
# Assessment of the PHC service delivery to the population with specific conditions within the frames of the State Guaranteed Benefits Package

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## Acknowledgements

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The preliminary results have been discussed with the KR MoH, the WHO Barcelona Office and WHO Country Office and other stakeholders, and final report has been prepared considering their valuable input.

## List of abbreviations

| | |
|---|---|
| BP | Blood Pressure |
| ADD | Ambulatory (outpatient)-diagnostic department at the hospital |
| BA | Bronchial Asthma |
| DB | Data Base |
| HTN | Hypertension |
| FGP | Family Group Practice |
| the MHI ADP | The Mandatory Health Insurance Additional Drug Program (Package) |
| IHD | Ischemic Heart Disease |
| CDD | Clinical-Diagnostic Department at the PHC |
| CG/CP | Clinical guidelines/clinical protocols |
| CIF | Clinical-Information Form |
| KR | Kyrgyz Republic |
| LDI | Labor Distribution Index |
| the SGBP DP | the SGBP Drug Program (Package) |
| MoH | Ministry of Health |
| HID | Health Information Department |
| NCD | Non-Communicable Diseases |
| NSC | National Statistics Committee |
| HO | Health Organization |
| SGBP | State Guaranteed Benefits Program |
| PHC | Primary Health Care |
| DM | Diabetes Mellitus |
| SOP | Standard Operational Procedure |
| EC | Emergency Care |
| TH | Territorial Hospital |
| the MHIF TD | the Mandatory Health Insurance Fund Territorial Department |
| FAP | Feldsher-Midwifery Point |
| MHIF | Mandatory Health Insurance Fund |
| FMC | Family Medicine Center |
| GPC | General Practice Center |

## 1. Introduction

In recent years, many interventions have been carried out at the primary health care level countrywide to ensure access to health services for the population and improve their quality.

Kyrgyzstan has the State Guaranteed Benefits Program (SGBP), which ensures access to health care services, as well as a number of other government programs and mechanisms aimed at ensuring the availability and quality of health services. However, many of these programs are not fully implemented and integrated into the health system.

In addition, access to care varies greatly depending on where people live, that is, to the guaranteed primary health care services in terms of scope of services, availability of resources like health personnel and equipment as well geographical accessibility.

Hence, within the frames of this study, a situation analysis of the PHC service delivery to the population has been carried out to identify how the delivery of basic services for certain diseases is reflected in the package of services in accordance with the SGBP as well as key barriers that cause inadequate access to the guaranteed services.

Thus, the purpose of the study was as follows:

**Purpose:**

Define patient pathways when receiving PHC services within the frames of the SGBP.

**Objectives:**

1. Assessment of general indicators at the PHC level in the KR, and in the selected PHC HOs (GPC/FMC/FGP/FAP).
2. Overview of access to services delivered at the PHC level through the example of selected conditions.

2.1 Availability of basic PHC services in accordance with the SGBP[1].

2.2 Assessment of the selected HO's capacity to deliver health services:

- differences in the scope of services provided by PHC levels (FMC/GPC, FGP, FAP) depending on geographical location, urban/rural;
- identification of the patient pathways when receiving services at the PHC level (as well as outside PHC) in accordance with CG/CP;
- availability of laboratory and diagnostic services;
- roles of family doctors and nurses, narrow specialists in the PHC services delivery.

3. Availability of pharmaceutical benefits within the frames of the SGBP for selected conditions.

4. Learning views of health professionals and patients:

- health professionals' opinions on the basic package;
- patients' opinions on the access and availability of PHC services.

[1] As part of this study, the scope of the delivered services was reviewed based on the results of health service delivery by selected FGPs in 2022 and in accordance with the previously applicable SGBP #26 as of January 27, 2020 as amended by the KR Government Resolution #636 dated December 30.

## 2. Assessment methodology

This study was carried out in two stages: desk review and field data collection. The desk review consisted of collecting information from available sources and requesting statistics on selected health organizations, developing tools for data collection. Field studies were carried out in the selected health organizations through interviews and focus group discussions with key informants.

### 2.1. Desk Review:

**2.1.1.** Statistics analysis was done for selected regions (see sample below) and countrywide based on the official statistics of the Ministry of Health and the KR National Statistics Committee for the period of 2018-2022[2].

To analyze the statistics, the data request was made to the E-Health Centre of the KR MoH for selected regions/raions (districts) in the following areas:

- health personnel data;
- data on visits at the primary care level;
- data on incidence of hypertension, diabetes mellitus, bronchial asthma, their complications, as well as on these conditions management;
- data on prenatal care and pregnancy complications follow-up;
- data on hospitalizations of patients with hypertension, diabetes and bronchial asthma;
- the NSC's data on mortality and population size.

The E-health Center data were provided from the electronic database "Medstat"[3], which is generated at the level of each health facility and allows to receive aggregated reports at the level of raion, region, republic, as well as automatically calculate key indicators.

Thus, one of the sources for data on health personnel is the electronic online database "Register of Health Professionals and National Directory of Health Facilities; a source of data on visits, incidence, prenatal care at the PHC level is the electronic online database «CIF-outpatient»; a source of data on hospitalized patients is the electronic online database "treated case".

**2.1.2.** Review of approved CGs/CPs for selected conditions, recommendations for management, diagnostics and treatment, their compliance with basic PHC package of services.

### 2.2. Selection of health organizations (HOs)

For the purposes of this study, PHC organizations of central level which have separate FMCs (Bishkek and Osh cities) were selected. Regions were selected taking into account their geographical location in the south (Osh region) and north of the country (Issyk-Kul region), since these regions differ by climate, population density, availability of health professionals, and also have features in the prevalence of certain

[2] Electronic database "Medstat" for 2018-2022 (electronic version of statistical reporting forms) of the E-health center at the KR MoH;
Mortality tables of the National Statistics Committee (hereinafter - NSC);
Annual statistical books "Health of the population and performance of health organizations" of the E-Health Center;
Data on age-specific average annual population of the NSC (for calculations).
[3] Until 2022 operated in off-line format; since 2023, main forms have been transferred to online format

diseases.

Some data on the population size and incidence as well as the availability of family doctors and nurses across selected raions (districts) are attached in Annex 1.

In each region, two raions were selected, which also have different geographical locations and population sizes (Table 1):

**Table 1.Selected HOs**

| Regions/HO | PHC structural subdivisions | Comments |
|---|---|---|
| **Capital and central cities:** | | Central cities of republican subordination have self dependent united FMCs which involve FMC branches |
| Bishkek | FMC#6 | |
| Osh | FMC#1 | |
| **Osh region:** | | |
| Uzghen raion GPC | Uzghen FGP | a large number of enrolled to FGP population is within the GPC |
| | Kurshab FGP | FGP is located in the village |
| | Semiz-Kol FAP | FAP is located in the village |
| Alai raion GPC | Gulcha FGP | border area which is far from the regional FMC, it is located inside the GPC |
| | Sopu Korgon FAP | FAP is located in the village |
| **Issyk-Kul region:** | | |
| Issyk-Kul raion FGP | Cholpon-Ata FGP | long distance area, FGP is inside FMC |
| | Chon-Sary-Oi FGP | |
| | Sary-Oi FAP | |
| Ton raion FGP | Bokonbaevo FGP | Raion is far from the regional FMC, FGP is located inside GPC |
| | Tort-Kul FGP | Is located in the village |
| | Kol-Tor FAP | Located in the village, far from the raion center |
| **Total HOs of various levels** | **13** | |

## 2.3. Selection of diseases/conditions

Selection of certain diseases/conditions took into account the following: their priority and prevalence, availability of CGs/CPs for these conditions and drugs for the treatment of these conditions should be included in the subsidized drug programs. Based on these, the following conditions were selected:

- hypertension (HTN);
- bronchial asthma (BA);
- type 2 diabetes (T2D);
- normal pregnancy without complications (pregnancy).

To review cases of managing the selected diseases, the approved clinical guidelines and clinical protocols for 4 diseases and conditions that were relevant at the start of the study were used:

- Clinical protocols on pulmonology for primary and secondary health care levels in the Kyrgyz Republic (Order of the KR MoH #1129 as of December 20, 2019);

- Algorithm for management of Type 2 diabetes patients (PEN 2) (Order of the KR MoH #258 as of March 10, 2023);

- Clinical protocol "Hypertension in adults" (Order of the KR MoH #927 as of December 23, 2016);

- Clinical guideline for normal pregnancy management (Order of the KR MoH #243 as of 04.04.2018).

### 2.4. Field study

Data collection was carried out based on the developed forms in the selected health organizations:

- coverage with PHC services for selected conditions based on the review of outpatient cards for 2022;

- review of the available infrastructure and equipment to deliver the established scope of services in accordance with CGs/CPs for the selected conditions at different PHC levels.

Outpatient medical cards were randomly selected. To analyze the compliance of treatment with the CGs/CPs, visits of patients to PHC in the period of 2022 were considered. In each HO, at least 10 cases of each condition were selected, including cases in some FGPs and FAPs located in remote villages. A total of 228 cases (outpatient records of patients) were reviewed (Table 2.).

