

Medical Audit

“Strengthening the management of diabetes and hypertension in primary health care in Georgia” to implement the model of integrated approach to primary care at the National Family Medicine Training Center

March-July, 2024

NCDs have a widespread and disproportionate impact on Georgian citizens. NCDs are estimated to account for a staggering 94% of all deaths across the country - equivalent to more than 53,000 in 2016 alone. The impact of NCDs is particularly stark for deaths that are considered ‘premature’, with 34.9% of men and 15.9% of women at risk of dying from an NCD before the age of 70. One reason for the marked divide in deaths among men, is their increased exposure to NCD risk factors, with more than half (54%) of adult men estimated to be current tobacco smokers, and this group on average consuming six times as much alcohol as women (18 litres of pure alcohol to 3 litres, respectively).

This disparity also reflects wider trends across WHO’s European region, where the main driver of inequality in premature death from NCDs between the eastern and western parts of the region is excess deaths from cardiovascular disease among men.

Against these health outcomes, in 2013 Georgia introduced a universal health coverage programme to increase population entitlement to a package of state-funded benefits.

The Non-Communicable Diseases (NCDs), Integrated Prevention and Control Programme, at the WHO Regional Office for Europe, in coordination with WHO headquarters, is implementing an initiative aimed at strengthening country capacities to accelerate progress in the implementation of WHO NCD “best buys” for better management of CVD and diabetes through an integrated primary health care approach. The initiative is funded by the Government of Denmark.

Georgia has been selected as a recipient country given its endeavours towards universal health coverage (UHC) and its prioritization in the context of the Danish Neighbourhood Programme-DANEP, and the EU-funded UHC-Partnership. This conjuncture increases the synergies to advance reforms’ implementation.

More recently, Georgia has accelerated the reforms by strengthening health services delivered by primary care professionals, including the management of NCDs. MoH plans to Introduce performance related payments for good diabetes/NCD prevention, treatment and care for stimulating greater integration of diabetes/CVD management into primary care program. In addition to basic financing, family doctors and nurses shall receive additional capitation financing for managing priority health care conditions such as diabetes, cardiovascular diseases and hypertension and other NCD conditions including cardio-vascular and

diabetes risk stratification, monitoring for patients, BP measurement, dyslipidemia screening, ECG, Hb1ac and fasting glucose test, BMI and waist circumference, nephropathy screening, and behavioral risk assessment and healthy lifestyle counseling, brief interventions and supporting patients in making behavioral changes conditions, counselling the patients to improve coping strategies, active self-care (including better support from family members), and treatment compliance.

All health professionals had feelings that they provide highest quality services and in reality it must be the high quality which means providing evidence-based, person-centered services including prevention, treatment, and management of acute and long-term conditions such as diabetes, CVD, hypertension etc.

Thanks to a grant from the Danish Government in 2020 ("Feasibility study of integrated prevention and control of non-communicable diseases in Georgia"), we could answer one simple question: how patients with diabetes are managed in primary care settings in Georgia?

The study aimed to assess the feasibility of implementing an approach (toolkit) that relies on routine clinical data to assess essential NCD-related services provided in primary health care; specifically, for the management of diabetes and hypertension.

Great experience and practical skills we've gained from the first feasibility study in 2020 to describe patterns in how high-risk patients were identified, managed and followed-up.

These findings indicated that primary care providers in Georgia have good potential to effectively manage patients with diabetes at outpatient settings. However, gaps in delivering integrated community care for NCDs still high.

The results of the first Danep project supported us to promote lots of activities within the second project related to quality of NCDs including another medical audit independently in July-September 2021, again with the financial support of WHO.

The implementing institution of both projects - in 2020 and 2021 was the National Family Medicine Training Centre.

Based on random sampling, pre-specified data was extracted from individual records of 1000 patients, placed in standardized forms and information was analyzed. The research team described how high-risk patients were identified, managed, and followed up in PHC over a predetermined period of time.

Several helpful insights were found that could improve how diabetes care is delivered in Georgia. As some key takeaways:

- Most patients (87%) with NCDs are diagnosed and managed by primary care professionals without the need of been referred to a specialist.

- Some risk factors for NCDs are well-captured in the medical records - around two-thirds of records had a person's smoking status and BMI recorded.
- Among diabetic patients, blood pressure was measured regularly, but dedicated efforts to control it need to be improved.
- Despite risk scores were not estimated, these can be worked out by using WHO guidance to identify patients most at risk of heart disease. This is important as the analysis found that one-third of patients are at high risk of CVD and diabetes.
- Most diabetes patients (72%) had tablets prescribed, insulin was prescribed to 21% of the patients, and 4% received both tablets and insulin. Prescription of tables was more common among women and insulin more common among men.

In 2021, on the basis of cooperation with WHO, various activities related to hypertension and diabetes were carried out in PHC, e.g. Developing/updating guidelines/protocols/pathways, conducting accredited multidisciplinary trainings, identifying key and achievable indicators, supervising clinical audits in selected clinics in different regions of Georgia, etc.

The 2020-2021 covid-pandemic greatly disrupted face-to-face visits with patients, thereby damaging non-communicable disease management processes and lowering the quality of services, however, at the same time, it promoted the use of telemedicine and its further development, which became a strategic task of the state and continued in the following years.

On the one hand, remote visits have facilitated access to PHC services, however, on the other hand, the reduction of face-to-face patient visits has had a somewhat negative impact on the quality of service. However, by 2023, the institution managed to renew the activities of the preventive department, which was virtually non-functional during the pandemic, and the trained personnel working in prevention also left the institutio

In 2023, with the support of the state and donor projects, the guidelines/protocols/pathways for the management of non-communicable diseases common in primary health care were updated and approved, in which the "Georgia Family Medicine Association" and family doctors of the "National Family Medicine Training Center" also took an active part.

Based on the above, on the initiative of the company's personnel, it was decided to be back to the clinical audit cycle and continue its use, for the purpose of continuous quality improvement and preparation for PHC reform.

Goal:

Strengthening the management of diabetes and hypertension based on integrated care model in Georgia primary health care.

Objectives:

1. Early diagnosis of diseases of the cardiovascular system, arterial hypertension and diabetes and risk assessment of complications.
2. Management, treatment and follow-up of the mentioned diseases, in accordance with "best practices" and approved standards in the country.
3. Timely referral of the patient to the appropriate specialist.
4. A comparative analysis of the services provided in 2019 and 2023 years

Target population

Beneficiaries of the UHC state program (planned outpatient component), who received services in 2023 at the LLC "National Family Medicine Training Center".

For data collecting were selected 9 PHC teams working in NFMTTC.

Data collecting period

January 1, 2023 – January 1, 2024

Data collecting methodology

Collecting randomly selected data through the manual review of individual patient records, extracting the specified data and logging data collected in standardized forms.

The first step was to create two list of patients:

1. Adults aged 40 or older who visited clinic in the last year;
2. Adults aged 18 or older with diabetes who have visited clinic in the last year.

The second step was the random selection.

Method that we used to randomly select rows of data in Excel:

- Create a new column
- In the new column, for every row, use the formula “=RAND()”. This gave us a random number between 0 and 1.
- Then every row of data had a random number.
- Sorted the data by the random numbers we generated from smallest to largest.
- Once sorted by random number, we selected the first 720 patient IDs (the sample size was 540 for general sample and 108 for the diabetic sample but we needed to provide the team with some extras).

Results of Excel register random sampling are presented below.

The list of visits from January 1, 2023 to January 1 - A general population sample selected from 2023 visits for each Family Doctor was prepared according to PHC teams - 60 patients per FP and Using the diabetes register, a list of 10 patients with T2 diabetes was selected for each district.

Table 1. Distribution of required Medical charts based on condition and District (PHC team)

Selection criterias	Target age	PHC teams	N of Randomly selected samples
type 2 diabetes	Above 18 years	9 PHC team	108
General population	Above 40 years	9 PHC team	540

In the process of the audit, in which 10 PHC teams participated, one family doctor involved in the study left the clinic, which is why it was decided to continue the study to evaluate the quality of services provided by 9 PHC teams, since one of the objective of conducting the mentioned medical audit is also to assess/self-evaluate own practice/behavior.

The sample of the general population was selected from the patient visit registration logs, where 50,740 visits to the family doctor of 13,654 patients were registered in the period 01.01.2023-31.12.2023 (note: In 2023-2024, 1400 patients who made 4,274 visits to the family doctor in 2023, were removed from the list); 6580 patients over the age of 40 were randomly selected from the list of 13654 patients, who remained on the list of those registered with a family doctor as a beneficiary of the universal health care program by March 1, 2024.

during the year 2023 the average number of registered patients was 28,000 beneficiaries); And the T2 diabetes sample was made from the registry of patients with T2 diabetes (910 patients) visited to the doctor in 2023. See the table below for details:

Table 2. Excel random sampling results of the registers of selected PHC teams

<i>PHC team</i>	<i>General population >40</i>	T2 diabetes
PHC 1 - MB	916	115
PHC 2 - LG	637	57
PHC 3 - EG	822	119
PHC 4 - NG	856	111
PHC 5 - NK	535	95

PHC 6 - VK	525	88
PHC 7 - NL	596	63
PHC 8 - IM	649	80
PHC 9 - IC	539	73
PHC 10 – NJ	505	109
total	6580	910

Service quality measurement - indicators

Data elements and a list of process and outcome indicators, that could be measured at the facility individual PHC team levels, to assess the quality of services provided by family physicians and compliance with the requirements of the approved protocols were pre-defined.

In order to select the proper criterias/indicators, a review of newly approved protocols/guidelines by the Minister of Health and international serious literary sources was carried out.

Establishing evidence-based criteria/standards and developing criteria (structure, process/outcome) followed serious discussions with physicians and other team members.

The framework of the set of indicators was based on the indicators determined in the framework of the "Feasibility study of integrated prevention and control of non-communicable diseases in Georgia" carried out by WHO in 2020-2021 (financed by the Danish government and the European Union), and certain indicators were added in accordance with the requirements of the newly approved protocols.

Data collection was performed retrospectively, by extracting predetermined data from individual patient medical records and recording data collected on standardized forms.

10 data collectors – Family Physitians attended a two-hour training course to collect data and identify data sources.

Using the above described methodology, we randomly selected and reviewed about 648 charts. Once the chart was found, we checked it to make sure the patient meets the inclusion criteria. If they met the inclusion criteria, we continued to the next step; if they did not, we put the chart back and selected the next chart from the random chart selection list.

To ensure that we have enough charts to conduct the review during randomization process we extracted more charts that met eligibility criteria.

At the Family Medicine National Training Center specifically assigned person was always available who ensured distribution of charts and clarification of different issues aroused during data collection process.

Drop out reasons were as follows:

- Could not find chart defined by the randomization process;
- There was not documented record during the sampling timeframe, despite the visit was fixed in the Excel register;
- The visit was performed only for pick-up prescription;
- The visit was performed by the relative of the patient;
- Duplicate data, when the patient had two records and one of them was already reviewed;
- The visit was performed only for administrative procedure like taking reference for Social Service Agency
- etc.

For easy reach in case of need we kept random numbers of selected charts in additional row of data extraction Excel sheet.

Chart review process was conducted at the National Family Medicine Training Centre. To ensure standard process of data extraction data collectors conducted regular meetings every day at the beginning of extraction process.

Periodically extracted data was double checked by different data collectors to ensure quality of retrieved data.

Note

In order to assess the quality of diabetes and cardiovascular disease management at the local level, medical records of a total of 540 patients in the general population and a total of 108 patients in the type 2 diabetes sample were reviewed.

In order to better understand family physician practice, it was decided that it would be useful to compare family physician attitudes and practice based on the medical records of the company's 9 PHC teams (1 family physician dropped out of the audit process due to illness).

Clinical audit was also given a particularly high educational value - in the process of setting criteria and standards, literature searches were conducted, data elements and their sources were discussed, regular review of current results, assessment of own and colleague's records, calculators were used in all missed cases - BMI, eGFR, various cardiovascular risk assessment tools (ESC, WHO/ISH EUR B, Framingham, Score, Q-

risk), etc., which is presented in the reports as an activity carried out during the non-reporting period.

The mentioned audit had a motivational/encouraging load and the results were also very impressive.

Results of data analysis

Statistical processing of the collected data was carried out, after which the results were analyzed again, with the active participation of all 9 PHC team members. Frequent and long meetings during the audit process helped to achieve a shared understanding within the multidisciplinary teams.

The results of the 2019-2020 audits were reviewed again, as well as the structure of indicators and data elements to be added based on the updated protocols for cardiovascular diseases and type 2 diabetes in 2023, which are presented in the form of appendices.

General dataset

All patients (Table 1A, 1B)

The general dataset contained 540 patients who had visited the primary health care facilities in the last year.

The obtained data were compared with the results of the study carried out within the framework of the WHO/Denmark project (reporting period 2019).

<u>Demographic characteristic of patients</u>	<u>PHC teams</u>			
	<u>General sample</u>		<u>min</u>	<u>max</u>
<u>gender/age</u>	<u>2019</u>	<u>2023</u>	<u>2023</u>	<u>2023</u>
Female, % (n/N)	67.1(167/249)	77.8(420/540)	65%	85%
Male % (n/N)	32.9(82/249)	22.2(120/540)	15%	35%
Age, median (IQR)	65(54-75)	68(40-91)	64 \bar{v}	72 \bar{v}
18-39 years, % (n/N)	0.0(0/249)	0.0(0/540)	0%	0%
40-49 years, % (n/N)	15.3(38/249)	5.4(29/540)	0%	8.3%
50-59 years, % (n/N)	22.5(56/249)	13.5(73/540)	6.7%	30%
60-69 years, % (n/N)	24.5(61/249)	35.2(190/540)	25%	45%
70-79 years, % (n/N)	25.3(63/249)	37.8(204/540)	23.3%	48.3%
80+ years, % (n/N)	12.4 (31/249)	8.1(44/540)	0%	16.7%

The demographic characteristics are as follows:

- The median age was 65 years in 2019 and 68 years in 2023;
- The proportion of women was 67.1% in 2019 and 77.8% in 2023 (Table 1A).

The presented data are different according to PHC teams, in terms of age and gender. Detailed data for 2023 can be found in the appendix - Table 1B, from which it is found that the median age of the clinic is 65 years, the highest median age in the general population is 72 years, observed in PHC 1 - MB, and the lowest - 64 years is observed in PHC 9 - IC – (Table 1B).

All patients – Risk factors (table 2A, 2B)

Smoking status was recorded for about 61% of the patients in the general dataset (Table 3A) in 2019, and 86.1% in 2023; In diabetic sample smoking status was recorded for about 65.5% of the patients in 2019 and 89.9% in 2023 (Table 3A);

Overall, 3.7% of women and 22% of men with information on smoking were smokers in 2019 and accordingly 7.9% and 29.2% - in 2023 (Table 2A).

There were differences in the recording between the PHC teams – the lowest rate 1.7% was recorded in PHC 1 – MB; PHC 4 – NG; PHC 8 – IM and the highest 25% in PHC 3 – EG and in PHC 9 – IC 61% (Table 3B).

According to STEPS2016, in the adult population, about 34% of men and 7% of women are smokers. In the age category 60-69 years, still 19% of men and 4% of women smoke.

The distribution of risk factors for 2019-2023 is presented below and in appendix (**Table 2A**):

Risk Factors	2019	2023	2023	2023
General dataset			min	max
Current smoker, % (n/N)*	10.7(28/262)	12.6(68/540)	1.7%	25%
Female (n/N)*	3.7(6/162)	7,9(33/420)	NA	NA
Male (n/N)*	22(22/100)	29,2(35/120)	NA	NA
Non smoker, % (n/N) **	91,8(138/152)	87,4(472/540)	75%	98.3%
Hypertension, % (n/N)	65.9(164/249)	77.2(417/540)	55%	100%
Diabetes, % (n/N)	11.6(29/249)	11.3(61/540)	5%	23.3%
Hystory of CVD, % (n/N)	21.7(54/249)	26.7(144/540)	10%	65%
SBP, mean ± SD	127.0 ± 13.8	128,4 ± 12,7	125,9 ±8,6	130,7 ±12,7
DBP, mean ± SD	77.4 ± 7.1	76,8 ± 8,1	76,0±4,6	78,7±9,5
FG, mean ± SD	5.9 ± 2.9	5.5± 1.7	5,4±0,1	8,6±4,2
TC, mean ± SD	5.3 ± 1.2	5.2 ± 1.19	195,3±10,9	233,9±21,6
BMI, mean ± SD	27.7 ± 5.4	29.0 ± 5.1	27.2± 3.3	32.2± 5.1

The difference is remarkably high in the general population - history of CVD – 65% - in PHC 2 LG and the lowest 10% - in PHC 5 NK and PHC 7 – NL.

