbA1c-levels in the measurement year

Numerator: Individuals in the denominator achieving glycemic control, according to their last hemoglobin A1c level in the measurement year: ≤7% among 18-74 years-old patients who were diabetics for less than 10 years; ≤8% among 18-74 years-old patients who were diabetics for at least 10 years; ≤8% among 75-84 years-old patients.

Key results: Adequate control of HbA1c in individuals with SMI and diabetes mellitus (ages 18-84 years) was achieved for 70.8% of this population in 2017, similar to the rate for diabetics in the general population (69.7% in 2017). The rate was slightly higher in women compared to men (72.3% vs. 69.2%). The rate in SEP level 1 (lowest, 64.0%) was lower compared to SEP level 4 (highest, 76.7%). A direct association between diabetes control and SEP is observed in the general diabetics population as well, with a slightly stronger gap between SEP levels (with a 1.34-fold higher rate in SEP level 4 compared to SEP level 1 in the general diabetics population, and a 1.20-fold higher rate in SEP level 4 compared to SEP level 1 in individuals with SMI and diabetes). The rate of controlled diabetes increased with increasing age.

Adequate control of hemoglobin A1c levels in individuals with SMI and diabetes by year, 2015-2017



Adequate control of hemoglobin A1c levels in individuals with SMI and diabetes by socio-economic position (1-lowest, 4-highest) and sex, 2017

Adequate control of hemoglobin A1c levels in individuals with SMI and diabetes by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	12	13	25
	Denominator	21	15	36
	Rate	57.1%	86.7%	69.4%
25-34	Numerator	88	73	161
	Denominator	134	104	238
	Rate	65.7%	70.2%	67.6%
35-44	Numerator	294	236	530
	Denominator	502	352	854
	Rate	58.6%	67.0%	62.1%
45-54	Numerator	706	555	1,261
	Denominator	1,113	889	2,002
	Rate	63.4%	62.4%	63.0%
55-64	Numerator	985	1,062	2,047
	Denominator	1,413	1,537	2,950
	Rate	69.7%	69.1%	69.4%
65-74	Numerator	785	1,029	1,814
	Denominator	1,049	1,332	2,381
	Rate	74.8%	77.3%	76.2%
75-84	Numerator	259	521	780
	Denominator	289	596	885
	Rate	89.6%	87.4%	88.1%
Total	Numerator	3,129	3,489	6,618
	Denominator	4,521	4,825	9,346
	Rate	69.2%	72.3%	70.8%

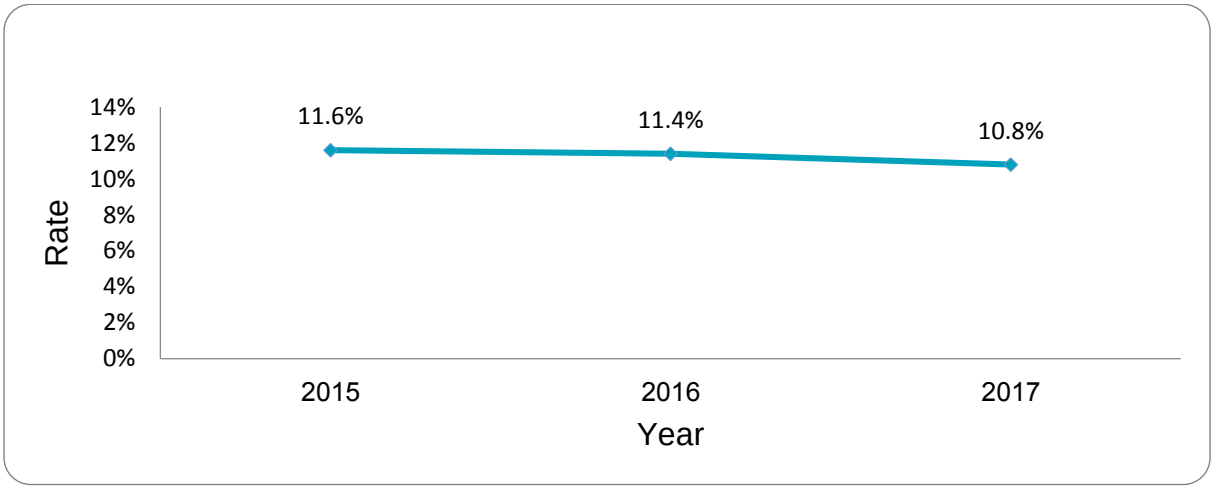
Uncontrolled diabetes: HbA1c greater than 9% in individuals with SMI and diabetes mellitus (ages 18 years or older)

Denominator: Individuals 18-84 years old with diabetes who had at least one documentation of HbA1c-levels in the measurement year

Numerator: Individuals in the denominator with uncontrolled diabetes (HbA1c greater than 9%)

Key results: The rate of uncontrolled diabetes among diabetics aged 18 and older (HbA1c >9%) was 10.8% in 2017, similar to the rate for diabetics in the general population (69.7% in 2017). The rate was slightly lower in women compared to men (10.5% vs. 11.2%). The rate in SEP level 1 (lowest, 14.9%) was 1.8 times higher compared to SEP level 4 (highest, 8.2%).