**Table 2. Number of reviewed outpatient cards**

| Diseases/ Conditions | HTN | BA | T2D | Pregnancy |
|---|---|---|---|---|
| Number of cases | 60 | 48 | 60 | 60 |
| Total | | 228 | | |

To interpret data and better understand the situation, semi-structured interviews were conducted with managers of the selected HOs (deputy directors responsible for PHC).

In addition, focus group discussions with family doctors, narrow specialists, FGP and FAP family nurses and patients were carried out in each of the selected health organization. Participation of at least 2 patients with each of the selected conditions in the focus group discussions was compulsory.

A total of 24 focus group discussions were conducted and 178 people took part in them (Table 3). Aim of the discussions was to identify patients' perspective on the availability of services at the PHC level in compliance with CGs/CPs recommendations and the SGBP.

**Table 3. Number of respondents who took part in focus group discussions**

| Respondents | Family doctors | Narrow specialty doctors | Family nurses | Patients |
|---|---|---|---|---|
| Number of participants | 46 | 22 | 52 | 58 |
| Total | | 178 | | |

### Ensuring confidentiality and protection of patient data

To do the study Order of the MoH #951 as of 09.08.2023 "On conducting the assessment of being delivered health services to the population at the PHC level within the frames of the State Guaranteed Benefits Package on providing citizens with health care" was issued based on which managers and staff of health organizations provided assistance to the WG members in data collection.

To protect personal data of patients the access to outpatient cards was provided for the staff members of the MoH only included in the WG since staff members the MoH are entitled and authorized to expertise medical documentation of health organizations.

The WG members who were the staff members of the MoH filled out forms with data on medical treatment, diagnostics and other data, personal data of patients were not reviewed and used, they were depersonalized (without personal data of patients, full name, place of residence, etc.) for the experts who further processed and analyzed these data.

## 3. Service delivery at the PHC level

This section provides an overview of basic primary health care services and drug provision in accordance with the SGBP. The existing structure of the primary health care network and data on utilization of primary health care are presented. The patient pathways and the availability of services were reviewed, including laboratory and diagnostic services, when visiting primary health care, depending on the levels (CPC/FMC, FGP, FAP).

As part of this study, the basic package of primary care was considered in accordance with the SGBP as amended by the KR Government Resolutions #636 dated December 30, 2020 and #26[4], which was in force at the time of the study.

On October 10, 2023, the updated Program of State Guaranteed Benefits Package for Providing Citizens with Health Care, approved by the Resolution of the Kyrgyz Republic Cabinet of Ministers #493 dated September 21, 2023 "On approval of the State Guaranteed Benefits Program for Providing Citizens with Health Care,"[5] came into force.

The main purpose of updating the SGBP is to reorient the SGBP to full coverage of target, vulnerable groups of the population with health services, in particular, the list of citizens entitled to free health services at the outpatient and inpatient levels according to social status has been increased, the package of preventive health services for the enrolled population has been outlined and expanded , basic packages of health services for children under 18 years old and pregnant women, including those with complicated pregnancies, have been specified. Basic laboratory diagnostic tests have been supplemented with the 12$^{th}$ examination - measuring visual acuity in children under 18 years of age. A list of 42 tests that should be carried out in all outpatient organizations has been also defined[6].

### 3.1. Basic package of PHC services

The SGBP defines a list of primary health care services, which are divided into two packages. A package of services for all citizens registered to a family doctor in the region where they live with no co-payment.

[4] https://cbd.minjust.gov.kg/98211/edition/1288278/ru
[5] https://foms.kg/guaratees/
[6] https://foms.kg/kommentpgg/

This package includes prevention, diagnostics, visit to a doctor and consultation, basic laboratory and diagnostic tests for 11 types with a referral from a family doctor and a narrow specialist, as well as emergency health care with administration of medical therapy and provision of medical injections.

Basic package includes:

- health promotion;
- disease prevention (immunization, infection control and patient education);
- diagnostics (consultation and basic laboratory-diagnostic tests);
- treatment (emergency health care, immobilization, prescription of medicines).

Basic laboratory tests include:

- general blood test;
- urine test and microscopy of urinary sediment;
- urethral smear microscopy
- vaginal smear microscopy;
- sputum smear microscopy;
- blood glucose determination;
- determination of glucose in urine;
- electrocardiogram (ECG);
- blood cholesterol determination;
- glycated hemoglobin (HbA1c) for patients with diabetes (once a year);
- urine test for bacteriuria for pregnant women.

Supplementary laboratory and diagnostic tests, in addition to those mentioned above, are also carried out free of charge if a doctor's referral is available, for citizens of 30 categories specified in the SGBP and for the insured under the mandatory health insurance. Other citizens with payment of the full health service cost according to the Price List. The list of additional studies is not specified in the SGBP and was determined by a Health Organization in accordance with the approved Price List.

The price list involves 740 types of examinations, tests and manipulations. It has been valid from January 1, 2023 in Family Medicine Centers (FMC), General Practice Centers (GPC), outpatient diagnostic departments (ADD) of general profile hospitals, as well as in clinical diagnostic departments (CDD) of tertiary level hospitals.

The price list was agreed upon and approved by Order of the Antimonopoly Regulation Service under the KR Ministry of Economy and Commerce #57 dated December 22, 2022 "On approval of the price list for health services delivered by health organizations operating in the Single Payer system"[7].

## Medicine provision

Medicine provision within the frames of the SGBP is defined in sizes of funding health organizations from the republican budget, mandatory health insurance funds and copayment of the population for health services in accordance with the Essential Drugs List approved by the Kyrgyz Republic Government[8].

Medicines are provided for free at the PHC level in cases of:

- emergency/urgent health care;

[7] https://med.kg/prikazy
[8] https://www.pharm.kg/ru/live_important/

- antirabies care;
- immunoprophylaxis;
- several conditions based on clinical indications (insulin-dependent and non-insulin-dependent diabetes, diabetes insipidus, hemophilia, tuberculosis) in accordance with the dispensing norms determined in the SGBP.

Reimbursed prescription medicines are sold by pharmacies through two programs: 1) drug provision of the insured under the Mandatory Health Insurance Additional Drug Program (the MHI ADP) and 2) drug provision for the benefit-entitled citizens categories of patients (the SGBP Drug Package) - for patients with bronchial asthma, epilepsy, paranoid schizophrenia, affective disorders and cancer patients.

It should be noted that these programs allow doctors to focus their efforts on managing patients at the outpatient level, as well as contribute to the prescribing medicines in accordance with the CG/CP recommendations since the Medicine Lists of these programs include only those medicines that are recommended for medical treatment in accordance with CGs and CPs and use at the PHC level.

In line with these programs doctors write prescriptions for a year (a quarter, a month) within the limits of financial resources allocated for PHC and broken down by FGPs.

There are certain restrictions on the norms for prescribing drugs under these programs.

The drug program for the benefit-entitled populations (the SGBP Drug Package) determines the dispensing norms for drugs of each name.

The MHI ADP has also restrictions on some medicines, for example, prescribing Metformin and test strips for patients with diabetes. It is permitted to prescribe up to 2000 test strips to control blood glucose levels for each patient under 18 years old and 500 test strips per year per adult over 18 years old. It is allowed to prescribe no more than 1500 mg of Metformin per day, which is approximately 600 tablets per year per patient.

Over the past 2 years, both pharmaceutical benefits programs have been completely translated into electronic format, doctors write electronic prescriptions, and patients can purchase medicines at any private pharmacy operating under the contract with the MHIF TD.

When purchasing a medicine at a pharmacy based on a prescription, a patient pays the difference between the retail cost of the medicine and the reimbursement amount specified in the special Electronic Medicines Formulary[9].

It should be mentioned that since 2018, the Kyrgyz Republic has been implementing the mechanisms of regulating prices for medicines. From 2019 to 2022, price regulation was introducing as a pilot project for medicines to be reimbursed under the MHI ADP and for medicines used in treatment of coronavirus infection. Taking into account the lessons learned and the pilot project results analysis, permanent rules for price-regulation have been developed, which apply to all EDL medicines and are approved by Resolution of the KR Cabinet of Ministers #292 dated May 31, 2023[10]. This methodology envisages determination of maximum wholesale and retail markups on registered prices of medicines.

In 2023, a research was done to study medicine prices after the introduction of price regulation mechanisms, but its findings have not been published yet.

[9] https://foms.kg/spavochniki/
[10] https://cbd.minjust.gov.kg/160215/edition/1259084/ru

### 3.2. PHC structure

Primary health care is delivered to the enrolled population in FAPs, FGPs, family medicine centers (FMCs) and General Practice Centers (GPCs).

The reforms implemented in recent decades have been oriented at split-up of primary and hospital care and also at strengthening services delivered at the PHC level. The initially created network of FMCs consisted of more than 80 FMCs, gradually some FMCs were merged, if the population was less than 100 thousand people, into GPCs. The latest structural changes of 2021 affected all raion (district) FMCs and THs when these were merged into GPCs.