Process and outcomes (Table 3A, 3B; Table 5A, 5B)

Process and outcomes were assessed in general sample (**Table 3A, 3B**), It was also evaluated separately in patients with hypertension and other cardiovascular diseases_(**Table 5A, 5B**).

Compared to 2019, new indicators were added in 2023: creatinine/eGFR/microalbuminuria testing, date of diagnosis of hypertension/diabetes, assessment of peripheral vascular complications, funduscopy, etc.

By 2023, there are very significant, positive changes in the measurement results of process indicators, compared to 2019.

More specifically, in a study of a general population sample, it was found that there are significantly increased records of smoking and body mass index, more frequent blood pressure measurements, significantly increased lipid profile studies, sugar/glycated hemoglobin, and cardiovascular risk assessment rates.

The prevalence of obesity has been reduced slightly, but still.

However, the number of patients with normal blood pressure (SBP/DBP < 140/90 mmHg) has decreased, which is explained by the fact that the detection of hypertension/cardiovascular diseases has significantly increased and the increase in the number of patients in the age group of 60-79 years was - 22.5%.

Total cholesterol is controlled (TC < 194mg/dl) - in 38.3%. If we compare the mentioned data with the data of the best European countries, our outcomes is not alarming. Eg: The most comprehensive cholesterol survey ever conducted in the UK found that 54% of population may have high cholesterol levels. Public Health England states that 60% of adults in England have high cholesterol, while access to high-quality dyslipidemia management medications (including drugs with greater efficacy in reducing LDL cholesterol levels and/or the combination of Ezetimibe and Statin) is not limited, while in Georgia only atorvastatin is available, which is It complicates the adequate management of the situation.

Regarding the variability between PHC teams, detailed data can be found in the appendix (**Table 3B**), from which it is revealed that the lowest rate in the general population - smoking status is indicated - 1.7% - PHC 4 - NG, and the highest - 100% - PHC 3 - EG; PHC 5 – NK; PHC 7 – NL.

General dataset (Table 3A, 3B)

Process and outcome indicators	2019	2023	min	max
Smoking status recorded	61(152/249)	86.1(465/540)	1.7%	100%
BP measured once during the last year	84.3(210/249)	95,4(515/540)	75%	100%
BP measured twice during the last year	41.4(103/249)	67,4(364/540)	31.7%	96.7%
HbA1c tested	1.6(4/249)	7,0(38/540)	0%	15%
Fasting glucose tested	27.7(69/249)	77,6(419/540)	27%	98.3%
Total cholesterol tested	18.5(46/249)	85,7(463/540)	45%	100%
LDL cholesterol tested	3.6 (9/249)	39,4(213/540)	6.7%	61.7%
BMI recorded by health care professionals	45(112/249)	77(416/540)	5%	100%
BMI calculated for the analysis	47(117/249)	0,0(0/540)	NA	NA
Obese (BMI \geq 30 kg/m ²)	29.9(35/117)	28,3(153/540)	3.3%	51.7%
Risk score recorded by health care professionals	0.0(9/249)	25,0(135/540)	0%	80%
WHO/ISH risk score calculated	85.1(212/249)	73,3(396/540)	46.7%	100%
CVD risks assessed, including				
low risks	NA	24,1(128/531)	5%	51.9%
Moderate risks	NA	23,5(125/531)	1.9%	33.3%
High risks, including	85.1(212/249)	52,4(278/531)	41.7%	70%
High risks	40.1(85/212)	39,9(111/278)	4.7%	72%
High risks + CVD	26/4(56/212)	44,3(123/278)	15.8%	90.5%
High risks +CVD + DM	33.5 (71/212)	15,8(44/278)	4.8%	50%
outcome indicators				
BP at normal range (SBP/DBP < 140/90 mmHg)	83.3(175/210)	47,4(256/540)	20%	66.7%
Total cholesterol controlled TC< 194mg/dl	NA	38,3(207/540)	20%	65%
In high-risk patients, LDL (\leq 75 mg/dL at last visit)	NA	0,4(2/540)	0%	3.3%

fasting glucose from - was tested in 77.6% of patients. Again, there were considerable differences in the recording between teams, fasting glucose was most frequently tested 98,3% in PHC 6 – VK, and the lowest rate was 27% - in PHC 9 – IC.

Total cholesterol was tested in average - 85.7%, considerable differences in the recording between teams, the highest rate - 100% - is in PHC 6 – VK, the lowest rate 45% - is in PHC 9 – IC.

Other data are also different, for example: BP normal blood pressure (SBP/DBP < 140/90 mmHg), the highest rate is 66.7% - in PHC 2 - LG, and the lowest is 20% - in PHC 4 - NG (the average rate of the institution is 47.4 %, which is significantly reduced compared to 2019 (the data of 7 doctors is less than the average).

Total cholesterol is controlled (TC<194mg/dl) - the NFMT average is 38.3% (2019 not measured), the highest rate of 65% was observed in the family doctor team - PHC 6 - VK, and the lowest 20% - PHC 9 - IC , the results of 5 family doctors fall below the average.

The mentioned data, average/maximum/minimum data of the institution for the years 2019-2023 according to the teams, can be found in the appendices.

Below, the results of the study in the **general population of patients with hypertension and other cardiovascular diseases** are presented (Table 5A, 5B).

Compared to 2019, the quality of services for patients with hypertension and other cardiovascular diseases has improved significantly.

However, considerable differences of attitudes and practice of physicians are revealed (Table 5B) when examining the process and outcomes of the general population. For example: the highest level of creatinine (µmol/L) in patients with cardiovascular diseases is found in 93.3% - PHC 8 - IM, and the lowest - 20.5% - PHC 2 - LG. Also, the structure of other studies and the practice of the physician/PHC teams are similarly different, which is a separate topic for discussion.

Process and outcome indicators in patients with hypertension and other cardiovascular diseases (Table 5A)

Process and outcome indicators		
General dataset		
patients with other cardiovascular diseases	2023	2019
Smoking status recorded	88,2(127/144)	63,0(34/54)
Current smoker female*	8,0(7/87)	NA
Current smoker male (total)*	30,0(12/40)	NA
BP measured once during the last year	96,5(139/144)	87,0(47/54)
BP measured twice during the last year	79,2(114/144)	48.1(26/54)
Total cholesterol tested	82,6(119/144)	24.1(13/54)
LDL cholesterol tested	41,0(59/144)	7.4(4/54)
Creatinine in blood tested (µmol/L)	59,7(86/144)	NA
eGFR (ml/min/1.73m2) is calculated	38,9(56/144)	NA
eGFR (ml/min/1.73m2) – is calculated in 2024	20,8(30/144)	NA

Testing for microalbuminuria	0,7(1/144)	NA
Check for peripheral pulsation	6,3(9/144)	NA
Brachial Ankle Index (ABI) was determined	0,0 (0/144)	NA
BMI recorded by health care professionals	80,6(116/144)	33.3(18/54)
BMI calculated for the analysis	0,0(0/144)	31.5(17/54)
Obese (BMI \geq 30 kg/m ²)	30,6(44/144)	35.3(6/17)
Statin prescribed	68,8(99/144)	40.7(22/54)
Aspirin/clopidogrel prescribed	83,3(120/144)	48.1(26/54)
Anti-hypertensive drug prescribed	89,6(129/144)	70.4(38/54)
Triple therapy prescribed	55,6(80/144)	27.8(15/54)
outcome indicators		
BP at normal range (SBP/DBP < 140/90 mmHg)	56,9(82/144)	27.7(13/47)
Total cholesterol controlled TC< 194mg/dl	43,1(62/144)	61.5(8/13)
patients with hypertension		
Smoking status recorded	87,8(366/417)	66(108/164)
Current smoker female*	8,4(24/286)	3.3% (4/120)
Current smoker male (total)*	27,8(22/79)	16.9(11/65)
BP measured once during the last year	96,6(403/417)	91.5(150/164)
BP measured twice during the last year	74,3(309/417)	52.4(86/164)
Total cholesterol tested	87,5(365/417)	21.3(35/164)
LDL cholesterol tested	40,0(167/417)	3.7(6/164)
Creatinine in blood tested (μ mol/L)	54,7(228/417)	NA
eGFR (ml/min/1.73m ²) is calculated	25,98(108/417)	NA
eGFR (ml/min/1.73m ²) – is calculated in 2024	28,8(120/417)	NA
Testing for microalbuminuria	0,5(2/417)	NA
Check for peripheral pulsation	7,2(30/417)	NA
Brachial Ankle Index (ABI) was determined	0,2(1/417)	NA
BMI recorded by health care professionals	84,7(353/417)	48.2(79/164)
BMI calculated for the analysis	0,0(0/417)	49.4(81/164)
Obese (BMI \geq 30 kg/m ²)	31,2(130/417)	32.1 (26/81)
Statin prescribed	57,8(241/417)	20.7(34/164)
Aspirin/clopidogrel prescribed	53,7(224/417)	34.1(56/164)
Anti-hypertensive drug prescribed	89,2(372/417)	65.9(108/164)

Triple therapy prescribed	37,2(155/417)	12.2(20/164)
outcome indicators		
BP at normal range (SBP/DBP < 140/90 mmHg)	45,7(203/417)	24(36/150)
In high-risk patients, LDL (\leq 75 mg/dL at last visit)	3,8(16/417)	NA
Total cholesterol controlled TC < 194mg/dl	39,8(166/417)	31.4(11/35)

Diabetic patients - dataset

Demographic characteristic of patients (Table 1A, 1B)

In the type 2 diabetes sample, medical records of 108 patients were reviewed, the results of which are presented as appendices (**Table 1A**).

The obtained data were compared with the results of the study carried out within the framework of the WHO/Denmark project (reporting period 2019) which revealed that:

- In the structure of diabetes sample visits, the average age of patients in 2019 was 67 years, and in 2023 - 70 years;
- According to gender, the visit of women prevails and amounts to 66.3% in 2019, and 69.4% in 2023;
- The presented indicators according to PHC teams, in terms of age and gender, are differed, detailed data for 2023 can be found in the appendix - **Table 1B**; based on which the mean age of the NFMTC is 67 years and the highest mean age is 76 years in PHC 7 – NL and the lowest is 65 years in PHC 4 – NG.

Demographic data for 2019-2023 are presented below:

<u>Demographic characteristic of patients</u>	<u>PHC teams</u>			
	2019	2023	min	max
Diabetes dataset				
gender/age				
Female, % (n/N)	66.3(173/261)	69.4(75/108)	33.3%	91.7%
Male % (n/N)	33.7(88/261)	30.6(33/108)	8.3%	66.7%
Age, median (IQR)	67(59-72)	70(44-87)	65%	76%
18-39 years, % (n/N)	1.1(3/261)	0.0(0/108)	0%	0%
40-49 years, % (n/N)	6.1(16/261)	3.7(4/108)	0%	16.7%
50-59 years, % (n/N)	18(47/261)	10.2(11/108)	0%	16.7%
60-69 years, % (n/N)	36.4(95/261)	31.5(34/108)	8.3%	50%
70-79 years, % (n/N)	29.5(77/261)	46.3(50/108)	25%	75%
80+ years, % (n/N)	8.8(23/261)	8.3(9/108)	0%	16.7%

Process and outcome indicators of diabetic patients (Table 4A, 4B, 4C, 4D).

Process and outcome indicators of diabetic patients, were evaluated in patients with type 2 diabetes in both samples (**Table 4A, 4B**) and in a separate sample (**Table 4C, 4D**).

When reviewing the results of the diabetes data set for 2023, there are also very significant, positive changes in the results of measuring process indicators compared to 2019.

Compared to 2019, new indicators were added in 2023:

- Creatinine/eGFR testing
- Testing for microalbuminuria
- The date of diagnosis of hypertension/diabetes is indicated
- The risk of hypoglycemia was assessed
- Neuropathic complications were assessed
- Peripheral vascular complications were assessed
- Fundoscopy
- Other complications.

Improvements in service quality, more specifically in the T2 diabetes sample study, clearly showed that:

- The smoking status in the diabetes sample was indicated - 65.5% in 2019 and 89.9% in 2023 (**Table 3A**).

Significantly increased the number of the patients had a recorded smoking status - the number of smokers in the diabetes sample in 2023 has significantly increased and is 19.4%, which indicates an increase in its detection as a result of the assessment of the smoking status - in 2019.

It should be noted that according to STEPS2016, in the adult population, about 34% of men and 7% of women are smokers. In the age category 60-69 years, still 19% of men and 4% of women smoke

- The number of BMI recorded by health care professionals is significantly increased
- Blood pressure is measured more often (indicators of pressure measurement and measurement frequency are increased)
- Lipid profile/ glucose/glycated hemoglobin studies are significantly increased
- Increased rate of cardiovascular risk assessment
- The prevalence of obesity is reduced
- The results of hypertension management/ The pressure control rate etc. are improved
- Improved the Cholesterol control data
- The quality of preventive treatment of accompanying cardiovascular diseases is significantly improved, which significantly affects the reduction of complications.
- Higher age in patients visits, and the increase at the age of 69-79, was up to 17%.

However, there is very low data on the activities in order to detect target organ damage in time (testing for microalbuminuria, checking the peripheral pulsation, examining the brachial ankle index (ABI), evaluating foot problems, evaluating for neuropathy, determining the risk of hypoglycemia, etc.) .

Compared to 2019, the rate of referral to an endocrinologist increased from 12.8% to 32% (**Table 4A**), which is mainly the result of referral data to an endocrinologist from 2 teams - up to 79% in PHC 5 - NK and up to 71% in PHC 7 - NL (**Table 4B**).

The rate of fundoscopy is particularly low, which requires considerable attention.

Regarding the differences between the PHC teams, detailed data is presented in the appendix (**Table 4B**), which shows that the lowest rate of the diabetes sample - smoking status indicated is 50% - PHC 4 - NG, and the highest - 100% - PHC 3 - EG ; PHC 5 – NK; PHC 6 – VK; PHC 7 – NL. PHC 9 – IC;

Fasting glucose - tested - highest rate - 100% - PHC 3 - EG; PHC 4 – NG; PHC 6 – VK, PHC 7 – NL; PHC 8 IM, and the lowest rate is 27% - PHC 9 – IC (average - 91.1%)

Total cholesterol - tested - 100% - in PHC 6 - VK, and the lowest 73.7% - PHC 9 - IC (average - 88.8%).

Blood pressure is normal (SBP/DBP < 130/80 mmHg) - average - 33.1% - highest 73.7% - PHC 9 - IC, and lowest 14.3% - PHC 5 - NK.

Other data are also different, which will be considered in the discussion section.

The results are almost similar in the data obtained from the studies of the individual diabetes sample as in both diabetes samples, the results of which are presented bellow.

Compared to 2019, the rate of referral to an endocrinologist has increased from 12.8% to 32% (table 4C), which is mainly the result of the data of 2 teams sending to an endocrinologist - 83% PHC 5 - NK and 75% PHC 7 - NL (**Table D**). The different structure of visits within the company and the different practice of the doctor/phc team according to the teams is presented in the appendix (**Table 4D**).