Uncontrolled diabetes in individuals with SMI: HbA1c greater than 9% by year, 2015-2017



Uncontrolled diabetes in individuals with SMI: HbA1c greater than 9% by socio-economic position (1-lowest, 4-highest) and sex, 2017

Uncontrolled diabetes in individuals with SMI: HbA1c greater than 9% by age and sex, 2017

		Sex		
		Male	Female	Total
18-24	Numerator	4	0	4
	Denominator	21	15	36
	Rate	19.0%	0.0%	11.1%
25-34	Numerator	28	11	39
	Denominator	134	104	238
	Rate	20.9%	10.6%	16.4%
35-44	Numerator	98	43	141
	Denominator	502	352	854
	Rate	19.5%	12.2%	16.5%
45-54	Numerator	147	141	288
	Denominator	1,113	889	2,002
	Rate	13.2%	15.9%	14.4%
55-64	Numerator	139	189	328
	Denominator	1,413	1,537	2,950
	Rate	9.8%	12.3%	11.1%
65-74	Numerator	79	90	169
	Denominator	1,052	1,336	2,388
	Rate	7.5%	6.7%	7.1%
75-84	Numerator	11	42	53
	Denominator	289	599	888
	Rate	3.8%	7.0%	6.0%
85+	Numerator	5	5	10
	Denominator	55	107	162
	Rate	9.1%	4.7%	6.2%
Total	Numerator	511	521	1,032
	Denominator	4,579	4,939	9,518
	Rate	11.2%	10.5%	10.8%

Documentation of body mass index (BMI) components in adults with SMI (ages 20-64 years)

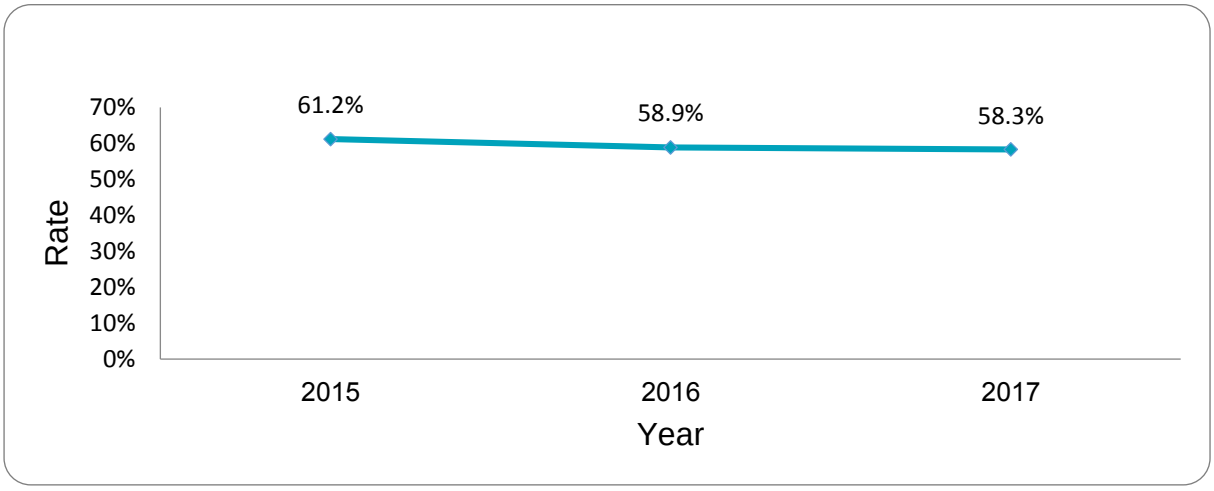
Denominator: Individuals with SMI, 20-64 years old

Numerator: Individuals in the denominator who had their height and weight documented (height at least once after the age of 18 years and weight in the previous year)

Key results: The documentation rate of BMI components in adults with SMI (ages 20-64 years) was 58.3% in 2017. The documentation rate was slightly higher for women compared to men (63.7% vs. 54.0%). The rate in SEP level 1 (lowest, 58.9%) was slightly higher compared to SEP level 4 (highest, 56.2%).

Note that this rate is not comparable to BMI documentation in the general adult population where weight documentation in the last five years is measured.