The reasons for these changes were inefficient use of human, financial and material resources in small raion-level health organizations, duplication and inadequate use of laboratory-diagnostic equipment.

The merger was aimed to rationalize available resources by consolidation of accounting, personnel, laboratory services, government procurement and analysis, data reporting and achievement of tangible results, both from a financial perspective and in terms of better quality of the health services being delivered.

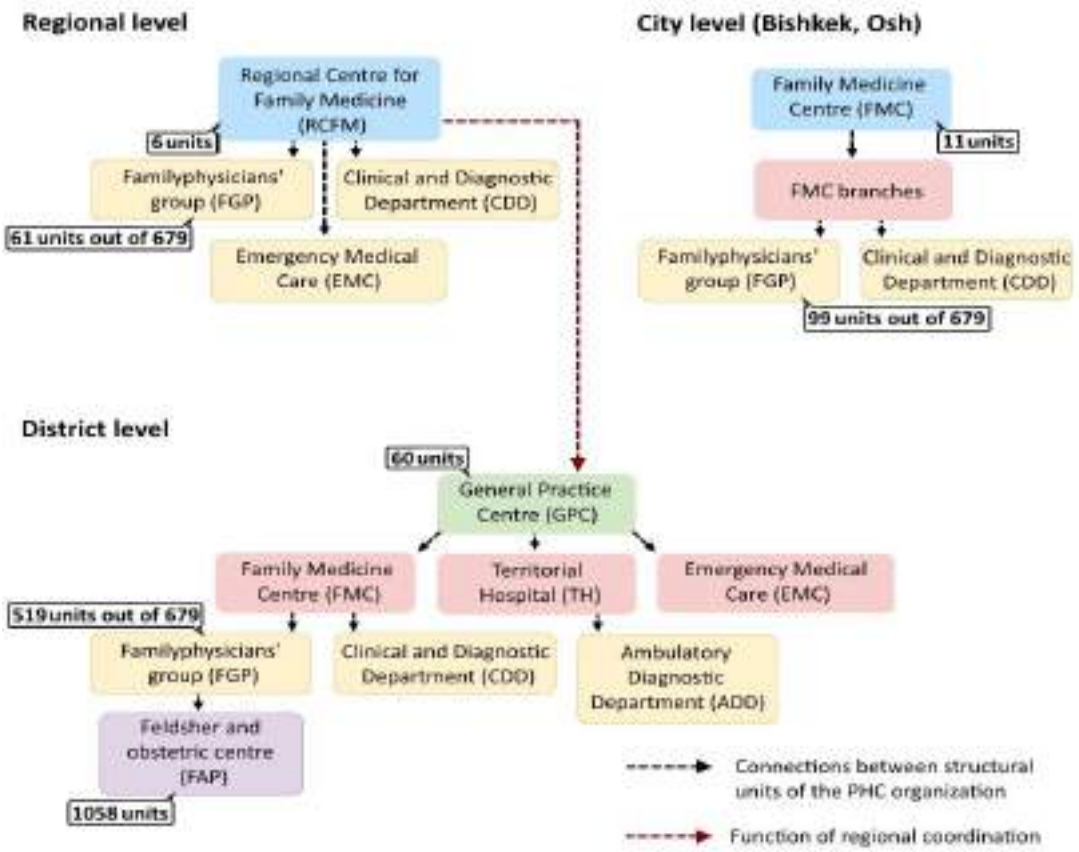
However, some GPCs continue to have specialized outpatient departments - a consultative and diagnostic department (CDD) at primary health care and an outpatient diagnostic department (ADD) at a hospital, which often perform duplicating functions. As part of the GPC, consultations with narrow specialists and diagnostic tests are provided on an outpatient basis both in the CDD at the FMC and in the ADD at the hospital. Narrow specialty services are often duplicated in these different departments, and it is impossible to fully provide them with the required health personnel and equipment. For example, patients have the opportunity to seek consultations from narrow specialists both at the CDD of the FMC and at the ADD of territorial hospitals, the services of which are almost the same.

In addition, in early 2022, the united family medicine centers were reformed in Bishkek by combining them into FMCs with branches. The reform to optimize family medicine centers in Bishkek was implemented in 2018, and 19 FMCs were merged into 4 district united family medicine centers (UFMC). The reform also aimed at optimizing the available resources: consolidation and merger of accounting offices, human resources, laboratory services, public procurement sectors, statistical and analytical data collection and reporting departments. It was supposed to reduce the number of administrative and management personnel, which would save 10.5 million soms per year, however, the savings in reality amounted to about 3 million soms. Based on this, it was concluded that the optimization did not achieve its goals and the new PHC structure of Bishkek now consists of 10 FMCs, and the remaining 9 became their branches.

Thus, as of January 2023, there were 17 family medicine centers (six regional and 11 FMCs in Bishkek and Osh) and 60 general practice centers (GPCs in raions) operating in the republic. There are 679 FGPs operating as part of FMCs and GPCs. FAPs are included in FGPs, their number is 1058. It should be noted that Osh city FMC also performs regional coordination functions.

Besides, according to the SGBP norms, health organizations, regardless of their ownership form, may be involved in realization of citizens' rights to receive health care. However, PHC services as part of the SGBP are delivered by public health organizations only, health services are delivered on a fee basis in private health centers.

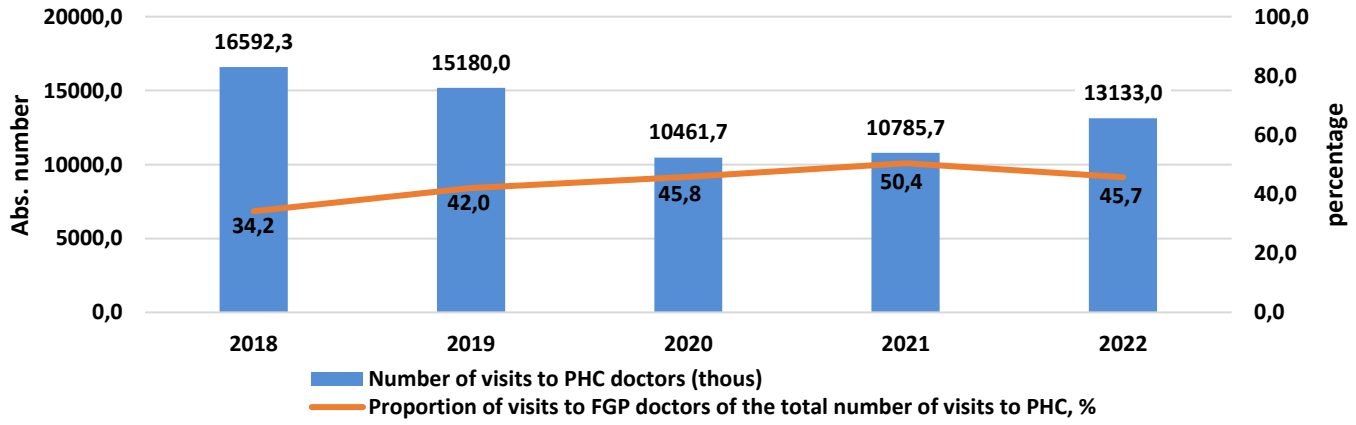
**Figure 1. PHC organization structure**




### 3.3. Utilization of PHC services

Over the period from 2018 to 2021, there had been a drastic decrease in utilization of PHC services across Kyrgyzstan. Thus, the number of outpatient visits decreased from 16.6 million in 2018 to 10.8 million visits in 2021, that is, by 46%. At the end of 2022, there was an increase of visits to PHC and amounted to about 13 million 133 thousand visits, of which the number of visits to FGP doctors (family doctors), amounted to about 46% of the total number of visits to PHC. The rest of the visits were to narrow specialists, which are always higher than visits to FGP doctors. Therefore, in 2022, the proportion of visits to narrow specialists amounted to 54.3%. (Figure 2).

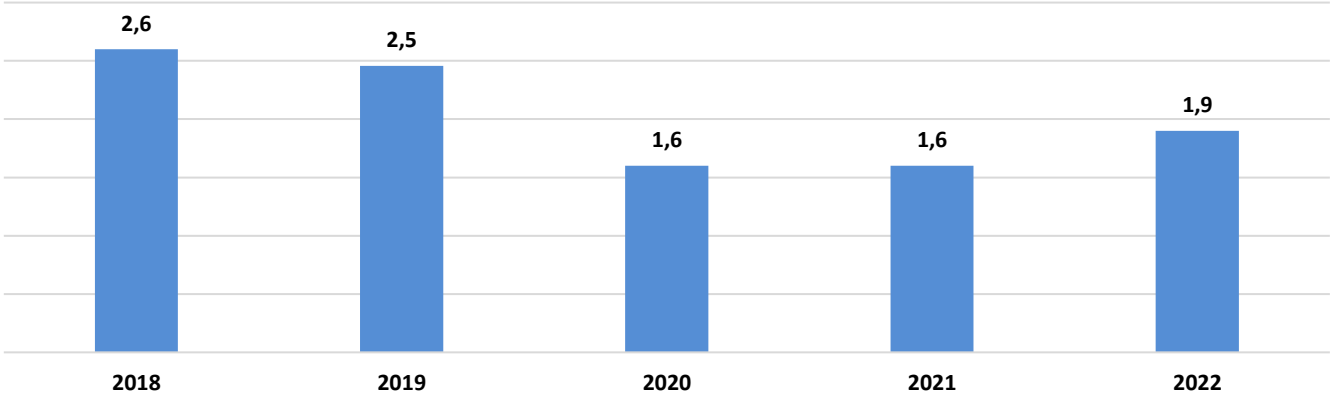
**Figure 2. Total number of visits to PHC doctors and proportion of visits to FGP doctors, KR, (abs number, %)**




Data course: “Medstat” database of the E-health Center, the KR MoH

In 2022, the average number of visits to the PHC level per resident per year amounted to 1.9, which is 26.9% lower than the rate of 2018.
However, it should be noted that of the total number of visits to the PHC level, only 39% are visits for the reason of diseases and 61% are visits for the reason of prevention.