Type 2 diabetes dataset – both samples (Table 4A, 4B)

Process and outcome indicators				
both samples	2019	2023	min	max
Smoking status recorded	65.5(190/290)	89,9(162/169)	84.2%	100%
BP measured once during the last year	92.8(269/290)	99,1(162/169)	80.8%	100%
BP measured twice during the last year	62.1(180/290)	72,8(123/169)	34.6%	100%
HbA1c - tested	16.6(48/290)	34,3(58/169)	11.5%	66.7%
Fasting glucose - tested	54.8(159/290)	91,1(154/169)	60%	100%
Post prandial glucose (2 hours post meal)	NA	5,3(9/169)	0%	29.4%
Total cholesterol tested	46.2(134/290)	88,8(150/169)	53.3%	100%
LDL cholesterol tested	13.4(39/290)	49,1(83/169)	13.3%	76.5%
Creatinine in blood tested (µmol/L)	NA	83,4(141/169)	46.7%	100%
eGFR (ml/min/1.73m ²) is calculated	NA	45,6(77/169)	3.8%	100%
eGFR (ml/min/1.73m ²) – is calculated in 2024	NA	37,9(64/169)	0%	66.7%
Testing for microalbuminuria	NA	1,8(3/169)	0%	10.5%
Check for peripheral pulsation	NA	14,8(25/169)	0%	47.1%
Brachial Ankle Index (ABI) was determined	NA	1,2(2/169)	0%	5.9%
Foot problems -assessed	NA	23,1(39/169)	0%	73.7%
Neuropathic complications - assessed	NA	20,1(34/169)	0%	68.4%
The risk of hypoglycemia - assessed	NA	11,2(19/169)	0%	72.2%
BMI recorded by health care professionals	60.0(174/290)	82,2(139/169)	21.1%	100%
BMI calculated for the analysis	62.1(180/290)	0,0(0/169)	0%	0%
Obese (BMI ≥ 30 kg/m ²)	39.4(71/180)	37,3(63/169)	15.8%	57.1%
Risk score recorded by health care professionals	0,0 (0/290)	20,1(34/169)	0%	63.2%
WHO/ISH risk score calculated	93.4(271/290)	78,7(133/169)	36.9%	100%
CVD risks have been assessed, including	93.4(271/290)	98,8(167/169)	92.3%	100%
low risks	NA	5,3(9/169)	0%	19.2%
Moderate risks	NA	24,9(42/169)	0%	58.8%
High risks	NA	68,6(116/169)	35.8	100%
High risks without CVD	39.3(114/290)	47,4(55/116)	7.7%	64%
Referred to Endocrinologis				

No	87.2(253/290)	68.0 (115/169)	21.4%	88.9%
Yes - including for diagnosis	12.8(37/290)	32,0(54/169)	11.6%	78.6%
For treatment and ongoing monitoring	0 (0/290)	4,1(7/169)	0%	35.7%
Because of all the above	11.4(33/290)	24,9(42/169)	0%	42.9%
Sent for fundoscopy	1.4(4/290)	4,3(5/169)	0%	11.1%
Retinopathy was diagnosed	NA	24,9(42/169)	0%	100%
Antidiabetic drug treatment	NA	9,5(4/42)	0%	11.1%
Medical treatment: no	5.5(16/290)	7,1(12/169)	0%	15.4%
Treated - with tablets	70.3(204/290)	84,0(142/169)	73.7%	94.4%
Treated - with insulin	20.3(59/290)	3,0(5/169)	0%	11.8%
Tablets & insulin	3.8(11/290)	1,8(3/169)	0%	8.3%
Statin prescribed	33.4(97/290)	72,8(123/169)	40%	100%
Aspirin/clopidogrel prescribed	44.8(130/290)	64,5(109/169)	21.4%	100%
Anti-hypertensive drug prescribed	66.2(192/290)	83,4(141/169)	61.5%	94.1%
Triple therapy prescribed	19.3(56/290)	44,4(75/169)	15.8%	94.1%
outcome indicators				
BP at normal range (SBP/DBP < 130/80 mmHg)	23.4(63/269)	33,1(56/169)	14.3%	73.7%
Fasting glucose FG < 7 mmol/l	42.1(67/159)	32,5(55/169)	6.7%	42.1%
Glucose 2hours after meal <11mmol/l	NA	4,1(7/169)	0%	29.4%
Total cholesterol controlled TC< 194mg/dl	44.8(60/134)	42,0(71/169)	6.7%	77.8%
In high-risk patients, LDL (≤ 75 mg/dL at last visit	NA	32,0(54/169)	5.9%	70.6%

Other indicators

During the audit process, other issues were also studied, including the indication of the date of diagnosis of hypertension/diabetes at the time of diagnosis; Prevalence and incidence of diabetes/hypertension and other cardiovascular diseases/chronic kidney disease, which also varies widely across PHC teams.

Items	average	min	max
The date of detection of hypertension is indicated	46,6% (240/515)	0%	100%
The date of diagnosis of diabetes is indicated	49,7% (84/169)	0%	100%
Prevalence of diabetes	2,8% (789/28401)	1.9%	5.6%
Prevalence of hypertension	15,3% (4351/28401)	11.3%	31.9%
New cases of hypertension	385	3	91
New cases of diabetes	409	9	111
CVD/Other Diseases Determined - In General dataset			
Hypertension, % (n/N)	77.2% (417/540)	55	100
Diabetes, % (n/N)	11.3% (61/540)	3.3	23.3
History of CVD, % (n/N) - in the general population	26.7% (144/540)	10	65
CVD-diabetes was determined from both samples	36,1% (61/169)	5.9	80
CKD			
eGFR - 45-59 ml/min	140	3	27
eGFR - 30-44 ml/min	32	1	6
eGFR - 15-29 ml/min	0	0	0
eGFR - <15 ml/min	1	0	1
Stage of CKD			
G1- G2- G4	0-0-0	0	0
G3a	109	0	24

G3b	20	1	6
6G5	1	0	1
UACR (mg/g)	2	0	2
A1; A2; A3	2- 0 - 0		
complications			
Retinopathy in hypertension was diagnosed	1,4% (6/417)	0	5
Diabetic retinopathy was diagnosed	3,0% (5/169)	0	11
Diabetic neuropathy was detected			
Chronic sensorimotor polyneuropathy	7	0	3
Autonomic neuropathy	0	0	0
other	3	0	3
Diabetic Foot/amputation	3	0	2
Cases of hypoglycemia	19	0	13

The result details of the review are presented below.

Non-communicable diseases registries

The prevalence of hypertension in the European region was 55.1% (cardiovascular diseases, 2017 (p.16)

<https://test.ncdc.ge/Handlers/GetFile.ashx?ID=196293fa-b900-4102-a92e-acd8687d336e>

In 2017, on the initiative of the International Society of Hypertension, the world's first global hypertension screening campaign "May Measurement Month 2017" was held. More than one million (1,201,570) adults were screened in 80 countries of the world as part of opportunistic screening. The prevalence rate of arterial hypertension globally was 34.9%. The general rate of uncontrolled hypertension is 46.3%.

The prevalence rate of hypertension in Georgia is 60% (women 63.6% and men 36.4%). 11.9% of people with history of diabetes mellitus, and 18.1% of those with high blood pressure. The rate of controlled hypertension in this population is -16.7%.

The prevalence of diabetes in the world is 1-8.6%:

<https://test.ncdc.ge/Pages/User/LetterContent.aspx?ID=e51e6911-b551-4ee7-96b6-a80ebed73c5c>

According to the 2017 International Diabetes Federation 8th edition atlas, there are probably 232,000 (163,500-368,500) people with diabetes in Georgia. According to the same atlas, the prevalence of diabetes in the country at the age of 20-79 is 8.1% (5.7-12.8).

According to the data of the Non-Communicable Diseases Risk Factors Study (STEPS-2016), elevated fasting glucose (6.1-7.0 mmol/l) was found in 2% of the population aged 18-69, and high fasting glucose (>7mmol/l) was found in 4.5% of the population).

Below is the estimated rate of NCD prevalence - per 2500 inhabitants/1 PHC team, according to official sources of Europe and Georgia;

2023 registrees downloaded from the electronic portal of local medical records presented below with limited codes, the expansion of which is necessary, taking into account clinical diagnoses, for which the trainings should be conducted.

The registrees of 2023 downloaded from the electronic portal of local medical records are based on limited codes, the increase of codes of which taking into account clinical diagnoses and updated protocols (with ICD-10) is necessary to fully cover patients with type 2 diabetes, cardiovascular (including with high and very high cardiovascular risks) and chronic respiratory diseases.

In the process of making medical records, the doctors in Georgia, do not formulate clinical diagnoses, they only assign ICD-10 codes, which are accompanied by their textual explanation, which is unacceptable for various reasons.

Today, in Georgia, information is exchanged between clinicians using ICD-10 codes, which are primarily designed for statistical and billing purposes. The Ministry should make an important decision regarding the development of comprehensive high-quality clinical content in health records and facilitate the collaboration of clinicians and the exchange of information with a standardized language aimed at the introduction and use of clinical terminology strategies.

(Similarly, an effective clinical record software system is SNOMED CT - Systematized Medical Nomenclature for Medicine–Clinical Terminology, which aims to improve patient health and is used by more than 80 countries for electronic health record systems. It is a comprehensive resource with scientifically validated clinical content that Facilitates automatic processing of detailed clinical information, is compiled according to international standards, enables consistent presentation of clinical content in electronic health records, and links clinical data to other classification/coding systems).

The non-communicable disease prevalence data of the Georgia/Europe region and our center are presented below:

Estimated rate of NCD prevalence - 2500 enrollee/per 1 PHC team

NCDs	Europe	Georgia	2500 enrollee per PHC team
CVD diseases High CVD risks	34%	24%	600
Diabetes	4.5-8.6%	≈4.5-8.6%	113
Hypertension	55.1%	≈60%	1375
Bronchial Astma	1- 6%	≈1%	25
COPD	5 -10%	≈3.4%	85
Total, NCDs per 1 PHC team (2500 empaneled population)			2198
Individual Patients (per patient in case of several NCDs)			1350

Below is presented the 2023 Common Noncommunicable Disease Registres by PHC Teams downloaded from the local EMR (Electronic Medical Record Portal):

<i>PHC teams</i>	Diabetes E10-E14	Hypertension I10-I15	IHD I20-I25	CAD I48-I50	Astma J45- J45.9	COPD J44 - J45	Total, NCD Diagnosis
PHC1- MB	184	712	249	110	19	36	1310
PHC2 - LG	87	418	49	19	12	8	593

PHC3 - EG	157	650	126	111	14	39	1097
PHC4 - NG	172	569	136	74	9	18	978
PHC5 - NK	116	462	141	52	15	20	806
PHC6 - VK	135	533	215	113	33	71	1100
PHC7 - NL	72	352	69	25	10	14	542
PHC8 - IM	193	672	373	113	14	25	1390
PHC9 - IC	82	369	128	52	8	14	190
PHC10 -NJ	196	709	238	94	9	29	1085

Clinical diagnoses of NSDs with extended ICD-10 codes are presented below:

- ✓ Cardiovascular high/very high risk and diabetes high risk patients (ICD-10 code assignment depends on the clinical condition, risks and structural changes);
- ✓ Hypertension I10-I15;
- ✓ Heart failure - I50;
- ✓ Type 2 diabetes - E11;
- ✓ I20- I25 ischemic heart disease (I20 angina pectoris; I21 acute myocardial infarction; I22 recurrent myocardial infarction; I23 some complications after acute myocardial infarction; I24 other forms of acute ischemic heart diseases; I25 - chronic ischemic heart disease);
- ✓ J44 Other chronic obstructive lung diseases;
- ✓ J43. Emphysema;
- ✓ J41. Simple and mucous-purulent chronic bronchitis;
- ✓ J42: Chronic bronchitis, unspecified;
- ✓ I27.9 Cardiopulmonary failure, unspecified;
- ✓ Code J44.9 for COPD includes asthma and COPD;
- ✓ Asthma and bronchitis, code different from bronchitis - J40 Bronchitis, unspecified as acute or chronic;
- ✓ J45 Asthma.

Coverage, utilization, and workload rates of Family Doctors

Coverage, utilization and workload rates of family doctors were studied in terms of age, which is also different (see the table below), despite the fact that all family doctors are in equal conditions, including the average number of attached population 2500 users per team.

Below 2023 NFMTTC workload is presented by team and age, which shows different utilization by age structure of patients (includes work performed by universal health care program - all visits).

1 doctor during the year (including time for the organization of work) devotes 1344 hours to the relationship with patients, which is distributed over 240 working days (8 hours) day (workforce estimation model for FM), i.e. in the conditions of strong teamwork, the family doctor should receive an average of 15 patients per day, i.e. annually On average, 2520 patients.

The workload of the company's family doctors is significantly high, and on top of that, they spend most of their time performing administrative and incorrectly requested tasks, the list of which is large and requires clarification (which can be easily regulated and requires a decision at the state, political level) and what time is needed for the said activity, which is even more It increases the unnecessary load, which has a negative impact on the quality of service, especially in the conditions of the aging of the industry and the shortage of PHC personnel.

This load causes the following problems::

- Managing a huge workload/work-life balance that causes stress and burnout for doctors.
- Outdated legal bases that are inconsistent with updated requirements.
- Weak information systems
- Low motivation and morale
- Providing services according to the patient's wishes and not medical needs
- Production of unnecessary medical documentation, duplications, etc.
- The most difficult challenge is the untargeted spending of resources intended for administrative activities, which is very time-consuming and stressful.
- and others

Detailed information, in accordance with the workload of the family doctor, see below:

PHC team	Visit in 2023 /individuals	Visits of patients /individuals removed from registration in 2024	Individuals remaining enrolled in 2024 who received services in 2023	visits in 2023 of patients remained enroleed in 2024	Utilization in 2023
PHC 20 - TA	3511	216	1022	3295	3.2
PHC 1 - MB	5502	376	1013	5126	5.1
PHC 2 - LG	5512	416	1592	5096	3.2

PHC 3 - EG	4158	396	1060	3762	3.5
PHC 4 - NG	5191	528	935	4663	5.0
PHC 5 - NK	5114	428	1596	4686	2.9
PHC 6 - VK	3832	350	767	3482	4.5
PHC 7 - NL	6054	408	1638	5646	3.4
PHC 8 - IM	3597	303	782	3294	4.2
PHC 9 - IC	3828	328	802	3500	4.4
PHC 10 - NJ	3204	355	704	2849	4.0
MK upto 1.06.23	1237	170	281	1067	3.8
Total, visits	50740	4274	12192	46466	3.81
Total, individuals	13654 ind	1462	12192 ind	12192	12192 ind

Average number of attached population in 2023 - 29251

Coverage of the registered population - 47% (13654/29251)

Average number of visits per 1 attached patient - 1.73 (50740/29251)

The average number of visits per 1 patient visited in 2023 - 3.8

Detailed information - structure of visits in 2023 by age, according to the PHC teams

#Doctor	Enrolled patient up to 2024, who visited the clinic in 2023 by age and PHC team																									Removed from the list
	Total, remained enrolled in 2024			0-1			1-6			6-15			15-18			18-60			60-75			75+			Total, visits	
	individuals	visits	utilization	individuals	visits	utilization	individuals	visits	utilization	individuals	visits	utilization	individuals	visits	utilization	individuals	visits	utilization	individuals	visits	utilization	individuals	visits	utilization		
PHC 20 – TA	1022	3295	3.2	46	197	4.3	309	1111	3.6	512	1586	3.1	155	326	2.1	0	75	0.0	0	0	0	0	0	0	3511	216
PHC 1 - MB	1013	5126	5.1	0	0			1	0.0	16	52	3.3	11	39	3.5	349	1216	3.5	382	2331	6.1	255	1487	5.8	5502	376
PHC 2 - LG	1592	5096	3.2	30	166	5.5	243	903	3.7	458	901	2.0	77	166	2.2	433	1266	2.9	228	1172	5.1	123	522	4.2	5512	416
PHC 3 - EG	1060	3762	3.5	0	0		0	0	0	15	37	2.5	16	33	2.1	460	1168	2.5	357	1626	4.6	212	898	4.2	4158	396
PHC 4 - NG	935	4663	5.0	0	0		0	0	0	15	41	2.7	12	48	4.0	396	1387	3.5	326	2003	6.1	186	1184	6.4	5191	528
PHC 5 - NK	1596	4686	2.9	26	115	4.4	211	922	4.4	461	781	1.7	118	227	1.9	428	1213	2.8	229	927	4.0	123	501	4.1	5114	428
1.06.2023	281	1067	3.8	0	0			1	0	8	22	2.8	7	15	2.1	97	301	3.1	105	456	4.3	64	272	4.3	1237	170
PHC 6 - VK	767	3482	4.5	0	0		0	0	0	7	19	2.7	9	20	2.2	283	935	3.3	294	1542	5.2	174	966	5.6	3832	350
PHC 7 - NL	1638	5646	3.4	31	128	4.1	220	977	4.4	359	923	2.6	100	216	2.2	569	1735	3.0	245	1173	4.8	114	494	4.3	6054	408
PHC 8 - IM	782	3294	4.2	0	0			1	0	3	8	2.7	6	16	2.7	292	783	2.7	332	1662	5.0	149	824	5.5	3597	303
PHC 9 - IC	802	3500	4.4	0	0			1	0	5	19	3.8	9	25	2.8	396	1320	3.3	267	1390	5.2	125	745	6.0	3828	328
PHC 10 - NJ	704	2849	4.0	2	4	2.0	8	33	4.1	49	134	2.7	11	19	1.7	278	838	3.0	228	1108	4.9	128	714	5.6	3204	355
Total	12192 ind	46466	3.81	135	610	4.5	991	3949	4	1908	4523	2.4	531	1150	2.2	3981	12237	3.07	2993	15390	5.1	1653	8607	5.2	13654 ind	4274
	46666 visits																								50740	
Visits of removed patients later	4274			71			200			203			64			1846			1016			872			4274	
Remived individuals	1462			16			76			103			45			803			220			198			1462	

Key findings

The number of face-to-face visits has increased significantly in 2023 compared to previous years, with new demands added - remote consultations, e-portals, state/healthcare and municipal programs, which have created a huge workload for family doctors.