Documentation of BMI in adults with SMI by year, 2015-2017



Documentation of BMI in adults with SMI by socio-economic position (1-lowest, 4-highest) and sex, 2017

Documentation of BMI in adults with SMI by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	851	573	1,424
	Denominator	2,477	1,359	3,836
	Rate	34.4%	42.2%	37.1%
25-34	Numerator	3,477	2,685	6,162
	Denominator	8,099	4,920	13,019
	Rate	42.9%	54.6%	47.3%
35-44	Numerator	4,653	4,031	8,684
	Denominator	9,337	6,662	15,999
	Rate	49.8%	60.5%	54.3%
45-54	Numerator	4,859	4,511	9,370
	Denominator	7,846	6,910	14,756
	Rate	61.9%	65.3%	63.5%
55-64	Numerator	4,253	4,968	9,221
	Denominator	5,728	6,468	12,196
	Rate	74.2%	76.8%	75.6%
Total	Numerator	18,093	16,768	34,861
	Denominator	33,487	26,319	59,806
	Rate	54.0%	63.7%	58.3%

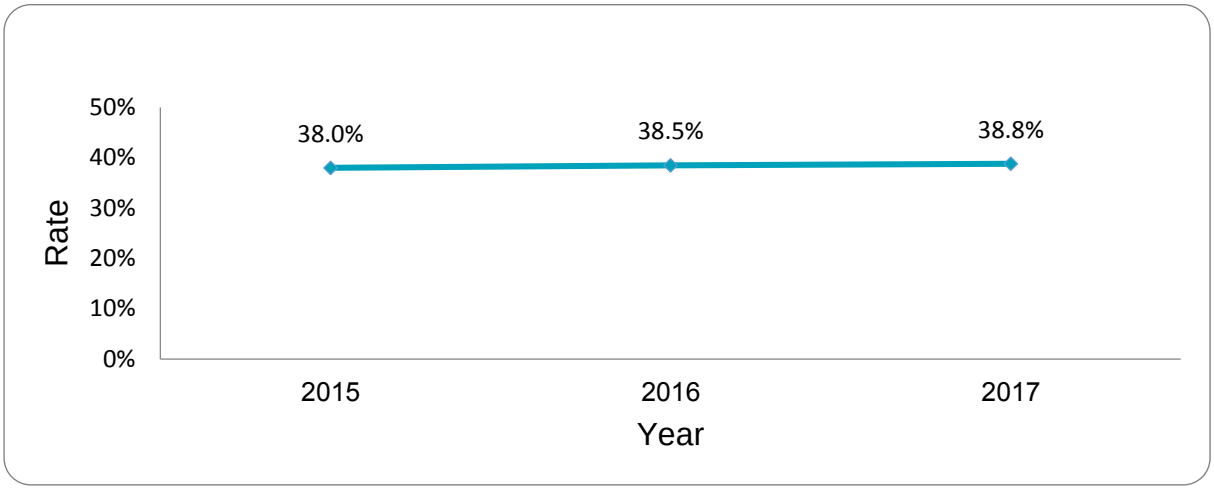
Prevalence of obesity among adults (ages 20-64 years)

Denominator: Individuals 20-64 years old with SMI and documented BMI components

Numerator: Individuals in the denominator who were obese (BMI ≥30 Kg/m^2)

Key results: The prevalence of obesity among adults with SMI (ages 20-64 years) was 38.8% in 2017. This rate is 1.7 times higher compared the rate in general population (23.3% in 2017). The rate was higher for women compared to men (42.8% vs. 35.1%). The rate in SEP level 1 (lowest, 43.8%) was higher compared to SEP level 4 (highest, 30.6%). In addition, the rates increased with age. These relations between the prevalence of obesity to sex, age, and SEP in this population are similar to those observed in the general population.

Prevalence of obesity among adults with SMI by year 2015-2017



Prevalence of obesity among adults with SMI by socio-economic position (1-lowest, 4-highest) and sex, 2017

Prevalence of obesity among adults with SMI by age and sex, 2017

		Sex		
		Male	Female	Total
20-24	Numerator	236	173	409
	Denominator	851	573	1,424
	Rate	27.7%	30.2%	28.7%
25-34	Numerator	1,106	926	2,032
	Denominator	3,477	2,685	6,162
	Rate	31.8%	34.5%	33.0%
35-44	Numerator	1,727	1,683	3,410
	Denominator	4,653	4,031	8,684
	Rate	37.1%	41.8%	39.3%
45-54	Numerator	1,840	2,174	4,014
	Denominator	4,859	4,511	9,370
	Rate	37.9%	48.2%	42.8%
55-64	Numerator	1,450	2,220	3,670
	Denominator	4,253	4,968	9,221
	Rate	34.1%	44.7%	39.8%
Total	Numerator	6,359	7,176	13,535
	Denominator	18,093	16,768	34,861
	Rate	35.1%	42.8%	38.8%