**Figure 3. Number of visits to PHC doctors per resident, Kyrgyz Republic, 2018-2022**




Data course: "Medstat" database of the E-health Center, the KR MoH

### 3.4. Availability of services and patient pathways

To receive primary health care services, the population must register with FGPs in accordance with the "Rules for registering the population of the Kyrgyz Republic with family group practices"[11].

The approved by the KR MoH[12] types of diagnostic services delivered by the PHC are defined for family medicine specialists, separately for family doctors and family nurses and include:

- services for diseases, which include taking medical history, clinical examination of a patient, laboratory diagnostic examination, diagnosis and delivery of health care;
- primary prevention services include a system of measures to prevent diseases, awareness raising, education and counseling of patients by family medicine specialists;
- prenatal and postnatal care includes a set of measures to observe pregnancy and prevent complications; these services are delivered to women during pregnancy and in the postpartum period up to 42 days for natural childbirth, for complicated childbirth - up to 56 days.
- family planning services include primary prevention measures and preservation of the population's reproductive health, counseling patients, including adolescents involves preventing unwanted pregnancy, etc.
- palliative health care involves assessment and relief of pain and other physical symptoms, education of relatives on nursing.

This Order of the MoH also defines a list of equipping primary health care organizations with medical equipment, including laboratory and diagnostic equipment, separately for FAPs and FGPs.
Patients can receive the above-mentioned services at all PHC levels – FAP, FGP, FMC/GPC, depending on the availability of equipment and specialists.

The patient pathway to receive primary health care services starts with booking an appointment. Patients

[11] Order of the KR MoH #358 dated June 26, 2013 and Order of the MHIF under the KR Government #126 dated June 26, 2013 "On approval of the Rules for registration of the KR population to the family groups practices"
[12] Order #1208 as of December 30, 2017 "Basic package of primary health care services provided by family medicine specialists."

are offered several options: online via a mobile application, by phone or directly at the PHC appointment desk.

Online booking rules have been introduced in accordance with Order of the KR MoH #1170 dated September 29, 2023 “On some points related to the information systems of the KR Ministry of Health”.[13]

In 2023, the online doctor appointment service was updated. The modernized service enables to make an online appointment with family doctors of all primary health care organizations (FMCs, FGPs), and online booking an appointment with a narrow specialist is also available. Online booking is available in several ways: using the website of the unified digital health portal i.med.kg, Tunduk mobile application and MegaPay mobile application.

In these applications, you need to select the “Online appointment with a doctor” tab, enter your PIN and phone number. After confirming the data, the system will automatically display information about the person (PIN, health organization to which he or she is enrolled, insurance status). Next, you need to select the required specialist, a convenient date and time. After registration, you must save the information and present it to the medical registrar and/or doctor on the day of appointment.

### FAP

Only family nurses work in the FAPs which are small HO located separately from FGP, FMC/GPC, often in remote or low density areas.

Services provided by FAP are limited to only some basic activities: observation of pregnant women and newborns, immunization and health education. Since FAP is a part of a FGPs, in some raions FGP doctors visit FAPs located in their areas and see patients according to the predetermined schedules (Ton raion, Issyk-Kul region). In other regions, patients enrolled to FAPs visit a family doctor in the FGP for consultation.

None of the laboratory diagnostic tests are carried out at the FAP level. The patient needs to go to the FGP, where samples can be taken for clinical laboratory tests (general blood and urine tests).

At the FAP level, family nurses are permitted to write prescriptions for subsidized medicines to pregnant women; as for other patients, only an FGP family doctor prescribes subsidized medicines.

In order to do additional laboratory and diagnostic tests (biochemical, microbiological test, ultrasound diagnostics, radiography, ECG), patients go to raion centers/cities where FMCs/CPCs are located.

In regions, the distance from FAP and FGP to GPC/FMC is from 30 to 80 km, and there may not be regular public transport to visit the closest FGP or CPC/FMC, therefore, in order to receive the required services that are not available at the FAP, patients have to travel long distances to the GPC/FMC.

Due to long distances, they may have to receive the required services in the settlements to which they are not enrolled, but located closer. According to the SGBP norms, patients can receive free consultations only from specialists of the FMC to which they are enrolled, and if they are not enrolled, they have to pay for all consultations and services according to the established Price List. For example, in Ton raion, Ottuk village (FAP) - in order to get to the regional FMC, a patient has to travel a distance of more than 300 km (3.5 hours by car), therefore, patients often go to Balykchy town for consultations with narrow specialists, the distance to which is 25 km.

[13] https://med.kg/prikazy

## FGP

At the level of FGP, including in remote areas, where a family doctor is available, a full range of basic services is provided: observation and management of patients, clinical tests (general blood and urine tests), prescribing the MHI covered medicines, referrals for hospitalization, delivery of the first emergency aid, home visits etc.

The number of family doctors and nurses in FGPs is determined depending on the number of the registered population, in accordance with established staffing standards in the PHC system (see information below in section 3.6. “Specialists delivering services at the PHC”).

All FGPs have a pre-medical office, where a family nurse receives patients separately and determines a nursing diagnosis. The nurse carries out all body measurements, takes samples for clinical tests, conducts ECG (if available), vaccinates, and visits patients at home. Some of the FGPs do not have a family doctor. In such cases patients are observed by a family nurse, who is permitted to write out subsidized prescriptions for pregnant women. A patient is referred to the FMC/GPC for consultation with a family doctor, medical treatment and additional diagnostic tests.

*See below about roles and functions of a nurse at the PHC level.*

## FMC/GPC

When a patient visits an FGP which is located in the FMC/GPC, the same range of services are delivered like in individual FGPs. A nursing examination for body measurements (weight, height, BMI calculation, blood pressure level, etc.), and preparation of medical records is carried out in the pre-medical office.

After the pre-medical office, the patient is referred for consultation with a family doctor. The doctor examines the patient, assesses the results of diagnostic tests, administers and corrects medical treatment, and issues prescriptions for subsidized medicines. It should be mentioned, that only a family doctor can prescribe subsidized medicines; and it was done on purpose so that patients seek care primarily from family doctors.

All FMCs/GPCs have separate subdvisions that perform clinical diagnostic tests - CDD, which involve laboratory and instrumental diagnostics, consultations with narrow specialists. If necessary, family doctors should refer patients to the CDD at the FMC/GPC for counselling with narrow specialists.

It should be noted that patients can go to PHC specialists on their own, bypassing a family doctor, despite that narrow specialists should see patients with the referral note from the family doctor. Patients can also directly seek for consultation with narrow specialists at the ADD of the hospital.

Laboratories of the CDD at the FMC/GPCs carry out clinical, biochemical laboratory diagnostics, and instrumental diagnostics (radiography, ultrasound, ECG). However, some basic tests are not carried out at the FMC/CPC level, so patients are referred to other diagnostic laboratories of the healthcare system (hospital ADDs, laboratories of the sanitary and epidemiological surveillance service, AIDS centers, blood centers etc,) or to private laboratories, which are most often located near health organizations.

*See below for specifics of organizing the services of narrow specialists.*

In cases of acute and emergency conditions, patients can go to the FGP or contact the reception desk of the FMC/GPC to call an ambulance home. Patients can also self-refer to emergency departments and receive services of short/one day stay in the GPC.

In accordance with the established requirements, a family doctor only can officially refer for

hospitalization based on clinical indications in accordance with CGs/CPs. Despite this, patients can be hospitalized on their own in hospitals of different levels, from regional to national.

Also at the level of FMCs/GPCs there are health promotion offices, which more often carry out planned preventive measures and are mostly oriented at organizing public health events (health days, campaigns, etc.).

Regular preventive activity on detection and work with the population should be carried out by family doctors and family nurses during visits. However, in the organizations visited, family doctors noted that preventive measures, patient education, and screening of target groups is more formal in nature.

### Private medical centers

Patients may also receive services in private outpatient centers. Private outpatient care is provided by a fairly wide network of private health facilities, most of which are concentrated in large cities and raion centers. However, there is no integrated cooperation between private centers and GPCs/FMCs or other government organizations. Private outpatient health services and diagnostic tests are not covered by the SGBP and paid fully by patients.