In 2023, the implementation/development of the local electronic medical record system (EMR – MIS portal) began, which also required a somewhat large amount of time from the staff working in the electronic systems.

The Preventive Department has not been fully operational since the Covid-19 pandemic, so before the audit, there was an expectation that the data would be worse compared to the situation in 2019.

Despite the high workload of family doctors, communication with PHC teams to conduct clinical audits was carried out intensively. With their active participation, agreement was made on data elements/criteria and indicators. Discussion of all questions, literature searches, setting of standards and use of various tools were done in an interactive mode, in order to clarify the data/information.

The feedback of the main findings was also considered with intensive participation of team members. During the analitcal phase, the accuracy of the collected data was re-evaluated trough cross-checkings.

During the PHC teams were analyzing different data and/or asking any questions, there was an assessment of the accuracy of the collected data, cross-checks, etc.

The process was very complex and took about 6-7 months to complete, but each participant involved in the process believes that they have well understood the importance of integrating research and development (R&D) activities necessary for quality improvement in primary health care and their routine activities. Its educational role was particularly noted and recognized as a key tool for implementing high-quality statesments into practice (EBM to EBP - from evidence-based medicine to evidence-based practice).

Conclusion

1. Comparing the data of 2019 & 2023, it is revealed that the quality of service has generally improved.
2. In the majority of identified patients, NCDs are diagnosed and managed by primary care professionals without referral to a specialist.
3. Some risk factors for cardiovascular diseases are well described in the medical records - in more than 80% of cases, the patient's smoking status is recorded and SMI is measured.

4. In the vast majority of patients with diseases of the cardiovascular system and diabetes, blood pressure is measured regularly.
5. The analysis found that a third of patients are at high risk of heart disease and diabetes.
6. The majority of patients with cardiovascular disease were prescribed dyslipidemia treatment with statins (68.8%), antihypertensive drug treatment (89.6%) and preventive treatment with aspirin/clopidogrel (83.3%).
7. Most patients with type 2 diabetes (84%) were prescribed tablets; Insulin was prescribed in 3% of patients, and in 1.8% both tablets and insulin were prescribed.
8. In many cases, the difference between the minimum and maximum rates of family physician teams is very high, indicating variable practice among teams working in the same FM Center.
9. The results of the audit should be mentioned separately – if we compare the data of the British Quality System (The Quality and Outcomes Framework - QOF) with the data of the company, we can demonstrate the improved results achieved without special financial motivations.

Below is the data for the results selected for awarding of the British Primary Care Quality Bonus System (compared with the results of our audit):

Indicator	UK	NFMTC
Statin or other lipid-lowering therapy is prescribed in patients with CVD	70-95% CHOL001	70% table 5B
Total Cholesterol < 194mg/dl (LDL - C ≤ 75mg/dl) in patients in patients with CVD	20-35% CHOL002	43% table 5B
Aspirin/alternative antiplatelet therapy is prescribed in patients with CVD	56-96% CHD005	83% table 5B
Fasting venous plasma < 7 mmol/l in patients with Diabetes	35-75% DM020	33% table 4B
Blood pressure reading ≤ 140/90 mmHg in the last visit in patients with diabetes	38-78% DM033	≤130/80mmHg 33% table 4B
Statin or other lipid-lowering therapy is prescribed in patients with Diabetes and CVD	50-90% DM023	73% table 4A

10. The prevalence and incidence of cardiovascular diseases and diabetes are low:
- 10.1. Among the enrolled [population within UHC program, the prevalence of hypertension is 15.3% (while the prevalence rate of arterial hypertension globally was 34.9%. The prevalence of hypertension in the European region was 55.1%, the prevalence rate of hypertension in Georgia is 60% (women 63.6% and male 36.4%)
 - 10.2. The prevalence of type 2 diabetes mellitus was 2.8% (the prevalence of diabetes mellitus in the world is 1-8.6%. According to the data of the Atlas of the 8th edition of the International Diabetes Federation in 2017, the prevalence of diabetes in the age group 20-79 years in Georgia is probably 8.1% (5.7-12.8)
 - 10.3. However, it is clear that established CVD/other diseases in the general population sample are 77.2%, diabetes is 11.3%, and history of CVD is 26.7%, which indicates shortcomings in the production of registrees (taking into account individuals, visits and age structure of doctors the data of the registrees produced by is significantly lower). This is also confirmed by the different rates of prevalence and incidence of common chronic diseases (cardiovascular disease and type 2 diabetes) according to doctors (which varies from 190 to 1390).
11. Still, the risk of developing cardiovascular diseases and type 2 diabetes mellitus, target organ damage/complications and, accordingly, the detection rate (retinopathy, chronic kidney disease, neuropathy, cases of hypoglycemia, peripheral arterial diseases...) remain very low, which leads to improper management which worsens the outcomes of the disease.
12. Despite the improvement of indicators, dyslipidemia, glucose, blood pressure, SMI, tobacco use, etc. number of uncontrolled cases, are still high. The rate of uncontrolled hypertension in our country is 52.6%, and according to the data of the global hypertension screening campaign, which was conducted in more than 80 countries of the world, the general rate of uncontrolled hypertension is 46.3%.
13. Also, according to the statistical data of 2023, the family doctor's workload is significantly higher than the international average - the average number of annual visits instead of 2520 is more than 5000.

Recommendations/action plan

1. To update and introduce the CPD training course for the management of arterial hypertension and diabetes mellitus in primary health care, based on the newly approved protocols/guidelines;
2. To strengthen the preventive department with appropriate personnel;

3. Routine updating of registrees of non-communicable diseases by family doctors;
4. To re-establish the patient recall system/production of reporting forms, in order to establish ongoing monitoring of patients;
5. In order to increase the efficiency of the service and improve the quality, regular multidisciplinary team meetings should be organized, where the roles, functions and responsibilities of the team members, the plans for the correct organization of workload and the establishment of a rational system, and the state of performance will be discussed;
6. The family physician, together with the team, should ensure the health assessment and management of each patient in accordance with approved protocols in order to detect common non-communicable diseases; among them, All patients over the age of 40 should be assessed for cardiovascular and diabetes risks and managed accordingly;
7. Establish monthly monitoring of performance indicators of the PHC team;
8. Introduce a self-reporting system, with special emphasis on chronic disease management;
9. Special importance should be given to the use and integration of annual clinical evaluation and performance appraisal tools in quality improvement, which was actively used by the company until 2016;
10. Staff motivational systems and results based payment schemes should be repeatedly reviewed and implemented, no later than 2025.
11. The number and structure of the population attached to the family medicine teams should be reviewed once again, if necessary, the workload should be regulated by introducing coefficients and/or equal distribution should be done on the principle of no more than 2,500 beneficiaries per team.
12. Re-audit should be carried out no later than 2025.
13. It is important to develop a PHC-EHR system in active cooperation with the Ministry of Health, where, in order to automatically count the indicator, measuring tools will be integrated, which will take data from the flow sheets in the local medical record system and strengthen the analytical capabilities at the national level, reduce the audit time and simplify the regular data study processes, will support the establishment of feedback processes with the provider, benchmarking, etc. which is necessary for continuous improvement of service quality and maintenance of achieved results.

Also, it will make it easier for doctors to review data frequently (at least once every one to two weeks) for quality assessment, with the mentioned tool available to them.

Changing clinical practice

In accordance with identified gaps and in order to eliminate them, significant attention should be given to the formulation/agreement/implementation of an action plan with the active participation of team members and change management.

Review of standards - re-audit

The next date of re-audit is set in March, 2025.

In the third-fourth quarter of the year, there is time for each team to improve their results by the end of the year and again with the final results at the end of the year, to have an improved performance by 2024.

The mentioned audit process was conducted with the full coordination of the members of the audit team (I.Karosanidze, N.Kirtadze, E.Gigashvili), with the close cooperation management team to implement the agreed recommendations.

High involvement of each team member (doctor/nurse/support staff/management team) and active participation in shared decision-making is very important and emphasized.

Table 1A: General and T2 Diabetes samples/All patients - Demographic characteristic of patients

Demographic characteristic	All	female	male
General dataset			
sex			
female, % (n/N)	77.8(420/540)	100.0(420/420)	0.0(0/120)
male, % (n/N)	22.2(120/540)	0.0(0/420)	100(120/120)
age, median (IQR)			
18-39 years, % (n/N)	0.0(0/540)	0.0(0/420)	0.0(0/120)
40-49 years, % (n/N)	5.4(29/540)	5.7(24/420)	4.2(5/120)
50-59 years, % (n/N)	13.5(73/540)	13.1(55/420)	15.0(18/120)
60-69 years, % (n/N)	35.2(190/540)	35.2(148/420)	35.0(42/120)
70-79 years, % (n/N)	37.8(204/540)	37.6(158/420)	38.3(46/120)
80+ years, % (n/N)	8.1(44/540)	8.3(35/420)	7.5(9/120)
T2 Diabetes sample			
sex			
	ორივე	ქალი	მამაკაცი
female, % (n/N)	69.4(75/108)	100(75/75)	0.0(0/33)
male, % (n/N)	30.6(33/108)	0.0(0/75)	100(33/33)
age, median (IQR)			
18-39 years, % (n/N)	0.0(0/108)	0.0(0/75)	0.0(0/33)
40-49 years, % (n/N)	3.7(4/108)	0.0(0/75)	12.1(4/33)
50-59 years, % (n/N)	10.2(11/108)	5.3(4/75)	21.2(7/33)
60-69 years, % (n/N)	31.5(34/108)	34.7(26/75)	24.2(8/33)
70-79 years, % (n/N)	46.3(50/108)	52.0(39/75)	33.3(11/33)
80+ years, % (n/N)	8.3(9/108)	8.0(6/75)	9.1(3/33)

Abbreviations: IQR, inter quartile range

Table 1B: General and T2 Diabetes samples/All patients - Demographic characteristic of patients, by PHC teams

Demographic characteristic	სულ	PHC1-MB	PHC2-LG	PHC3-EG	PHC4-NG	PHC5-NK	PHC6-VK	PHC7-NL	PHC8-IM	PHC9-IC
General dataset										
sex										
female, % (n/N)	77.8(420/540)	80.0(48/60)	83.3(50/60)	75.0(45/60)	76.7(46/60)	90.0(54/60)	65.0(39/60)	80.0(48/60)	83.3(50/60)	66.7(40/60)
male, % (n/N)	22.2(120/540)	20.0(12/60)	16.7(10/60)	25.0(15/60)	23.3(14/60)	10.0(6/60)	35.0(21/60)	20.0(12/60)	16.7(10/60)	33.3(20/60)
age, median (IQR)	68(40-91)	72(57-86)	66(40-82)	69(48-79)	71(44-89)	69(47-88)	71(43-86)	63(40-83)	68(43-86)	64(42-91)
18-39 years, % (n/N)	0.0(0/540)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)
40-49 years, % (n/N)	5.4(29/540)	0.0(0/60)	8.3(5/60)	1.7(1/60)	5.0(3/60)	1.7(1/60)	5.0(3/60)	11.7(7/60)	1.7(1/60)	13.3(8/60)
50-59 years, % (n/N)	13.5(73/540)	6.7(4/60)	13.3(7/60)	8.3(5/60)	8.3(5/60)	15.0(9/60)	11.7(7/60)	30.0(18/60)	11.7(7/60)	18.3(11/60)
60-69 years, % (n/N)	35.2(190/540)	31.7(19/60)	40.0(24/60)	45.0(27/60)	31.7(19/60)	35.0(21/60)	25.0(15/60)	28.3(17/60)	40.0(24/60)	40.0(24/60)
70-79 years, % (n/N)	37.8(204/540)	48.3(29/60)	35.5(21/60)	45.0(27/60)	43.3(26/60)	31.7(19/60)	45.0(27/60)	26.7(16/60)	41.7(25/60)	23.3(14/60)
80+ years, % (n/N)	8.1(44/540)	13.3(8/60)	5.0(3/60)	0.0(0/60)	11.7(7/60)	16.7(10/60)	13.3(8/60)	3.3(2/60)	5.0(3/60)	5.0(3/60)
T2 Diabetes sample										
sex										
female, % (n/N)	69.4(75/108)	83.3(10/12)	66.7(8/12)	66.7(8/12)	58.3(7/12)	75.0(9/12)	33.3(4/12)	83.3(10/12)	91.7(11/12)	66.7(8/12)
male, % (n/N)	30.6(33/108)	16.7(2/12)	33.3(4/12)	33.3(4/12)	41.7(5/12)	25.0(3/12)	66.7(8/12)	16.7(2/12)	8.3(1/12)	33.3(4/12)
age, median (IQR)	70(44-87)	72(60-85)	71(63-84)	71(47-85)	65(52-73)	69(47-81)	72(53-84)	76(53-87)	72(53-82)	68(44-85)
18-39 years, % (n/N)	0.0(0/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
40-49 years, % (n/N)	3.7(4/108)	0.0(0/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	16.7(2/12)
50-59 years, % (n/N)	10.2(11/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	33.3(4/12)	8.3(1/12)	16.7(2/12)	8.3(1/12)	8.3(1/12)	16.7(2/12)
60-69 years, % (n/N)	31.5(34/108)	33.3(4/12)	33.3(4/12)	41.7(5/12)	50.0(6/12)	41.7(5/12)	8.3(1/12)	8.3(1/12)	33.3(4/12)	33.3(4/12)
70-79 years, % (n/N)	46.3(50/108)	58.3(7/12)	50.0(6/12)	41.7(5/12)	16.7(2/12)	33.3(4/12)	66.7(8/12)	75.0(9/12)	50.0(6/12)	25.0(3/12)
80+ years, % (n/N)	8.3(9/108)	8.3(1/12)	16.7(2/12)	8.3(1/12)	0.0(0/12)	8.3(1/12)	8.3(1/12)	8.3(1/12)	8.3(1/12)	8.3(1/12)

Abbreviations: IQR, inter quartile range

Table 2A: Risk factors of patients in both samples (general and diabetes sample) by gender

Risk factors	ორივე	ქალი	მამაკაცი
General sample			
Current smoker*, % (n/N)	12.6(68/540)	7.9(33/420)	29.2(35/120)
non-smoker (total),** % (n/N)	87.4(472/540)	92.1(387/420)	70.8(85/120)
Hypertension, % (n/N)	77.2(417/540)	78.1(328/420)	74.2(89/120)
Diabetes, % (n/N)	11.3(61/540)	10.7(45/420)	13.3(16/120)
Hystory of CVD, % (n/N)	26.7(144/540)	23.3(98/420)	38.3(46/120)
SBP, mean ± SD	128.4±12.7	127.8±12.3	130.4±13.9
DBP, mean ± SD	76.8±8.1	76.3±7.7	78.7±9.3
FG, mean ± SD	5.5±1.7	5.4±1.6	5.8±1.7
TC, mean ± SD	202.1±46.1	205.8±47.1	188.8±40.0
BMI, mean ± SD	29.0±5.1	29.2±5.1	28.5±4.9
Diabetes sample			
Current smoker*, % (n/N)	19.4(21/108)	5.3(4/75)	51.5(17/33)
non-smoker (total),** % (n/N)	80.6(87/108)	94.7(71/75)	48.5(16/33)
Hypertension, % (n/N)	90.7(98/108)	96.0(72/75)	78.8(26/33)
Diabetes, % (n/N)	100.0(108/108)	100(75/75)	100.0(33/33)
Hystory of CVD, % (n/N)	37.0(40/108)	34.7(26/75)	42.4(14/33)
SBP, mean ± SD	132.0±12.4	133.3±12.7	129.0±11.4
DBP, mean ± SD	78.6±8.0	78.2±7.6	79.5±8.9
FG, mean ± SD	8.3±2.8	8.2±2.5	8.4±3.4
TC, mean ± SD	196.2±46.7	203.9±46.1	176.3±42.9
BMI, mean ± SD	29.7±4.3	30.0±4.3	29.0±4.4

Abbreviations: CVD, cardiovascular disease; SBP, systolic blood pressure; DBP, diastolic blood pressure; FG, fasting glucose; TC, total cholesterol; BMI, body mass index; SD, standard deviation.