### The procedure for referring patients from the PHC level to the secondary level (hospital)

The procedure for referring and re-referring patients to the CDD at the PHC level, as well as between health facilities for examinations, consultations and/or hospitalizations, and the list of compulsory laboratory and instrumental tests for executive hospitalization is determined by Order of the Ministry of Health[14].

This Order approved the Procedure for referring patients from a family doctor for consultation with narrow profile specialists at the PHC level. According to this procedure, patients can receive consultation from a narrow specialist only with a referral from a family doctor.

Also, only family doctors may refer patients from PHC level to the secondary level for consultations. Reasons for referral to the secondary level ADD for consultation involve:

- diagnosis determination/clarification in cases exceeding the competences of a family doctor;
- unavailability of a profile narrow specialist at the PHC;
- impossibility to diagnose the disease at the PHC level;

Patients are referred for executive hospitalization to hospitals by a family doctor also according to the following criteria:

- available disease in a patient requiring specialized health care in a hospital based on the CGs/CPs;
- in order to clarify the diagnosis or the disease stage that cannot be determined at the PHC level;
- isolation for epidemic reasons;
- the need for different types of expertise.

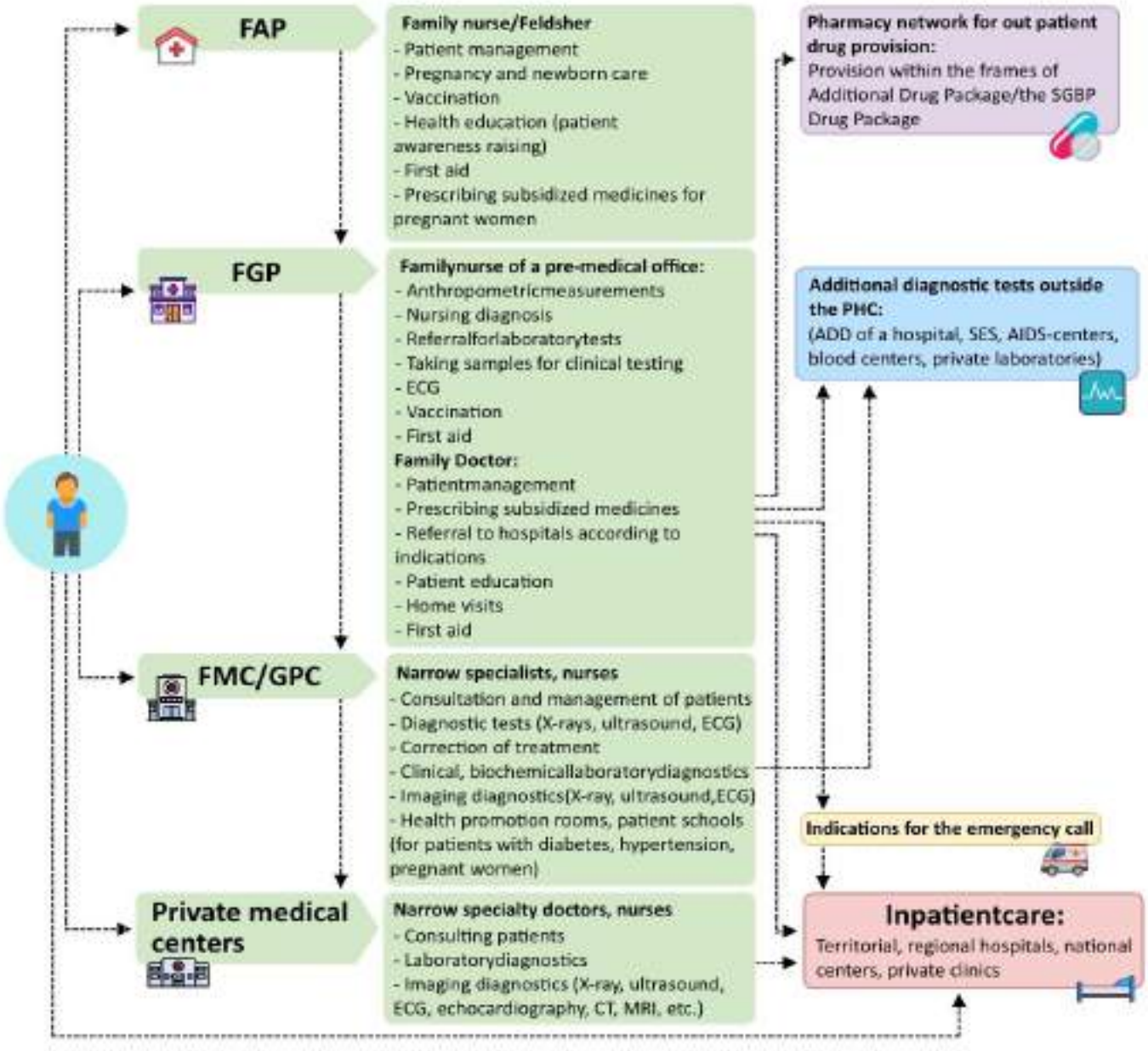
When referring for hospitalization, a family doctor ensures that laboratory and instrumental tests are carried out at the PHC level. This procedure also entitles narrow specialists to refer for hospitalization in exceptional cases, although the exceptional cases are not specifically defined.

To summarize, depending on where the patient lives and to which provider they are registered to, the

[14] As of 4.09.2020. # 689 “On optimizing the procedure for referring patients from the PHC level to the secondary and tertiary levels of the health care system.”

services available are very different. People living in remote areas may have to travel long distances to receive the services they need. There is no monitoring and enforcement of aligning with the standards of defined regulation of providing PHC, SGBP funded services and medical equipment requirements.

**Figure 4. Patient pathways when receiving servicers at the PHC level**




### 3.5. Availability of laboratory-diagnostic services at the PHC level

Laboratory-diagnostic services are provided at the PHC level free of charge to all enrolled and insured citizens with a referral from a PHC doctor (family doctor, narrow specialist), according to the list of services defined in the SGBP. There are no formal restrictions and norms for providing laboratory tests listed in the SGBP for PHC services. However, PHC organizations do not fully implement laboratory diagnostic services according to the SGBP norms, and also they are not fully harmonized with the approved clinical protocols:

- Out of 11 basic laboratory and diagnostic tests provided within the SGBP, one test described in the

CG is not available at the PHC level (determination of glucose in urine);

- Urine test for bacteriuria in the first pregnancy trimester is carried out based on the contract with laboratories of the sanitary and epidemiological surveillance service, but is not always free of charge. A limited number of PHC facilities had a contract to conduct these tests free of charge, despite that according to the SGBP norms, "if there is a long lineup or unavailability of relevant specialists and/or certain types of laboratory and diagnostic tests in the FMC, patients can be referred by a family doctor to another health organization and these services should be provided free of charge, and the payment has to be made by the FMC based on the concluded contract;

- A general blood test is performed without specifying the number of parameters. For example, the SGBP basic package of tests includes a general blood test without specifying the number of parameters (3 or 6 parameters). During focus group discussions, doctors noted that for appropriate diagnosis it is required to conduct a blood test of all 6 parameters (detailed general blood test with differential blood cell count). Due to the fact that PHC laboratories do not conduct a complete blood count, doctors have to refer patients to private laboratories, where patients pay out of pocket for this test;

- The HbA1c test to determine glycated hemoglobin in blood of patients with diabetes in accordance with the SGBP is done free of charge only once a year, while the clinical protocol envisages 4 HbA1c tests a year.

*See Availability of laboratory and diagnostic tests at different PHC levels in Annex 2.*

Managers of the HOs indicated problems with procurement of necessary reagents and supplies for the diagnostics. Health facilities often cannot purchase reagents in a timely manner due to the established tender procedures. The tenders often fail due to the supplier non-participation. Therefore, there are breaks in delivery of necessary reagents or supplies. There for the testing may not be available from a week to 2 months (especially biochemical tests). In such situations, doctors limit the referral to certain tests to only urgent and emergency cases, or refer them to private laboratories.

Patients also mentioned about long waiting lines to the PHC laboratories, since samples are taken in the morning for one hour only (usually from 7.30 to 8.30). Some patients have to come several times to raion GPCs to take tests, covering a distance of more than 50 km (Uzgen GPC). This is also a frequent reason for going to private laboratories.

In addition, there is a very common practice among patients to get diagnostic tests done in private laboratories, which is due to distrust towards the doctors and the results of diagnostics at the PHC facilities. Patients and doctors believe this happens because of obsolete equipment or «inadequate» quality of laboratories. For example, almost all FMCs have ultrasound machines, but doctors in the health organizations visited noted that these machines are old and do not meet the requirements of modern diagnostics (availability of Doppler and other components).

### 3.6. Specialists delivering services at the PHC level

#### FGP and FAP specialists

The FGP team consists of a family doctor and family nurses, and at the FAP level there are only family nurses.