* Patients with missing smoking status were excluded.

Table 2B: Risk factors of patients in both samples (general and diabetes sample) by PHC teams

Risk factors	სულ	PHC1-MB	PHC2-LG	PHC3-EG	PHC4-NG	PHC5-NK	PHC6-VK	PHC7-NL	PHC8-IM	PHC9-IC
General sample										
Current smoker*, % (n/N)	12.6(68/540)	1.7(1/60)	11.7(7/60)	25.0(15/60)	1.7(1/60)	15.0(9/60)	20.0(12/60)	11.7(7/60)	1.7(1/60)	25.0(15/60)
non-smoker (total),** % (n/N)	87.4(472/540)	98.3(59/60)	88.3(53/60)	75.0(45/60)	98.3(59/60)	85.0(51/60)	80.0(48/60)	88.3(53/60)	98.3(59/60)	75.0(45/60)
Hypertension, % (n/N)	77.2(417/540)	85.0(51/60)	70.0(42/60)	100.0(60/60)	68.3(41/60)	76.7(46/60)	75.0(45/60)	55.0(33/60)	96.7(58/60)	68.3(41/60)
Diabetes, % (n/N)	11.3(61/540)	11.7(7/60)	5.0(3/60)	8.3(5/60)	23.3(14/60)	3.3(2/60)	10.0(6/60)	8.3(5/60)	20.0(12/60)	11.7(7/60)
Hystory of CVD, % (n/N)	26.7(144/540)	31.7(19/60)	65.0(39/60)	15.0(9/60)	18.3(11/60)	10.0(6/60)	38.3(23/60)	10.0(6/60)	25.0(15/60)	26.7(16/60)
SBP, mean ± SD	128.4±12.7	127.8±11.14	127.2±13.3	130.7±12.7	126.8±10.5	135.8±11.8	129.1±14.7	125.9±8.6	130.3±9.0	121.3±15.7
DBP, mean ± SD	76.8±8.1	76.0±4.6	79.9±4.2	76.3±9.0	72.8±6.0	78.0±11.8	76.7±10.8	75.5±5.7	76.8±4.7	78.7±9.5
FG, mean ± SD	5.5±1.7	5.7±0.3	5.4±0.1	5.3±0.2	6.1±0.0	5.1±0.1	6.2±1.3	6.8±1.3	8.6±4.2	5.4±0.5
TC, mean ± SD	202.1±46.1	195.3±10.9	233.9±21.6	227.3±32.0	199.3±10.3	196.8±10.6	209.1±29.1	222.2±27.3	213.0±2.8	226.7±36.3
BMI, mean ± SD	29.0±5.1	32.2±5.1	27.7±3.6	29.8±4.7	29.5±4.7	29.8±6.4	29.0±5.5	27.2±3.3	31.0±5.6	28.6±5.6
Diabetes sample										
Current smoker*, % (n/N)	19.4(21/108)	0.0(0/12)	8.3(1/12)	16.7(2/12)	50.0(6/12)	33.3(4/12)	33.3(4/12)	0.0(0/12)	0.0(0/12)	33.3(4/12)
non-smoker (total),** % (n/N)	80.6(87/108)	100.0(12/12)	91.7(11/12)	83.3(10/12)	50.0(6/12)	66.7(8/12)	66.7(8/12)	100.0(12/12)	100.0(12/12)	66.7(8/12)
Hypertension, % (n/N)	90.7(98/108)	91.7(11/12)	91.7(11/12)	100.0(12/12)	66.7(8/12)	91.7(11/12)	91.7(11/12)	100.0(12/12)	100.0(12/12)	83.3(10/12)
Diabetes, % (n/N)	100.0(108/108)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)
Hystory of CVD, % (n/N)	37.0(40/108)	33.3(4/12)	91.7(11/12)	25.0(3/12)	25.0(3/12)	8.3(1/12)	33.3(4/12)	8.3(1/12)	91.7(11/12)	16.7(2/12)
SBP, mean ± SD	132.0±12.4	130.1±3.0	127.7±3.8	135.9±5.4	135.5±6.4	138.2±0.4	136.3±1.8	136.7±4.7	133.3±1.0	122.1±1.1
DBP, mean ± SD	78.6±8.0	77.6±1.1	80.2±0.3	75.95±0.6	74.8±1.7	85.3±1.0	81.2±0.8	77.9±3.0	78.6±1.1	79.2±0.0
FG, mean ± SD	8.3±2.8	7.3±0.6	9.9±1.3	8.7±0.6	10.6±3.5	8.3±0.4	8.1±1.3	8.3±1.7	6.9±1.3	8.5±0.4
TC, mean ± SD	196.2±46.7	179.7±11.7	216.95±8.0	192.2±4.5	206.6±14.1	231.3±15.8	186.8±31.3	182.4±3.1	198.1±9.7	223.6±20.1
BMI, mean ± SD	29.7±4.3	31.7±2.9	29.3±2.9	30.1±3.9	29.0±2.8	30.5±5.3	28.3±2.7	28.2±3.3	30.0±6.2	31.2±5.9

Abbreviations: CVD, cardiovascular disease; SBP, systolic blood pressure; DBP, diastolic blood pressure; FG, fasting glucose; TC, total cholesterol; BMI, body mass index; S D, standard deviation.

* Patients with missing smoking status were excluded.

Table 3A: Process and outcome indicators in General dataset

Process and outcome indicators	All	female	male
General sample			
Process indicators			
Smoking status recorded	86.1(465/540)	78.8(364/420)	84.2(101/120)
BP measured once during the last year	95.4(515/540)	96.0(403/420)	93.3(112/120)
BP measured twice during the last year	67.4(364/540)	68.3(287/420)	64.2(77/120)
HbA1c tested	7.0(38/540)	6.9(29/420)	7.5(9/120)
Fasting glucose tested	77.6(419/540)	77.9(327/420)	76.7(92/120)
Total cholesterol tested	85.7(463/540)	86.7(364/420)	82.5(99/120)
LDL cholesterol tested	39.4(213/540)	39.5(166/420)	39.2(47/120)
BMI recorded by health care professionals	77.00(416/540)	76.0(319/420)	80.8(97/120)
BMI calculated for the analysis	0.0(0/540)	0.0(0/420)	0.0(0/120)
Obese (BMI \geq 30 kg/m ²)	28.3(153/540)	29.8(125/420)	23.3(28/120)
Risk score recorded by health care professionals	25.0(135/540)	26.0(109/420)	21.7(26/120)
WHO/ISH risk score calculated	73.3(396/540)	72.6(305/420)	75.8(91/120)
CVD risks have been assessed, including			
low risks	24.1(128/531)	27.1(112/414)	13.7(16/117)
Moderate risks	23.5(125/531)	24.4(101/414)	20.5(24/117)
High risks, including	52.4(278/531)	48.6(201/414)	65.8(77/117)
High risks	39.9(111/278)	41.3(83/201)	36.4(31/77)
High risks + CVD	84.2(234/278)	83.1(167/201)	87.0(67/77)
High risks +CVD + DM	100.0(278/278)	100.0(201/201)	100.0(77/77)
High risks, including:	100.0(278/278)	100.0(201/201)	100.0(77/77)
High risks without diabetes and CVD	39.9(111/278)	41.3(83/201)	36.4(28/77)
High risks with CVD	44.3(123/278)	41.8(84/201)	50.6(39/77)
High risks with diabetes and CVD	15.8(44/278)	15.8(34/201)	13.0(10/77)

Outcome indicators

BP at normal range (SBP/DBP < 140/90 mmHg)	47.4(256/540)	48.6(204/420)	43.3(52/120)
Total cholesterol controlled TC < 194mg/dl	38.3(207/540)	36.0(151/420)	46.7(56/120)
In high-risk patients, LDL (\leq 75 mg/dL at last visit)	0.4(2/540)	0.5(2/420)	0.0(0/120)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table 3B: Process and outcome indicators in General dataset, By PHC Teams

Process and outcome	Total	PHC1-MB	PHC2-LG	PHC3-EG	PHC4-NG	PHC5-NK	PHC6-VK	PHC7-NL	PHC8-IM	PHC9-IC
General dataset										
Smoking status recorded	86.1(465/540)	98.3(59/60)	98.3(59/60)	100.0(60/60)	1.7(1/60)	100.0(60/60)	91.7(55/60)	100.0(60/60)	96.7(58/60)	88.3(53/60)
BP measured once during the last year	95.4(515/540)	98.3(59/60)	93.3(56/60)	100.0(60/60)	75.0(45/60)	95.0(57/60)	100.0(60/60)	98.3(59/60)	100.0(60/60)	98.3(59/60)
BP measured twice during the last year	67.4(364/540)	75.0(45/60)	73.3(44/60)	98.3(59/60)	31.7(19/60)	48.3(29/60)	71.7(43/60)	28.3(17/60)	96.7(58/60)	83.3(50/60)
HbA1c - tested	7.0(38/540)	11.7(7/60)	3.3(2/60)	6.7(4/60)	8.3(5/60)	1.7(1/60)	8.3(5/60)	0.0(0/60)	15.0(9/60)	3.3(5/60)
Fasting glucose - tested	77.6(419/540)	86.7(52/60)	71.7(43/60)	88.3(53/60)	86.7(52/60)	80.0(48/60)	98.3(59/60)	55.0(33/60)	86.7(52/60)	27(45/60)
Total cholesterol tested	85.7(463/540)	98.3(59/60)	66.7(43/60)	93.3(56/60)	96.7(58/60)	80.0(48/60)	100.0(60/60)	98.3(59/60)	93.3(56/60)	45(27/60)
LDL cholesterol tested	39.4(213/540)	61.7(37/60)	6.7(4/60)	56.7(34/60)	35.0(21/60)	25.0(15/60)	46.7(28/60)	48.3(29/60)	46.7(28/60)	28.3(17/60)
BMI recorded by health care professionals	77.00(416/540)	5.0(3/60)	100.0(60/60)	76.7(46/60)	58.3(35/60)	76.7(46/60)	100.0(60/60)	96.7(58/60)	90.0(54/60)	90.0(54/60)
BMI calculated for the analysis	0.0(0/540)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)
Obese (BMI ≥ 30 kg/m ²)	28.3(153/540)	3.3(2/60)	26.7(16/60)	35.0(21/60)	25.0(15/60)	28.3(17/60)	38.3(23/60)	20.0(12/60)	51.7(31/60)	26.7(16/60)
Process indicators										
Risk score recorded by health care professionals	25.0(135/540)	31.7(19/60)	1.7(1/60)	8.3(5/60)	0.0(0/60)	45.0(27/60)	0.0(0/60)	80.0(48/60)	53.3(32/60)	5.0(3/60)
WHO/ISH risk score calculated	73.3(396/540)	68.3(41/60)	98.3(59/60)	91.7(55/60)	86.7(52/60)	55.0(33/60)	100.0(60/60)	20.0(12/60)	46.7(28/60)	93.3(56/60)
CVD risks assessed, including										
low risks	24.1(128/531)	5.0(3/60)	20.0(12/60)	10.0(6/60)	51.9(27/52)	16.7(10/60)	30.0(18/60)	30.0(18/60)	31.7(19/60)	25.4(15/59)
Moderate risks	23.5(125/531)	33.3(20/60)	10.0(6/60)	26.7(16/60)	1.9(1/52)	41.7(25/60)	20.0(12/60)	25.0(15/60)	18.3(11/60)	32.2(19/59)
High risks	52.4(278/531)	61.7(37/60)	70.0(42/60)	63.3(38/60)	46.2(24/52)	41.7(25/60)	50.0(30/60)	45.0(27/60)	50.0(30/60)	42.4(25/59)
High risks (without CVD&DM)	39.9(111/278)	43.2(16/37)	4.8(2/42)	71.1(27/38)	25.0(6/24)	72.0(18/25)	16.7(5/30)	66.7(18/27)	36.7(11/30)	32.0(8/25)
High risks + CVD	84.2(234/278)	89.2(33/37)	95.2(40/42)	86.8(33/38)	50.0(12/24)	92.0(23/25)	83.3(25/30)	88.9(24/27)	76.7(23/30)	84.0(21/25)
High risks + CVD + DM	100.0(278/278)	100.0(37/37)	100.0(42/42)	100.0(38/38)	100.0(24/24)	100.0(25/25)	100.0(30/30)	100.0(27/27)	100.0(30/30)	100.0(25/25)
High risks including:	100.0(278/278)	100.0(37/37)	100.0(42/42)	100.0(38/38)	100.0(24/24)	100.0(25/25)	100.0(30/30)	100.0(27/27)	100.0(30/30)	100.0(25/25)
High risks without CVD + DM	39.9(111/278)	43.2(16/37)	4.7(2/42)	71.1(27/38)	25.0(6/24)	72.0(18/25)	16.7(5/30)	66.7(18/27)	36.7(11/30)	32.0(8/25)

High risks + CVD	44.3(123/278)	46.0(17/37)	90.5(38/42)	15.8(6/38)	25.0(6/24)	20.0(5/25)	66.7(20/30)	22.2(6/27)	40(12/30)	52(13/25)
High risks CVD+ + DM	15.8(44/278)	10.8(4/37)	4.8(2/42)	13.2(5/38)	50.0(12/24)	8.0(2/25)	16.7(5/30)	11.1(3/27)	23.3(7/30)	16.0(4/25)
High risks										
BP at normal range (SBP/DBP < 140/90 mmHg)	47.4(256/540)	63.3(38/60)	66.7(40/60)	43.3(26/60)	20.0(12/60)	35.0(21/60)	40.0(24/60)	21.7(13/60)	68.3(41/60)	68.3(41/60)
Total cholesterol controlled TC< 194mg/dl	38.3(207/540)	48.3(29/60)	23.3(14/60)	41.7(25/60)	45.0(27/60)	31.7(19/60)	65.0(39/60)	36.7(22/60)	33.3(20/60)	20.0(12/60)
In high-risk patients, LDL (\leq 75 mg/dL at last visit)	0.4(2/540)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	3.3(2/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)	0.0(0/60)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table 4A: Process and outcome indicators in type 2 diabetes dataset – both samples

Process and outcome indicators	All	female	male
diabetes dataset – both samples			
Smoking status recorded	89.9(162/169)	89.2(107/120)	91.8(45/49)
BP measured once during the last year	99.1(162/169)	100.0(115/120)	97.0(47/49)
BP measured twice during the last year	72.8(123/169)	75.8(91/120)	65.3(32/49)
HbA1c - tested	34.3(58/169)	34.2(41/120)	34.7(17/49)
Fasting glucose - tested	91.1(154/169)	92.5(111/120)	87.8(43/49)
Post prandial glucose (2 hours post meal)	5.3(9/169)	4.2(5/120)	8.2(4/49)
Total cholesterol tested	88.8(150/169)	90.0(108/120)	85.7(42/49)
LDL cholesterol tested	49.1(83/169)	48.3(58/120)	51.0(25/49)
Creatinine in blood tested (µmol/L)	83.4(141/169)	83.3(100/120)	83.7(41/49)
eGFR (ml/min/1.73m ²) is calculated	45.6(77/169)	44.2(53/120)	49.0(24/49)
eGFR (ml/min/1.73m ²) – is calculated in 2024	37.9(64/169)	39.2(47/120)	34.7(17/49)
Testing for microalbuminuria	1.8(3/169)	1.7(2/120)	2.0(1/49)
Fundoscopy – referred to ophthalmologist	24.9(42/169)	22.5(27/120)	30.6(15/49)
Check for peripheral pulsation	14.8(25/169)	15.0(18/120)	14.3(7/49)
Brachial Ankle Index (ABI) was determined	1.2(2/169)	0.8(1/120)	2.0(1/49)
Foot problems -assessed	23.1(39/169)	21.7(26/120)	26.5(13/49)
Neuropathic complications - assessed	20.1(34/169)	20.8(25/120)	18.4(9/49)
The risk of hypoglycemia - assessed	11.2(19/169)	7.5(9/120)	20.4(10/49)
BMI recorded by health care professionals	82.2(139/169)	80.0(96/120)	87.8(43/49)
BMI calculated for the analysis	0.0(0/169)	0.0(0/120)	0.0(0/49)
Obese (BMI ≥ 30 kg/m ²)	37.3(63/169)	40.0(48/120)	30.6(15/49)
Risk score recorded by health care professionals	20.1(34/169)	24.2(29/120)	10.2(5/49)
WHO/ISH risk score calculated	78.7(133/169)	75.0(90/120)	87.8(43/49)
CVD risks have been assessed, including	98.8(167/169)	99.2(119/120)	98.0(48/49)
low risks	5.3(9/169)	5.0(6/120)	6.1(3/49)
Moderate risks	24.9(42/169)	24.2(29/120)	26.5(13/49)
High risks	68.6(116/169)	70.0(84/120)	65.3(32/49)
High risks – without CVD	47.4(55/116)	52.4(44/84)	34.4(11/32)