According to the established standards for FGPs 1,0 rate of a family doctor is per 1700 enrolled population, 1,0 rate of a family nurse - per 1000 population, and for FAPs – 1,0 rate of a family nurse is per every 700

people[15].

Different staffing standards have been established for FMCs in Bishkek in October 2023[16]. The workload norms of family doctors have been increased to 2,000 people of the enrolled population per 1 rate, as well as the workload norms of family nurses - to 1,000 of the enrolled population.

In February 2024, the Ministry of Health approved new staff standards for medical and non-medical personnel of GPCs, regional FMCs and separately for FMCs of Osh city. According to the new standards, 1.0 rate is per 1,700 population for family doctors remained unchanged, the staff standards have changed for family nurses: 1.0 rate is per 850 of enrolled population for FGPs and 1.0 rate is established per 500 of enrolled population for FAPs[17].

Currently, there is still a shortage of family doctors, not only in regions but also in cities. At present, the proportion of family doctors at the PHC level of the total number of PHC doctors is less than half - 43 %.

Family doctors noted a high workload due to the shortage of doctors, so they focus mainly on the delivery of treatment services for patients who seek health care when they get sick and have acute conditions, inadequate attention is paid to prevention and education. Therefore, the majority of family doctors work at 1.5 rates and serve larger populations of 2.5-3 thousand. For example, in some FGPs, 1 family doctor serves an area with a population of up to 8 thousand, which should be served by 3 doctors (Alai raion).

> *Excerpts from the interview with a family doctor, Ton raion, Issyk-Kul region: "I am 67 years old, I have been working as a family doctor for more than 20 years, young doctors do not come to work, I am at work from 9 to 18.00, sometimes I see 20-25 patients a day, when should I deal with identification of chronic patients and prevention, and also educate them? I barely have time to see those patients who seek health care themselves."*

Current working hours of a family doctor at 1.0 rate envisage 4 hours to see patients and 2,5 hours to work on house calls. Taking this into account, the workload of a family doctor per month is 205 patients to see and 135 patients to visit on house calls, which involves seeing 10-12 patients per shift (per 4 hours).

Wages are calculated taking into account the fulfillment of standard working hours, while evaluation of the number of visits or workload standards is not supplemented with assessment of their contribution to improving the quality of services provided to the population.

In addition to their salary, doctors receive a monthly payment as a financial incentive in the form of the Labor Distribution Index (LDI). There are criteria for calculating the LDI (8-15 indicators), however, these criteria have no an appropriate systematic approach to motivation for achieving quality results and are often formal.

For example, a doctor receives additional payment (LDI), if he/she served 205 visits of patients and performed 135 home visits per month, however the performance and treatment outcomes, rates of morbidity and complications, etc. are not assessed.

During focus group discussions, doctors noted that home visits are performed if there are calls from patients for the reason of illness or complication. Thus, fulfilling the workload norm, such as 135 home

[15] Order of the KR MoH #52 as of 01.02.2019 "On approval of staff standards for medical and non-medical personnel in the primary health care system of the Kyrgyz Republic"
[16] Order of the KR MoH #1263 as of 25.10 2023 "On approval of the recommended standard staff for medical and non-medical personnel in FMCs of Bishkek"
[17] http://assd.med.kg/informacionnye-resursy/npa-prikazy/

visits to patients every month is impossible for doctors, therefore this indicator of doctors' performance is formal and taken into account only when calculating the LDI.

To assess the quality of the performance by family doctors and nurses, a scorecard has been introduced at the PHC level, which is monitored by the MHIF TD.

Supervisory follow-up of the compliance with the scorecard standards is carried out regularly by the quality committee of each organization. The MHIF TD must verify data every 6 months. Doctors noted that fulfilment of the scorecards is not supported by supplementary incentive payments, so in their opinion they do not contribute to better quality and motivation.

In addition, family doctors and family nurses noted that they are overworked with paperwork and reporting. Currently, health professionals simultaneously maintain three forms of patient registration: hard copy of the outpatient card, electronic CIF and outpatient card of a patient. The situation is aggravated by the lack of computer equipment, there is often one computer available for two or three doctors. After seeing patients doctors have to look for a free computer or borrow a computer while another family doctor is seeing patients in order to register patient visits in the information system. In addition, it was noted that Internet connection is poor, so filling out electronic outpatient cards and electronic prescriptions takes a lot of extra time.

Therefore, current system of motivation for PHC personnel is in place basically owing to the LDI, which is generated from cost savings due to vacancies/available vacant positions. Managers of organizations have to maintain vacancies in order to use the a monetary instrument of motivation through the LDI to increase salaries of the staff members. Thus, the employees bear double workloads and are focused mainly on seeing patients rather than on planned preventive work.

### Specifics of organizing the work of narrow specialists

Narrow specialists working in the PHC involve cardiologists, surgeons, otolaryngologists, ophthalmologists, endocrinologists, neurologists, etc. The types and number of narrow specialty positions in the clinical diagnostic department (CDD) at the PHC level are also determined based on the number of enrolled population.

According to the newly adopted standards of the GPC CDD, new standards have been established. For example, 1.0 rate per 5,000 enrolled child population is established for a pediatrician, 1.0 rate per 30,000 enrolled population is established for a surgeon, ophthalmologist, otolaryngologist, neurologist, cardiologist, urologist, oncologist, and endocrinologist, 1.0 rate per 10,000 enrolled population is established for an obstetrician-gynecologist, etc. [18]

Regardless of the fact that the Ministry of Health has established certain standards for the volume of services delivered by narrow specialists in the CDD at the PHC level and in the ambulatory diagnostic department (ADD) at the hospital, there are differences in the volume of their services, as well as duplication of some functions depending on the level and location of health organizations.

For example, city FMCs (Bishkek, Osh) and regional FMCs have more narrow specialists than raion GPCs, therefore they provide a broader scope of laboratory and diagnostic services.

Raion GPCs/FMCs are inadequately staffed with narrow specialists and equipped with technology for

[18] http://assd.med.kg/informacionnye-resursy/npa-prikazy/

diagnostic, treatment and laboratories, so patients are forced to receive the missing PHC services in ADDs of hospitals or regional FMC.

However, it should be noted that services of narrow specialists vary depending on their skills and competencies, as well as the availability of diagnostic equipment: in some FMCs/GPCs, doctors of narrow specialties can perform surgical interventions and other required manipulations, while in others they only consult patients and make referrals to the hospital ADDs.

At the PHC level, many narrow specialists perform a consulting role, and also constantly monitor and observe some patients. For example, women with gynecological diseases, and also pregnant women, are often observed by a gynecologist only, children - by a pediatrician, regardless of their condition. Patients with diabetes, including insulin-dependent patients, are observed and treated by endocrinologists only, and also in all raion GPCs; family doctors are not involved in treatment and care delivery. In the absence of an endocrinologist, patients are observed by endocrinologists from regional FMCs. And, insulin is dispensed in FMC/GPC only.

In Bishkek, all insulin-dependent patients are observed at the tertiary level only, in the Endocrinology Center of the KR MoH, and receive insulin there. Moreover, all FMCs in Bishkek have endocrinologists on the staff, and most often more than one.

> *Excerpts from the interview with mother of a child with type 1 diabetes: "My child is 12 years old, I come from Kurshab village to the FMC every month, although we have a general practice center in our village, but there is no endocrinologist there. I know our family doctor, she used to be a therapist, and treated adults, how can she treat my child? Even during pregnancy, I did not go to her, but went to the family doctor, who used to be a gynecologist, all pregnant women in our village go to the former gynecologist for consultation and treatment."*

During focus group discussions, one of the problems narrow specialists working in raion PHC facilities noted was insufficient qualification and lack of skills as compared to specialists working in hospitals; many of them perform only observation, which could be delegated to the FGP family doctors. At the same time, the role of patients who do not want to be seen by family doctors and prefer to seek care from narrow specialists was highlighted.

> *Excerpts from the interview, director of Ton raion GPC: "Despite the implementation of family medicine, patients still want to receive services from narrow specialists, they trust them more. As part of the Health Facility Autonomy Project, all PHC narrow specialists were retrained as family doctors. Patients did not like this as it made their lives more difficult; they go to the neighboring city of Balykchy or Bishkek for consultations with narrow specialists. I had an endocrinologist who was retrained as a family doctor. Although she worked as a family doctor for several years, our population knew that she used to be an endocrinologist; and patients with diabetes and other patients with endocrine diseases came to see her in droves, so I was forced to reintroduce an endocrinologist position. She is the only PHC narrow specialist; I do not have a surgeon, an ophthalmologist and a neurologist. The population goes to the hospital for consultations, huge lineups are there."*

On the other hand, the availability of narrow specialists at the PHC level affects the development of competencies amongst FGP family doctors. Family doctors mentioned inadequate practical skills and experience in managing patients with complications due to the lack of appropriate diagnostic equipment. For example, family doctors cannot observe women with gynecological problems, since there is no a gynecological chair in the offices as well as otoscopes for diagnosing ear diseases and monitoring

treatment, devices for measuring intraocular pressure, spirometers - a device for measuring the air volume of patients with chronic lung diseases, etc.