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No	68.0(115/169)	66.7(80/120)	71.4(35/49)
Yes - including	32.0(54/169)	33.3(40/120)	28.6(14/49)
for diagnosis	4.1(7/169)	4.2(5/120)	4.1(2/49)
For treatment and ongoing monitoring	24.9(42/169)	29.2(35/120)	14.3(7/49)
Because of all the above	4.3(5/169)	0.0(0/120)	14.3(5/49)
Sent for fundoscopy	24.9(42/169)	22.5(27/120)	30.6(15/49)
Retinopathy was diagnosed	9.5(4/42)	7.4(2/27)	13.3(2/15)
Antidiabetic drug treatment			
Medical treatment: no	7.1(12/169)	7.5(9/120)	6.1(3/49)
treated - with tablets	84.0(142/169)	81.7(98/120)	89.8(44/49)
treated - with insulin	3.0(5/169)	4.2(5/120)	0.0(0/49)
Tablets & insulin	1.8(3/169)	2.5(3/120)	0.0(0/49)
Statin prescribed	72.8(123/169)	75.0(90/120)	67.3(33/49)
Aspirin/clopidogrel prescribed	64.5(109/169)	66.7(80/120)	59.2(29/49)
Anti-hypertensive drug prescribed	83.4(141/169)	88.3(106/120)	71.4(35/49)
Triple therapy prescribed	44.4(75/169)	46.7(56/120)	38.8(19/49)
outcome indicators			
BP at normal range (SBP/DBP < 130/80 mmHg)	33.1(56/169)	30.8(37/120)	38.8(19/49)
Fasting glucose FG < 7 mmol/l	32.5(55/169)	32.5(39/120)	32.7(16/49)
Glucose 2hours after meal <11mmol/l	4.1(7/169)	3.3(4/120)	6.1(4/49)
Total cholesterol controlled TC< 194mg/dl	42.0(71/169)	35.0(42/120)	59.2(29/49)
In high-risk patients, LDL (\leq 75 mg/dL at last visit	32.0(54/169)	30.0(36/120)	36.7(18/49)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table 4B: Process and outcome indicators in type 2 diabetes dataset – both samples by PHC teams

Process and outcome indicators	All	PHC1-MB	PHC2-LG	PHC3-EG	PHC4-NG	PHC5-NK	PHC6-VK	PHC7-NL	PHC8-IM	PHC9-IC
diabetes dataset – both samples										
Smoking status recorded	89.9(162/169)	84.2(16/19)	100.0(15/15)	100.0(17/17)	50.0(13/26)	100.0(14/14)	100.0(18/18)	100.0(17/17)	95.8(23/24)	100.0(19/19)
BP measured once during the last year	99.1(107/169)	94.7(18/19)	93.3(14/15)	100.0(17/17)	80.8(21/26)	100.0(14/14)	100.0(18/18)	100.0(17/17)	100.0(24/24)	100.0(19/19)
BP measured twice during the last year	72.8(123/169)	73.7(14/19)	80.0(12/15)	94.1(16/17)	34.6(9/26)	78.6(11/14)	66.7(12/18)	52.9(9/17)	87.5(21/24)	100.0(19/19)
HbA1c - tested	34.3(58/169)	36.8(7/19)	20.0(3/15)	47.1(8/17)	11.5(3/26)	35.7(5/14)	50.0(9/18)	5.9(1/17)	66.7(16/24)	31.6(6/19)
Fasting glucose - tested	91.1(154/169)	85.5(17/19)	60.0(9/15)	100.0(17/17)	100.0(26/26)	85.7(12/14)	100.0(18/18)	100.0(17/17)	100.0(24/24)	73.7(14/19)
Post prandial glucose (2 hours post meal)	5.3(9/169)	0.0(0/19)	0.0(0/15)	29.4(5/17)	0.0(0/26)	0.0(0/14)	11.1(2/18)	0.0(0/17)	0.0(0/24)	10.5(2/19)
Total cholesterol tested	88.8(150/169)	94.7(18/19)	53.3(8/15)	94.1(16/17)	100.0(26/26)	85.7(12/14)	100.0(18/18)	94.1(16/17)	91.7(22/24)	73.7(14/19)
LDL cholesterol tested	49.1(83/169)	63.2(12/19)	13.3(2/15)	76.5(13/17)	46.2(12/26)	57.1(8/14)	61.1(11/18)	41.2(7/17)	54.2(13/24)	26.3(5/19)
Creatinine in blood tested (µmol/L)	83.4(141/169)	78.9(15/19)	46.7(7/15)	94.1(16/17)	76.9(20/26)	92.8(13/14)	77.78(14/18)	100.0(17/17)	95.8(23/24)	84.2(16/19)
eGFR (ml/min/1.73m ²) is calculated	45.6(77/169)	78.9(15/19)	26.7(4/15)	64.7(11/17)	3.8(1/26)	42.9(6/14)	61.1(11/18)	100.0(17/17)	29.2(7/24)	26.3(5/19)
eGFR (ml/min/1.73m ²) – is calculated in 2024	37.9(64/169)	0.0(0/19)	20.0(3/15)	29.4(5/17)	73.1(19/26)	50.0(7/14)	16.7(3/18)	0.0(0/17)	66.7(16/24)	57.9(11/19)
Testing for microalbuminuria	1.8(3/169)	0.0(0/19)	0.0(0/15)	0.0(0/17)	3.8(1/26)	0.0(0/14)	0.0(0/18)	0.0(0/17)	0.0(0/24)	10.5(2/19)
Fundoscopy – referred to ophthalmologist	24.9(42/169)	10.5(2/19)	13.8(2/15)	11.8(2/17)	0.0(0/26)	21.4(3/14)	61.1(11/18)	100.0(17/17)	4.2(1/24)	21.1(4/19)
Check for peripheral pulsation	14.8(25/169)	0.0(0/19)	0.0(0/15)	47.1(8/17)	0.0(0/26)	42.9(6/14)	11.1(2/18)	0.0(0/17)	0.0(0/24)	47.4(9/19)
Brachial Ankle Index (ABI) was determined	1.2(2/169)	0.0(0/19)	0.0(0/15)	5.9(1/17)	0.0(0/26)	0.0(0/14)	5.6(1/18)	0.0(0/17)	0.0(0/24)	0.0(0/19)
Foot problems -assessed	23.1(39/169)	0.0(0/19)	0.0(0/15)	52.9(9/17)	0.0(0/26)	57.1(8/14)	38.91(7/18)	5.9(1/17)	0.0(0/24)	73.7(14/19)
Neuropathic complications - assessed	20.1(34/169)	0.0(0/19)	0.0(0/15)	23.5(4/17)	0.0(0/26)	64.3(9/14)	22.2(4/18)	25.0(3/17)	0.0(0/24)	68.4(13/19)
The risk of hypoglycemia - assessed	11.2(19/169)	0.0(0/19)	6.7(1/15)	11.8(2/17)	7.7(2/26)	0.0(0/14)	72.2(13/18)	0.0(0/17)	4.2(1/24)	0.0(0/19)
BMI recorded by health care professionals	82.2(139/169)	21.1(4/19)	100.0(15/15)	82.4(14/17)	69.2(18/26)	100.0(14/14)	94.4(17/18)	100.0(17/17)	91.7(22/24)	94.7(18/19)
BMI calculated for the analysis	0.0(0/169)	0.0(0/19)	0.0(0/15)	0.0(0/17)	0.0(0/26)	0.0(0/14)	0.0(0/18)	0.0(0/17)	0.0(0/24)	0.0(0/19)
Obese (BMI ≥ 30 kg/m ²)	37.363/169)	15.8(3/19)	40.0(6/15)	47.1(8/17)	38.5(10/26)	57.1(8/14)	16.7(3/18)	29.4(5/17)	50.0(12/24)	42.1(8/19)
Risk score recorded by health care professionals	20.1(34/169)	63.2(12/19)	13.3(2/15)	23.5(4/17)	0.0(0/26)	21.4(3/14)	0.0(0/18)	11.8(2/17)	29.2(7/24)	21.1(4/19)
WHO/ISH risk score calculated	78.7(133/169)	36.9(7/19)	86.7(13/15)	76.5(13/17)	92.3(24/26)	78.6(11/14)	100.0(18/18)	88.2(15/17)	70.8(17/24)	79.0(15/19)

CVD risks assessed, including	98.8(167/169)	100.0(19/19)	100.0(15/15)	100.0(17/17)	92.3(24/26)	100.0(14/14)	100.0(18/18)	100.0(17/17)	100.0(24/24)	100.0(19/19)
low risks	5.3(9/169)	0.0(0/19)	0.0(0/15)	0.0(0/17)	19.2(5/26)	0.0(0/14)	0.0(0/18)	5.9(1/17)	8.3(2/24)	5.3(1/19)
Moderate risks	24.9(42/169)	26.3(5/19)	13.3(2/15)	0.0(0/17)	3.9(1/26)	57.1(8/14)	22.2(4/18)	58.8(10/17)	16.7(4/24)	42.1(8/19)
High risks	68.6(116/169)	73.7(14/19)	86.7(13/15)	100.0(17/17)	69.2(18/26)	42.9(6/14)	77.8(14/18)	35.8(6/17)	75.0(18/24)	52.6(10/19)
High risks – without CVD	47.4(55/116)	57.1(8/14)	7.7(1/13)	64.7(11/17)	55.6(10/18)	66.7(4/6)	50.0(7/14)	83.3(5/6)	22.2(4/18)	50.0(5/10)
Referred to Endocrinologis										
No	68.0(115/169)	79.0(15/19)	80.0(12/15)	70.6(12/17)	88.5(23/26)	21.4(3/14)	88.9(16/18)	29.4(5/17)	58.3(14/24)	79.0(15/19)
Yes - including	32.0(54/169)	21.1(4/19)	20.0(3/15)	29.4(5/17)	11.6(3/26)	78.6(11/14)	11.1(2/18)	70.6(12/17)	41.17(10/24)	21.1(4/19)
for diagnosis	4.1(7/169)	10.5(2/19)	0.0(0/15)	0.0(0/17)	0.0(0/26)	35.7(5/14)	0.0(0/18)	0.0(0/17)	0.0(0/24)	0.0(0/19)
For treatment and ongoing monitoring	24.9(42/169)	5.3(1/19)	20.0(3/15)	23.5(4/17)	7.7(2/26)	42.9(6/14)	0.0(0/18)	70.6(12/17)	41.7(10/24)	21.1(4/19)
Because of all the above	4.3(5/54)	5.3(1/19)	0.0(0/15)	5.9(1/17)	3.9(1/26)	0.0(0/14)	11.1(2/18)	0.0(0/17)	0.0(0/24)	0.0(0/19)
Sent for fundoscopy	24.9(42/169)	10.5(2/19)	13.3(2/15)	11.8(2/17)	0.0(0/26)	21.4(3/14)	61.1(11/18)	100.0(17/17)	4.2(1/24)	21.1(4/19)
Retinopathy was diagnosed	9.5(4/42)	0.0(0/19)	0.0(0/15)	0.0(0/17)	0.0(0/26)	0.0(0/14)	11.1(2/18)	0.0(0/17)	0.0(0/24)	10.5(2/19)
Antidiabetic drug treatment										
Medical treatment: no	7.1(12/169)	15.8(3/19)	13.3(2/15)	0.0(0/17)	15.4(4/26)	0.0(0/14)	0.0(0/18)	0.0(0/17)	4.2(1/24)	10.5(2/19)
treated - with tablets	84.0(142/169)	73.7(14/19)	80.0(12/15)	64.7(11/17)	84.6(22/26)	92.9(13/14)	94.4(17/18)	94.1(16/17)	83.3(20/24)	89.5(17/19)
treated - with insulin	3.0(5/169)	5.3(1/19)	6.7(1/15)	11.8(2/17)	0.0(0/26)	7.1(1/14)	0.0(0/18)	0.0(0/17)	0.0(0/24)	0.0(0/19)
Tablets & insulin	1.8(3/169)	0.0(0/19)	0.0(0/15)	0.0(0/17)	0.0(0/26)	0.0(0/14)	0.0(0/18)	5.9(1/17)	8.3(2/24)	0.0(0/19)
Statin prescribed	72.8(123/169)	84.2(16/19)	40.0(6/108)	94.1(16/17)	57.7(15/26)	92.9(13/14)	77.8(14/18)	100.0(17/17)	66.7(16/24)	52.6(10/19)
Aspirin/clopidogrel prescribed	64.5(109/169)	26.3(5/19)	80.0(12/15)	82.4(14/17)	69.2(18/26)	21.4(3/14)	77.8(14/18)	100.0(17/17)	54.2(13/24)	68.4(13/19)
Anti-hypertensive drug prescribed	83.4(141/169)	78.9(15/19)	80.0(12/15)	94.1(16/17)	61.5(16/26)	92.9(13/14)	83.3(15/18)	94.1(16/17)	91.7(22/24)	84.2(16/19)
Triple therapy prescribed	44.4(75/169)	15.8(3/19)	40.0(6/108)	70.6(12/17)	38.5(10/26)	21.4(3/14)	61.1(11/18)	94.1(16/17)	29.2(7/24)	36.8(7/19)
outcome indicators										
BP at normal range (SBP/DBP < 130/80 mmHg)	33.1(56/169)	42.1(8/19)	33.3(5/15)	35.3(6/17)	19.2(5/26)	14.3(2/14)	38.9(7/18)	17.6(3/17)	25.0(6/24)	73.7(14/19)
Fasting glucose FG < 7 mmol/l	32.5(55/169)	42.1(8/19)	6.7(1/15)	41.2(7/17)	23.1(6/26)	35.7(5/14)	55.6(10/18)	23.5(4/17)	37.5(9/24)	26.3(5/19)
Glucose 2hours after meal <11mmol/l	4.1(7/169)	0.0(0/19)	0.0(0/15)	29.4(5/17)	0.0(0/26)	0.0(0/14)	5.6(1/18)	0.0(0/17)	0.0(0/24)	5.3(1/19)
Total cholesterol controlled TC< 194mg/dl	42.0(71/169)	52.6(10/19)	6.7(1/15)	35.3(6/17)	46.2(12/26)	14.3(2/14)	77.8(14/18)	58.8(10/17)	41.7(10/24)	31.6(6/19)
In high-risk patients, LDL (≤ 75 mg/dL at last visit	32.0(54/169)	47.4(9/19)	6.7(1/15)	70.6(12/17)	23.1(6/26)	42.9(6/14)	50.0(9/18)	5.9(1/17)	29.2(7/24)	15.8(3/19)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table 4C: Process and outcome indicators in type 2 diabetes dataset