At the same time, doctors of the visited health facilities noted the lack of relevant feedback between family doctors and PHC narrow specialists. There is also inadequate communication between primary health care and hospitals, even in the conditions of a GPC, when they are its structural divisions, due to no integration of information systems between primary health care and hospitals.

It should be particularly noted that needed availability and special role of narrow specialists in primary health care is driven by their involvement in medical checkups and preventive medical examinations amongst population, as well as in conducting medical examinations of conscripts for military medical commissions.

It is important to note that the SGBP does not specifically stipulate the services of military medical commissions. This is done within the framework of services and guarantees provided for the population, as the conscripts are enrolled to the FGP population.

### Role and functions of a family nurse

All PHC organizations have pre-medical nurse offices. The main purpose of these offices is to see patients separately by nurses, make a nursing diagnosis, prevent non-communicable diseases through education and regular observation of patients.

To strengthen their capacity, functional responsibilities have been developed for nurses, taking into account their job empowerment (Order of the KR MoH #902 as of July 27, 2022 "On approval of job instructions for a family doctor and a nurse")[19].

The approved professional competencies of family nurses involve fairly universal functional responsibilities and allow adequate autonomy in management of pregnant women, chronic patients, healthy children under 5 years old, etc. But in practice, nurse autonomy is being implemented more in FAPs and rural FGPs, where there is a shortage of doctors; they independently see patients and make decisions on their observation and management.

In the cities of Bishkek and Osh, individual nursing practice has not yet been adequately introduced due to the lack of nurses and heavy workload.

Family nurses noted that they see patients independently, but are not adequately provided with appropriate conditions and resources, consulting rooms are not well equipped, and there is not enough equipment for examining and diagnosing patients.

Besides, family nurses noted the additional workloads associated with enrolling the population, submitting documentation to receive insurance for the population, clarifying the population composition for schools, elections and other purposes of local administrations. Family nurses believe that they are able to see patients on their own, carry out preventive measures, and educate patients if individual offices with appropriate equipment are set up and there is no additional workload beyond their responsibilities.

> *Excerpts from the interview with the family nurse, FMC in Osh: "We have our own functional responsibilities, but we cannot fulfill them fully, because we have to solve many social problems of families and patients from the disadvantaged population categories. The MHIF TD lay down plans for us on insuring patients, we do door-to-door visits, but many do not want to buy an insurance*

[19] https://assd.med.kg/informacionnye-resursy/npa-prikazy/

*policy, and we are deprived of the LDI for this reason. In addition, prior to every election, management of the FMC forces us to clarify the population lists, we also look for and maintain record of all schoolchildren, etc. These are not in our functional responsibilities, take a lot of time and distract us from performing our direct job responsibilities."*

Nurses also noted that standard operating procedures (SOPs)[20] are not fully implemented for nursing specialists, despite the significant number of functions assigned to the family nurse. Most of the 36 SOPs developed at the republican level are manipulative (injections, blood pressure measurements, etc.), which envisage basic nursing services and do not reflect nursing practices of independent seeing patients, counseling patients with non-communicable diseases, delivering preventive services considering risk factors.

**Key notes:**

- The SGBP defines the list of PHC services divided into two packages; 1) A free package of services for all citizens includes prevention, diagnostics, doctor's appointments and consultations, 11 basic laboratory and diagnostic tests subject to a referral from a family doctor and a narrow specialist; 2) The additional package, involving supplementary laboratory and diagnostic tests, was not specifically defined in the package of state guaranteed benefits and was determined based on the approved Price List for additional examinations.
- The medicine program for the benefit-entitled citizens determines norms for dispensing medicines on each name. The MHI ADP also has restrictions, depending on the budget of each organization, and for some pharmaceuticals.
- Visits to PHC have been steadily declining in recent years and in 2022 amounted to 1.9 visits per resident per year. At the same time, the number of visits to family doctors is less than half as compared to narrow specialists. At the end of 2022, the number of visits to FGP doctors (family doctors) amounted to about 46% of the total number of visits to primary health care, the remaining visits were to narrow specialists.
- The SGBP and the MoH's Order on basic services at the PHC level do not specify and provide a clear understanding of the services available at different PHC levels (FAP, FGP, FMC/GPC), and the population has to seek for some basic services on a fee basis, since the services listed in the basic package are not available at all PHC levels. However, there are no monitoring and control mechanisms to ensure equal access to services and their free nature in accordance with the SGBP. For example, FAPs do not provide any diagnostic tests, remote FGPs provide a limited range of services (only general blood and urine tests), GPC/FMCs provide most of the basic services, services of narrow specialists and expanded laboratory diagnostic services for the insured population groups.
- Variations in the scope of services delivered at the PHC levels (FMC/GPC, FGP, FAP) also force patients to travel quite long distances between villages to district or regional centers by private transport or go to nearby settlements to which they are not enrolled, and pay for services.
- The package of some free laboratory services is not sufficiently specified or is not fully consistent with clinical protocols. Limited access to some basic laboratory services at PHC also exists due to the lack of certain types of diagnostics at the PHC, so patients have to receive them outside PHC

[20] https://assd.med.kg/informacionnye-resursy/sopy/

for a fee, despite the existing SGBP norms, when PHC must enter into contracts with other organizations to perform the missing types of laboratory and diagnostic tests (for example, bacteriuria for pregnant women, determination of glycated hemoglobin for patients with diabetes).

- The PHC service package is oriented at delivery of diagnostic and treatment services by family doctors, while patients can see a narrow specialist without a referral from a family doctor. Therefore, there is a high rate of self-referrals of patients to narrow specialists, which is often not coordinated by a family doctor. At the same time, functions of narrow specialists are more focused on management and consultation of patients, rather than on diagnostics and management of more complex and severe patients. For example, patients with diabetes are mostly observed by the endocrinologist.
- Family doctors consider inadequate practical skills for further management of patients with complications and the lack of diagnostic equipment (no gynecological chair, otoscope, stethoscope, etc.) as the bottleneck, which is often the reason why family doctors frequently refer patients to narrow specialists.
- The capacity of family nurses is not fully used, although there are approved professional competencies and standards for nursing practice that envisage fairly universal functional responsibilities and enable independent observation of some patient categories. In practice, nurse autonomy is more realized in FAPs and rural FGPs, which have no a family doctor.
- Current motivation system for primary health care workers and the additional payment sizes are inadequate, there is no appropriate assessment. These do not contribute to improving the quality of services provided to the population.

## 4. Delivery of PHC services for specific conditions

This section provides information on management of patients for four selected diseases in PHC facilities (hypertension, bronchial asthma, type 2 diabetes and management of pregnancy without complications). For each condition, available statistics are presented based on E-health Center data, recommendations of CG/CP for management of patients with selected conditions and services that are covered by the SGBP. In addition, patient pathways are presented at different levels of PHC where patients receive these services.

It should be noted that the CG/CP recommendations do not include information at what level any given services should be delivered. This information was collected during visits as part of this study, as well as based on the list of diagnostic medical services provided in PHC organizations by family medicine specialists, approved by the Order of the Ministry of Health[21].

### 4.1. Delivering services on hypertension management

In 2022, the total number of registered hypertension (HTN) cases amounted to more than 155 thousand people in the Kyrgyz Republic. According to the E-health Center, in 2022 the hypertension prevalence was 4.4% amongst adult population, however, it should be noted that data from a number of studies show

[21] Annex 4 to the Order of the MoH #1208 dated December 30, 2017 “On approval of the basic package of PHC services provided by family medicine specialists”

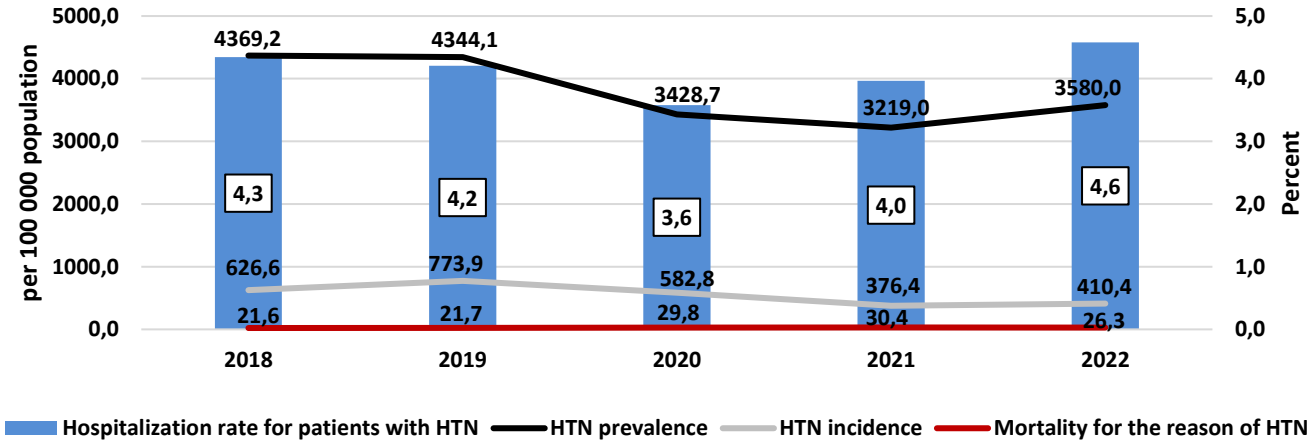
the hypertension prevalence in Kyrgyzstan at more than 30%[22] for the age group of 18 years old and over. In recent years, many activities have been carried out in the country aimed at increasing the registration of people with hypertension, but the indicators are not improving. Over the past five years, indicators have been constantly declining, the hypertension (HTN) prevalence[23] has decreased by 18,1% in the KR.