Process and outcome indicators	All	female	male
type 2 diabetes dataset			
Smoking status recorded	96.3(104/108)	96.0(72/75)	97.0(32/33)
BP measured once during the last year	99.1(107/108)	100.0(75/75)	97.0(32/33)
BP measured twice during the last year	76.9(83/108)	80.0(60/75)	69.7(23/33)
HbA1c - tested	53.7(58/108)	54.7(41/75)	51.5(17/33)
Fasting glucose - tested	90.7(98/108)	93.3(70/75)	84.8(28/33)
Post prandial glucose (2 hours post meal)	6.5(7/108)	5.3(4/75)	9.1(3/33)
Total cholesterol tested	88.0(95/108)	90.7(68/75)	81.8(27/33)
LDL cholesterol tested	46.3(50/108)	42.7(32/75)	54.5(18/33)
Creatinine in blood tested (µmol/L)	84.3(91/108)	85.3(64/75)	81.8(27/33)
eGFR (ml/min/1.73m ²) is calculated	50.0(54/108)	50.7(38/75)	48.9(16/33)
eGFR (ml/min/1.73m ²) – is calculated in 2024	34.3(37/108)	34.7(26/75)	33.3(11/33)
Testing for microalbuminuria	0.9(1/108)	0.0(0/75)	3.0(1/33)
Fundoscopy – referred to ophthalmologist	25.9(28/108)	25.3(19/75)	27.3(9/33)
Check for peripheral pulsation	23.1(25/108)	24.0(18/75)	21.2(7/33)
Brachial Ankle Index (ABI) was determined	1.9(2/108)	1.3(1/75)	3.0(1/33)
Foot problems -assessed	29.6(32/108)	26.7(20/75)	36.4(12/33)
Neuropathic complications - assessed	25.9(28/108)	25.3(19/75)	27.3(9/33)
The risk of hypoglycemia - assessed	10.2(11/108)	6.7(5/75)	18.2(6/33)
BMI recorded by health care professionals	85.2(92/108)	84.0(63/75)	87.9(29/33)
BMI calculated for the analysis	0.0(0/108)	0.0(0/75)	0.0(0/33)
Obese (BMI ≥ 30 kg/m ²)	36.1(39/108)	38.7(29/75)	30.3(10/33)
Risk score recorded by health care professionals	19.4(21/108)	25.3(19/75)	6.1(2/33)
WHO/ISH risk score calculated	80.6(87/108)	74.7(56/75)	93.9(31/33)
Total risks including	100.0(108/108)	100.0(75/75)	100.0(33/33)
low risks	5.6(6/108)	5.3(4/75)	6.1(2/33)
Moderate risks	27.8(30/108)	28.0(21/75)	27.3(9/33)
High risks	66.7(72/108)	66.7(50/75)	66.7(22/33)

High risks without CVD	44.4(32/72)	48.0(24/50)	36.4(8/22)
Referred to Endocrinologis			
No	67.6(73/108)	65.3(49/75)	72.7(24/33)
Yes - including	32.4(35/108)	34.7(26/75)	27.3(9/33)
for diagnosis	5.6(6/108)	5.3(4/75)	6.1(2/33)
For treatment and ongoing monitoring	25.0(27/108)	29.3(22/75)	15.2(5/33)
Because of all the above	1.9(2/108)	0.0(0/75)	6.1(2/33)
Sent for fundoscopy	1.9(2/108)	2.7(2/75)	0.0(0/33)
Retinopathy was diagnosed	0.0(0/108)	0.0(0/75)	0.0(0/33)
Antidiabetic drug treatment			
Medical treatment: no	1.9(2/108)	0.0(0/75)	6.1(2/33)
treated - with tablets	89.8(97/108)	88.0(66/75)	93.9(31/33)
treated - with insulin	4.6(5/108)	6.7(5/75)	0.0(0/33)
Tablets & insulin	2.8(3/108)	4.0(3/75)	0.0(0/33)
Statin prescribed	71.3(77/108)	74.7(56/75)	63.6(21/33)
Aspirin/clopidogrel prescribed	65.7(71/108)	70.7(53/75)	54.5(18/33)
Anti-hypertensive drug prescribed	86.1(93/108)	86.1(70/75)	69.7(23/33)
Triple therapy prescribed	44.4(48/108)	49.3(37/75)	33.3(11/33)
outcome indicators			
BP at normal range (SBP/DBP < 130/80 mmHg)	31.5(34/108)	31.5(23/75)	33.3(11/33)
Fasting glucose FG < 7 mmol/l	33.3(33/108)	33.3(25/75)	33.3(11/33)
Glucose 2hours after meal <11mmol/l	5.6(6/108)	5.6(3/75)	9.1(3/33)
Total cholesterol controlled TC< 194mg/dl	38.0(41/108)	29.3(22/75)	57.6(19/33)
In high-risk patients, LDL (\leq 75 mg/dL at last visit	34.3(37/108)	32.0(24/75)	39.4(13/33)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table 4D: Process and outcome indicators in type 2 diabetes dataset, by PHC teams

Process and outcome	სულ	PHC1-MB	PHC2-LG	PHC3-EG	PHC4-NG	PHC5-NK	PHC6-VK	PHC7-NL	PHC8-IM	PHC9-IC
type 2 diabetes sample										
Smoking status recorded	96,3(104/108)	75,0(9/12)	100.0(12/12)	100.0(12/12)	100.0 (12/12)	100.0(12/12)	100.0 (12/12)	100.0 (12/12)	91,7(11/12)	100.0 (12/12)
BP measured once during the last year	99,1(107/108)	100,0(12/12)	100,0 (12/12)	100,0(12/12)	91,7(11/12)	100,0(12/12)	100,0(12/12)	100,0(12/12)	100,0(12/12)	100,0(12/12)
BP measured twice during the last year	76,9(83/108)	75,0(9/12)	91,7 (11/12)	91,7(11/12)	41,7(5/12)	83,3(10/12)	66,7(8/12)	58,3(7/12)	83,3(10/12)	100,0(12/12)
HbA1c - tested	33,3(36/108)	33,3(4/12)	25,0(3/12)	50,0(6/12)	0,0(0/12)	33,3(4/12)	58,3(7/12)	8,3(1/12)	66,7(8/12)	25,0(3/12)
Fasting glucose - tested	90,7(98/108)	83,3(10/12)	75,0(9/12)	100,0(12/12)	100,0(12/12)	83,3(10/12)	100,0(12/12)	100,0(12/12)	100,0(12/12)	75,0(9/12)
Post prandial glucose (2 hours post meal)	6,5(7/108)	0,0(0/12)	0,0(0/12)	33,3(4/12)	0,0(0/12)	0,0(0/12)	16,7((2/12)	0,0(0/12)	0,0(0/12)	8,3(1/12)
Total cholesterol tested	88,0(95/108)	91,7(11/12)	66,7(8/12)	91,7(11/12)	100,0(12/12)	83,3(10/12)	100,0(12/12)	91,7(11/12)	83,3(10/12)	83,3(10/12)
LDL cholesterol tested	46,3(50/108)	58,3(7/12)	16,7(2/12)	66,7(8/12)	41,7(5/12)	58,3(7/12)	58,3(7/12)	33,3(4/12)	58,3(7/12)	25.0(3/12)
Creatinine in blood tested (μmol/L)	84,3(91/108)	75,0(9/12)	58,3(7/12)	100,0(12/12)	75,0(9/12)	91,7(11/12)	75,0(9/12)	100,0(12/12)	91,7(11/12)	91,7(11/12)
eGFR (ml/min/1.73m2) is calculated	50,0(54/108)	75,0(9/12)	33,3(4/12)	83,3(10/12)	8,3(1/12)	33,3(4/12)	50,0(6/12)	100,0(12/12)	41,7(5/12)	25,0(3/12)
eGFR (ml/min/1.73m2) – is calculated in 2024	34,3(37/108)	0,0(0/12)	25,0(3/12)	16,7(2/12)	66,7(8/12)	58,3(7/12)	25,0(3/12)	0,0(0/12)	50,0(6/12)	66,7(8/12)
Testing for microalbuminuria	0,9(1/108)	0,0(0/12)	0,0(0/12)	0,0(0/12)	0,0(0/12)	0,0(0/12)	0,0(0/12)	0,0(0/12)	0,0(0/12)	8,3(1/12)
Fundoscopy – referred to ophthalmologist	25,9(28/108)	16,7(2/12)	16,7(2/12)	8,3(1/12)	0,0(0/12)	16,7(2/12)	58,3(7/12)	100,0(12/12)	0,0(0/12)	16,7(2/12)
Check for peripheral pulsation	23.1(25/108)	0.0(0/12)	0.0(0/12)	66.7(8/12)	0.0(0/12)	50.0(6/12)	16.7(2/12)	0.0(0/12)	0.0(0/12)	75.0(9/12)
Brachial Ankle Index (ABI) was determined	1.9(2/108)	0.0(0/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
Foot problems -assessed	29.6(32/108)	0.0(0/12)	0.0(0/12)	58.3(7/12)	0.0(0/12)	66.7(8/12)	50.0(6/12)	0.0(0/12)	0.0(0/12)	91.7(11/12)
Neuropathic complications - assessed	25.9(28/108)	0.0(0/12)	0.0(0/12)	33.3(4/12)	0.0(0/12)	75.0(9/12)	25.0(3/12)	25.0(3/12)	0.0(0/12)	75.0(9/12)
The risk of hypoglycemia - assessed	10.2(11/108)	0.0(0/12)	8.3(1/12)	16.7(2/12)	0.0(0/12)	0.0(0/12)	66.7(8/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
BMI recorded by health care professionals	85.2(92/108)	33.3(4/12)	100.0(12/12)	75.0(9/12)	75.0(9/12)	100.0(12/12)	91.7(11/12)	100.0(12/12)	91.7(11/12)	100.0(12/12)
BMI calculated for the analysis	0(0/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
Obese (BMI ≥ 30 kg/m ²)	36.1(39/108)	25.0(3/12)	41.7(5/12)	41.7(5/12)	33.3(4/12)	50.0(6/12)	8.3(1/12)	25.0(3/12)	41.7(5/12)	58.3(7/12)

Risk score recorded by health care professionals	19.4(21/108)	83.3(10/12)	8.3(1/12)	33.3(4/12)	0.0(0/12)	16.7(2/12)	0.0(0/12)	0.0(0/12)	8.3(1/12)	25.0(3/12)
WHO/ISH risk score calculated	80.6(87/108)	16.7(2/12)	91.7(11/12)	66.7(8/12)	100.0(12/12)	83.3(10/12)	100.0(12/12)	100.0(12/12)	91.7(11/12)	75.0(9/12)
Total risks including	100.0(108/108)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)	100.0(12/12)
low risks	5.6(6/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	41.7(5/12)	8.3(0/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)
Moderate risks	27.8(30/108)	16.7(2/12)	8.3(1/12)	0.0(0/12)	8.3(1/12)	66.7(8/12)	25.0(3/12)	66.7(8/12)	8.3(1/12)	50.0(6/12)
High risks	66.7(72/108)	83.3(10/12)	91.7(11/12)	100.0(12/12)	50.0(6/12)	33.3(4/12)	75.0(9/12)	25.0(3/12)	91.7(11/12)	50.0(6/12)
High risks without CVD	44.4(32/72)	60.0(6/10)	0.0(0/11)	75.0(9/12)	50.0(3/6)	75.0(3/4)	55.6(5/9)	66.7(2/3)	0.0(0/11)	66.7(4/6)
Referred to Endocrinologis										
No	67.6(73/108)	66.7(8/12)	75.0(9/12)	75.0(9/12)	100.0(12/12)	16.7(2/12)	100.0(12/12)	25.0(3/12)	66.7(8/12)	83.3(10/12)
Yes - including	32.4(35/108)	33.3(4/12)	25.0(3/12)	25.0(3/12)	0.0(0/12)	83.3(10/12)	0.0(0/12)	75.0(9/12)	33.3(4/12)	16.7(2/12)
for diagnosis	5.6(6/108)	16.7(2/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	33.3(4/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
For treatment and ongoing monitoring	25.0(27/108)	8.3(1/12)	25.0(3/12)	16.7(2/12)	0.0(0/12)	50.0(6/12)	0.0(0/12)	75.0(9/12)	33.3(4/12)	16.7(2/12)
Because of all the above	1.9(2/108)	8.3(1/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
Sent for fundoscopy	1.9(2/108)	8.3(1/12)	0.0(0/12)	0.0(0/12)	41.7(5/12)	8.3(0/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	8.3(1/12)
Retinopathy was diagnosed	0.0(0/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
Antidiabetic drug treatment										
Medical treatment: no	1.9(2/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	16.7(2/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
treated - with tablets	89.8(97/108)	83.3(10/12)	91.7(11/12)	83.3(10/12)	83.3(10/12)	91.7(11/12)	100.0(12/12)	91.7(11/12)	83.3(10/12)	100.0(12/12)
treated - with insulin	4.6(5/108)	8.3(1/12)	8.3(1/12)	16.7(2/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)
Tablets & insulin	2.8(3/108)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	0.0(0/12)	8.3(1/12)	16.7(2/12)	0.0(0/12)
Statin prescribed	71.3(77/108)	83.3(10/12)	91.7(11/12)	83.3(10/12)	83.3(10/12)	91.7(11/12)	100.0(12/12)	91.7(11/12)	83.3(10/12)	100.0(12/12)
Aspirin/clopidogrel prescribed	65.7(71/108)	33.3(4/12)	91.7(11/12)	91.7(11/12)	58.3(7/12)	16.7(2/12)	66.7(8/12)	100.0(12/12)	50.0(6/12)	83.3(10/12)
Anti-hypertensive drug prescribed	86.1(93/108)	83.3(10/12)	91.7(11/12)	100.0(12/12)	50.0(6/12)	91.7(11/12)	83.3(10/12)	100.0(12/12)	91.7(11/12)	83.3(10/12)
Triple therapy prescribed	44.4(48/108)	16.7(2/12)	50.0(6/12)	83.3(10/12)	16.7(2/12)	16.7(2/12)	50.0(6/12)	100.0(12/12)	33.3(4/12)	33.3(4/12)
outcome indicators										
BP at normal range (SBP/DBP < 130/80 mmHg)	31.5(34/108)	41.7(5/12)	25.0(3/12)	16.7(2/12)	25.0(3/12)	8.3(1/12)	33.3(4/12)	16.7(2/12)	25.0(3/12)	91.7(11/12)

Fasting glucose FG < 7 mmol/l	33.3(33/108)	41.7(5/12)	8.3(1/12)	41.7(5/12)	33.3(4/12)	33.3(4/12)	50.0(6/12)	25.0(3/12)	33.3(4/12)	33.3(4/12)
Glucose 2hours after meal <11mmol/l	5.6(6/108)	0.0(0/12)	0.0(0/12)	33.3(4/12)	0.0(0/12)	0.0(0/12)	8.3(1/12)	0.0(0/12)	0.0(0/12)	8.3(1/12)
Total cholesterol controlled TC< 194mg/dl	38.0(41/108)	33.3(4/12)	8.3(1/12)	33.3(4/12)	50.0(6/12)	16.7(2/12)	75.0(9/12)	58.3(7/12)	33.3(4/12)	33.3(4/12)
In high-risk patients, LDL (\leq 75 mg/dL at last visit	34.3(37/108)	58.3(7/12)	8.3(1/12)	66.7(8/12)	33.3(4/12)	25.0(3/12)	58.3(7/12)	0.0/12)	41.7(5/12)	16.7(2/12)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table 5A: Process and outcome indicators in patients with hypertension and other cardiovascular diseases

Process/outcomes - indicators	All	female	male
General dataset			
patients with other cardiovascular diseases			
Smoking status recorded	88.2(127/144)	88.8(87/98)	87.0(40/46)
Current smoker female*	15.0(19/127)	8.0(7/87)	30.1(12/40)
Current smoker male (total)*	13.2(19/144)	7.1(7/98)	26.1(12/46)
BP measured once during the last year	96.5(139/144)	96.9(95/98)	95.7(44/46)
BP measured twice during the last year	79.2(114/144)	83.7(82/98)	69.6(32/46)
Total cholesterol tested	82.6(119/144)	81.6(80/98)	84.8(39/46)
LDL cholesterol tested	41.0(59/144)	39.8(39/98)	43.5(20/46)
Creatinine in blood tested (µmol/L)	59.7(86/144)	58.2(57/98)	63.0(29/46)
eGFR (ml/min/1.73m ²) is calculated	38.9(56/144)	38.8(38/98)	39.1(18/46)
eGFR (ml/min/1.73m ²) – is calculated in 2024	20.8(30/144)	19.4(19/98)	23.9(11/46)
Testing for microalbuminuria	0.7(1/144)	1.0(1/98)	0.0(0/46)
Check for peripheral pulsation	6.3(9/144)	5.1(5/98)	8.7(4/46)
Brachial Ankle Index (ABI) was determined	0.0(0/144)	0.0(0/98)	0.0(0/46)
BMI recorded by health care professionals	80.6(116/144)	24.1(79/98)	41.6(37/46)
BMI calculated for the analysis	0.0(0/144)	0.0(0/98)	0.0(0/46)
Obese (BMI ≥ 30 kg/m ²)	30.6(44/144)	33.7(33/98)	23.9(11/46)
Statin prescribed	68.8(99/144)	64.3(63/98)	78.3(36/46)
Aspirin/clopidogrel prescribed	83.3(120/144)	84.7(83/98)	80.4(37/46)
Anti-hypertensive drug prescribed	89.6(129/144)	93.9(92/98)	80.4(37/46)
Triple therapy prescribed	55.6(80/144)	51.0(50/98)	65.2(30/46)
outcome indicators			
BP at normal range (SBP/DBP < 140/90 mmHg)	56.9(82/144)	60.2(59/98)	50.0(23/46)
Total cholesterol controlled TC< 194mg/dl	43.1(62/144)	37.8(37/98)	54.3(25/46)
Patients with Hypertension			
Smoking status recorded	87.8(366/417)	87.5(286/328)	88.8(79/89)

Current smoker *	12.6(46/366)	8.4(24/286)	27.8(22/79)
Current smoker (total)**	10.0(46/417)	7.3(24/328)	24.7(22/89)
BP measured once during the last year	96.6(403/417)	96.3(316/328)	96.6(86/89)
BP measured twice during the last year	74.3(309/417)	74.1(243/328)	74.2(66/89)
Total cholesterol tested	87.5(365/417)	87.8(288/328)	86.5(77/89)
LDL cholesterol tested	40.0(167/417)	39.6(130/328)	41.6(37/89)
Creatinine in blood tested ($\mu\text{mol/L}$)	54.7(228/417)	52.4(172/328)	62.9(56/89)
eGFR (ml/min/1.73m ²) is calculated	25.98(108/417)	23.8(78/328)	33.7(30/89)
eGFR (ml/min/1.73m ²) – is calculated in 2024	28.8(120/417)	28.7(94/328)	29.2(26/89)
Testing for microalbuminuria	0.5(2/417)	0.5(2/328)	0.0(0/89)
Check for peripheral pulsation	7.2(30/417)	6.7(22/328)	9.0(8/89)
Brachial Ankle Index (ABI) was determined	0.2(1/417)	0.6(1/328)	0.0(0/89)
Referred to fundoscopy	8.9(37/417)	8.8(29/328)	9.0(8/89)
BMI recorded by health care professionals	84.7(353/417)	100.0(328/328)	85.4(76/89)
BMI calculated for the analysis	0.0(0/417)	0.0(0/328)	0.0(0/89)
Obese (BMI \geq 30 kg/m ²)	31.2(130/417)	32.7(107/328)	25.8(23/89)
Statin prescribed	57.8(241/417)	56.7(186/328)	61.8(55/89)
Aspirin/clopidogrel prescribed	53.7(224/417)	54.0(177/328)	52.8(47/89)
Anti-hypertensive drug prescribed	89.2(372/417)	89.6(294/328)	87.6(78/89)
Triple therapy prescribed	37.2(155/417)	35.0(118/328)	41.9(37/89)
outcome indicators			
BP at normal range (SBP/DBP < 140/90 mmHg)	45.7(203/417)	48.5(159/328)	48.3(43/89)
In high-risk patients, LDL (\leq 75 mg/dL at last visit)	3.8(16/417)	4.0(13/328)	3.4(3/89)
Total cholesterol controlled TC < 194mg/dl	39.8(166/417)	36.3(119/328)	52.8(47/89)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

* Patients with missing smoking status were excluded.

** Patients with missing smoking status were considered as a non-smoker

Table 5B: Process and outcome indicators in patients with hypertension and other cardiovascular diseases, by PHC teams

Process/outcomes - indicators	Total	PHC1-MB	PHC2-LG	PHC3-EG	PHC4-NG	PHC5-NK	PHC6-VK	PHC7-NL	PHC8-IM	PHC9-IC
General dataset										
patients with other cardiovascular diseases										
Smoking status recorded	88.2(127/144)	100.0(19/19)	97.4(38/39)	100.0(9/9)	9.1(1/11)	100.0(6/6)	87.0(20/23)	100.0(6/6)	93.3(14/15)	87.5(14/16)
Current smoker *	15.0(19/127)	0.0(0/19)	15.8(6/38)	33.3(3/9)	100.0(1/1)	0.0(0/6)	20.0(4/20)	16.7(1/6)	0.0(0/14)	28.6(4/14)
Current smoker (total)**	13.2(19/144)	0.0(0/19)	15.4(6/39)	33.3(3/9)	9.1(1/11)	0.0(0/6)	17.4(4/23)	16.7(1/6)	0.0(0/15)	25.0(4/16)
BP measured once during the last year	96.5(139/144)	100.0(19/19)	92.3(36/39)	100.0(9/9)	81.8(9/11)	100.0(6/6)	100.0(23/23)	100.0(6/6)	100.0(15/15)	100.0(16/16)
BP measured twice during the last year	79.2(114/144)	89.5(17/19)	82.1(32/39)	100.0(9/9)	27.3(3/11)	66.7(4/6)	73.9(17/23)	16.7(1/6)	100.0(15/15)	100.0(16/16)
Total cholesterol tested	82.6(119/144)	94.7(18/19)	69.2(27/39)	77.8(7/9)	100.0(11/11)	83.3(5/6)	100.0(23/23)	100.0(6/6)	86.7(13/15)	56.3(9/16)
LDL cholesterol tested	41.0(59/144)	63.2(12/19)	10.3(4/39)	55.6(5/9)	63.6(7/11)	50.0(3/6)	56.5(13/23)	50.0(3/6)	40.0(6/15)	37.5(6/16)
Creatinine in blood tested (μmol/L)	49.3(71/144)	79.0(15/19)	20.5(8/39)	66.7(6/9)	91.0(10/11)	66.7(4/6)	78.3(18/23)	83.3(5/6)	93.3(14/15)	37.5(6/16)
eGFR (ml/min/1.73m2) is calculated	27.8(40/144)	68.9(13/19)	18.0(7/39)	33.3(3/9)	9.1(1/11)	66.7(4/6)	69.6(16/23)	83.3(5/6)	40.0(6/15)	6.3(1/16)
eGFR (ml/min/1.73m2) calculated in 2024	20.1(29/144)	10.6(2/19)	2.6(1/39)	33.3(3/9)	81.8(9/11)	0.0(0/6)	8.7(2/23)	0.0(0/6)	53.3(8/15)	31.3(5/16)
Testing for microalbuminuria	0.7(1/144)	0.0(0/19)	0.0(0/39)	0.0(0/9)	0.0(0/11)	0.0(0/6)	0.0(0/23)	0.0(0/6)	0.0(0/15)	6.3(1/16)
Check for peripheral pulsation	6.3(9/144)	0.0(0/19)	0.0(0/39)	33.3(3/9)	0.0(0/11)	0.0(0/6)	4.3(1/23)	0.0(0/6)	0.0(0/15)	31.3(5/16)
Brachial Ankle Index (ABI) was determined	0.0(0/144)	0.0(0/19)	0.0(0/39)	0.0(0/9)	0.0(0/11)	0.0(0/6)	0.0(0/23)	0.0(0/6)	0.0(0/15)	0.0(0/16)
BMI recorded by health care professionals	80.6(116/144)	5.3(1/19)	100.0(39/39)	77.8(7/9)	81.8(9/11)	83.3(5/6)	100.0(23/23)	83.3(5/6)	73.3(11/15)	100.0(16/16)
BMI calculated for the analysis	0.0(0/144)	0.0(0/19)	0.0(0/39)	0.0(0/9)	0.0(0/11)	0.0(0/6)	0.0(0/23)	0.0(0/6)	0.0(0/15)	0.0(0/16)
Obese (BMI ≥ 30 kg/m ²)	30.6(44/144)	5.3(1/19)	33.3(13/39)	55.6(5/9)	45.5(5/11)	50.0(3/6)	30.4(7/23)	50.0(3/6)	33.3(5/15)	12.5(2/16)
Statin prescribed	68.8(99/144)	13.3(8/60)	10.0(6/60)	10.0(6/60)	8.3(5/60)	3.3(2/60)	8.3(5/60)	3.3(2/60)	13.3(8/60)	8.3(5/60)
Aspirin/clopidogrel prescribed	83.3(120/144)	78.9(15/19)	82.1(32/39)	88.9(8/9)	63.6(7/11)	100.0(6/6)	91.3(21/23)	100.0(6/6)	73.3(11/15)	87.5(14/16)
Anti-hypertensive drug prescribed	89.6(129/144)	94.7(18/19)	84.6(33/39)	100.0(9/9)	72.7(8/11)	100.0(6/6)	87.0(20/23)	100.0(6/6)	100.0(15/15)	87.5(14/16)
Triple therapy prescribed	55.6(80/144)	78.9(15/19)	12.8(5/39)	88.9(8/9)	54.5(6/11)	83.3(5/6)	73.9(17/23)	83.3(5/6)	53.3(8/15)	68.8(11/16)
outcome indicators										
BP < 140/90 mmHg)	56.9(82/144)	63.2(12/19)	69.2(27/39)	55.6(5/9)	18.2(2/11)	33.3(2/6)	43.5(10/23)	16.7(1/6)	66.7(10/15)	81.3(13/16)
Total cholesterol < 194mg/dl	43.1(62/144)	57.9(11/19)	23.1(9/39)	33.3(3/9)	54.5(6/11)	66.7(4/6)	73.9(17/23)	66.7(4/6)	26.7(4/15)	25.0(4/16)
patients with hypertension										
Smoking status recorded	87.8(366/417)	100.0(51/51)	100.0(42/42)	100.0(60/60)	2.4(1/41)	100.0(46/46)	91.1(41/45)	100.0(33/33)	96.6(56/58)	87.8(36/41)
Current smoker*	12.6(46/366)	2.0(1/51)	11.9(5/42)	25.0(15/60)	100.0(1/1)	13.0(6/46)	19.5(8/41)	3.0(1/33)	1.8(1/56)	22.2(8/36)

smoker (total)**	10.0(46/417)	2.0(1/51)	11.9(5/42)	25.0(15/60)	2.4(1/41)	13.0(6/46)	17.8(8/45)	3.0(1/33)	1.7(1/58)	19.5(8/41)
BP measured once during the last year	96.6(403/417)	100.0(51/51)	95.2(40/42)	100.0(60/60)	73.2(30/41)	100.0(46/46)	100.0(45/45)	100.0(33/33)	100.0(58/58)	97.6(40/41)
BP measured twice during the last year	74.3(309/417)	78.4(40/51)	83.3(35/42)	98.3(59/60)	31.7(13/41)	52.2(24/46)	75.6(34/45)	39.4(13/33)	96.6(56/58)	85.4(35/41)
Total cholesterol tested	87.5(365/417)	98.0(49/51)	73.8(31/42)	93.3(56/60)	97.6(40/41)	78.3(36/46)	100.0(45/45)	100.0(33/33)	94.8(55/58)	43.9(18/41)
LDL cholesterol tested	40.0(167/417)	56.9(29/51)	9.5(4/42)	56.7(34/60)	36.6(15/41)	23.9(11/46)	44.4(20/45)	45.5(15/33)	46.6(27/58)	26.8(11/41)
Creatinine in blood tested (μmol/L)	54.7(228/417)	70.6(36/51)	0.0(0/42)	86.7(52/60)	92.7(38/41)	0.0(0/46)	64.4(29/45)	0.0(0/33)	93.1(54/58)	46.3(19/41)
eGFR (ml/min/1.73m2) calculated	25.98(108/417)	66.7(34/51)	0.0(0/42)	48.3(29/60)	2.4(1/41)	0.0(0/46)	57.8(26/45)	0.0(0/33)	20.8(12/58)	14.6(6/41)
eGFR (ml/min/1.73m2) calculated in 2024	28.8(120/417)	3.9(2/51)	0.0(0/42)	38.3(23/60)	90.2(37/41)	0.0(0/46)	6.7(3/45)	0.0(0/33)	72.4(42/58)	31.7(13/41)
Testing for microalbuminuria	0.5(2/417)	0.0(0/51)	0.0(0/42)	1.7(1/60)	0.0(0/41)	0.0(0/46)	0.0(0/45)	0.0(0/33)	0.0(0/58)	2.4(1/41)
Check for peripheral pulsation	7.2(30/417)	0.0(0/51)	0.0(0/42)	23.3(14/60)	0.0(0/41)	0.0(0/46)	4.4(2/45)	9.1(3/33)	0.0(0/58)	26.8(11/41)
Brachial Ankle Index (ABI) determined	0.2(1/417)	0.0(0/51)	0.0(0/42)	1.7(1/60)	0.0(0/41)	0.0(0/46)	0.0(0/45)	0.0(0/33)	0.0(0/58)	0.0(0/41)
Referred for fundoscopy	8.9(37/417)	0.0(0/51)	19.0(8/42)	3.3(2/60)	0.0(0/41)	2.2(1/46)	4.0(2/45)	6.1(2/33)	0.0(0/58)	4.9(2/41)
BMI recorded by health care professionals	84.7(353/417)	5.9(3/51)	100.0(42/42)	100.0(60/60)	100.0(41/41)	80.4(37/46)	100.0(45/45)	97.0(32/33)	91.4(53/58)	97.6(40/41)
BMI calculated for the analysis	0.0(0/417)	0.0(0/51)	0.0(0/42)	0.0(0/60)	0.0(0/41)	0.0(0/46)	0.0(0/45)	6.1(0/33)	0.0(0/58)	4.9(0/41)
Obese (BMI ≥ 30 kg/m ²)	31.2(130/417)	4.0(2/51)	33.3(14/42)	35.0(21/60)	29.3(12/41)	37.0(17/46)	33.3(15/45)	33.3(11/33)	51.7(30/58)	19.5(8/41)
Statin prescribed	57.8(241/417)	2.0(1/51)	0.0(0/42)	20.0(12/60)	36.6(15/41)	0.0(0/46)	4.0(2/45)	0.0(0/33)	41.4(24/58)	22.0(9/41)
Aspirin/clopidogrel prescribed	53.7(224/417)	60.0(30/51)	76.2(32/42)	38.3(23/60)	61.0(25/41)	13.0(6/46)	71.1(32/45)	81.8(27/33)	55.2(32/58)	41.5(17/41)
Anti-hypertensive drug prescribed	89.2(372/417)	92.0(46/51)	83.3(35/42)	100.0(60/60)	68.3(28/41)	91.3(42/46)	95.6(43/45)	78.8(26/33)	89.7(52/58)	97.6(40/41)
Triple therapy prescribed	37.2(155/417)	49.0(25/51)	11.9(5/42)	38.3(23/60)	31.7(13/41)	10.9(5/46)	57.8(26/45)	63.6(21/33)	39.7(24/58)	34.1(14/41)
outcome indicators										
BP < 140/90 mmHg)	45.7(203/417)	12.0(6/51)	14.3(6/42)	53.3(32/60)	14.6(6/41)	17.4(8/46)	37.8(17/45)	12.1(4/33)	29.3(17/58)	24.4(10/41)
In high-risk patients, LDL ≤ 75 mg/dL at last visit)	4.1(17/417)	7.8(4/51)	0.0(0/42)	0.0(0/60)	2.4(1/41)	13.0(6/46)	2.2(1/45)	0.0(0/33)	5.2(3/58)	2.4(1/41)
Total cholesterol < 194mg/dl	39.8(166/417)	52.9(27/51)	23.8(10/42)	38.3(25/60)	48.8(20/41)	26.1(12/46)	62.2(28/45)	48.5(16/33)	60.6(20/58)	19.5(8/41)

Abbreviations: BP, blood pressure; HbA1c, glycated hemoglobin; TC, Total Cholesterol; LDL, low-density lipoprotein; BMI, body mass index; WHO/ISH risk score, World Health Organization/International Society of Hypertension cardiovascular risk score; SBP, systolic blood pressure; DBP, diastolic blood pressure.

* Patients with missing smoking status were excluded.

** Patients with missing smoking status were considered as a non-smoker

A2- A3	0	0	0	0	0	0	0	0	0	0
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Complications

Retinopathy in hypertension diagnosed	1.4(6/417)	0.0(0/51)	0.0(0/42)	3.3(2/60)	0.0(0/41)	0.0(0/46)	4.4(2/45)	0.0(0/33)	0.0(0/58)	4.9(2/41)
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Diabetic retinopathy diagnosed	3.0(5/169)	0.0(0/19)	0.0(0/15)	5.9(1/17)	0.0(0/26)	0.0(0/14)	11.1(2/18)	0.0(0/17)	0.0(0/24)	10.5(2/19)
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Diabetic neuropathy

Chronic sensorimotor polyneuropathy	7	0	0	2	0	2	0	0	0	3
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other	3	0	0	0	0	0	3	0	0	0
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Diabetic Foot/amputation	3	0	0	0	0	2	0	0	0	1
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Cases of hypoglycemia	19	0	1	2	2	0	13	0	1	0
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