The incidence rate of hypertension[24] is also decreasing annually. For example, in 2022 newly detected and diagnosed hypertension was registered in 17.8 thousand people, the incidence rate was 410.4 per 100,000 population aged 18 years and older, which is lower by 34.5% as compared to 2018.
In order to improve detection and registration of patients with hypertension, the HTN incidence rate was included in the list of indicators, based on which, from the end of 2018 to 2021, the incentive payments were made to family doctors based on their performance.
As a result, there was an increase in this indicator in 2019 and a decrease in 2020-2021 during quarantine measures due to COVID-19 pandemic. In 2022, there was some growth in the indicator again (+9%), however, the indicator had not even reached the level of 2020.

A decrease in this indicator may be due to (1) poor quality of primary records; (2) incomplete data entry into the electronic online database "Outpatient CIF"; (3) partly due to the lack of motivation to detect new cases of hypertension (previously, incentive payments were made for achieving high rates of this indicator, however, this could also be a risk factor for artificially inflating data). Therefore, further identification of the reasons for low registration of patients with hypertension requires in-depth study at the PHC level.
Every year, more than 7100 HTN patients receive inpatient treatment. The proportion of HTN patients receiving inpatient treatment is approximately 4% of the total number of all HTN cases registered at the PHC level.
As a cause of mortality, hypertension is registered annually in 850–1200 deaths, that is 22–30 people per 100 000 population at the age 18 and over. Against the background of declining HTN incidence and prevalence, there is an increase in the mortality rate by 21.7%.

[22] "Health system effectiveness in hypertension control in Kyrgyzstan", Policy Research Paper #44; CHSD, WHO, Swiss Red Cross, Bishkek, 2007; http://hpac.kg/wp-content/uploads/2016/02/PRP44.R.pdf
[23] The HTN prevalence rate is calculated as the ratio of the number of all registered HTN cases in persons who visited primary health care level in the reporting year to the average annual population aged 18 years and older, multiplied by 100,000
[24] The incidence rate of hypertension is calculated as the ratio of the number of newly diagnosed cases to the average annual population aged 18 years and older, multiplied by 100,000

**Figure 5. The HTN incidence, prevalence and mortality rates over time (per 100 000 population at the age of 18 years old and over), hospitalization rate (in % of the total registered HTN cases), the KR, 2018-2022**

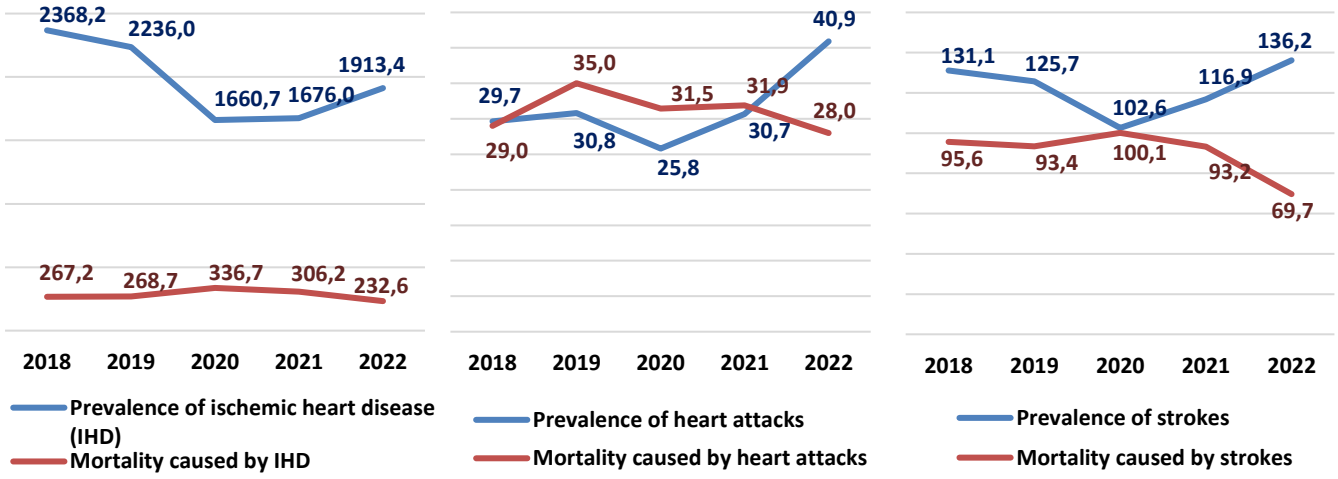



Data source: DB "Medstat"of the E-health Center at the KR MoH

At the same time, the HTN prevalence and mortality from the HTN complications are constantly growing. In absolute terms, 1200-1400 people die from heart attacks every year, which is comparable to the total number of registered heart attack cases[25].

From 9000 to 9500 patients are hospitalized annually for strokes and from 3000 to 4100 die for this cause, which is almost 50-70% of all registered stroke cases. The rate of mortality from all types of strokes is 70-100 cases per 100,000 population aged 18 years and older.

**Figure 6. Prevalence and mortality from ischemic heart disease, heart attacks, strokes, Kyrgyz Republic, 2018-2022 (per 100,000 population aged 18 years and older)**



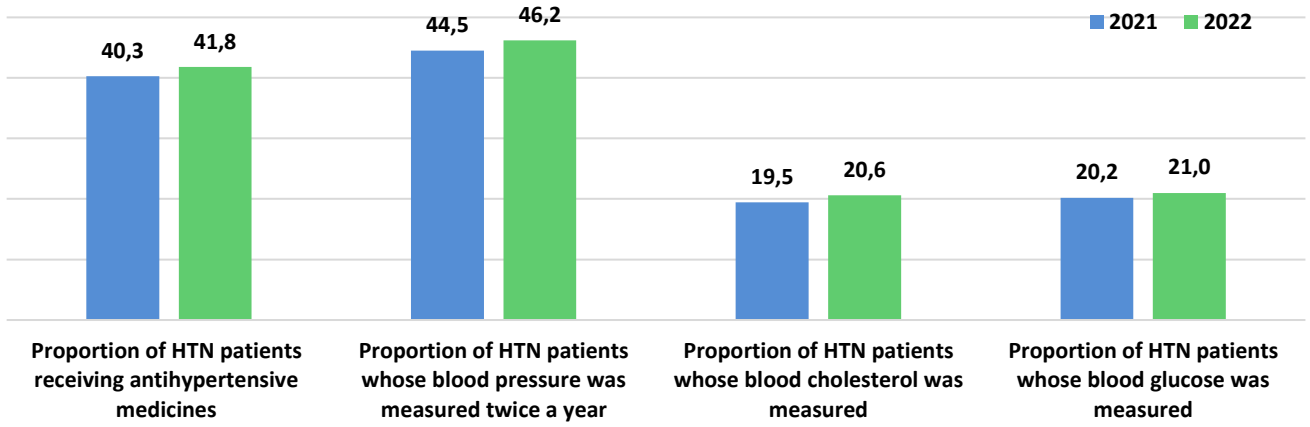

Data source: E-health Center at the KR MoH, National Statistics Committee of the KR

Data on managing patients with hypertension at the PHC level are entered into the statistical reporting forms of the KR MoH and are collected quarterly by the E-health Center.

[25] At the PHC level, cases of the disease diagnosed by the PHC doctors and also cases after hospital treatment are registered. All the disease incidence and prevalence rates are generated from the primary health care level only.

Analysis of indicators for 2021-2022 shows that management of patients with hypertension is inadequate, since only 45-46% of patients had blood pressure measured at least twice a year, cholesterol and blood glucose levels were determined only in 20-21% of patients and only 40-42% of patients diagnosed with hypertension were receiving antihypertensive drugs[26]. Low adherence of patients to the permanent taking antihypertensive drugs is also evidenced by data from the large-scale studies carried out in the Kyrgyz Republic. Thus, according to the 2016 STEPS study antihypertensive medicines were taken by only 39.8% of the surveyed patients with HTN.

**Figure 7. Management of patients with HTN, Kyrgyz Republic, 2021-2022, %**




Data source: DB "Medstat"of the E-health Center at the KR MoH

Data on management of patients with hypertension at the PHC level in the selected regions show the largest coverage with the required services in Bishkek and Issyk-Kul region. For example, in these regions, the proportion of HTN patients taking antihypertensive drugs and regular blood pressure measurements is 1.4-1.7 times higher than the national average; 1.4 times and over 2 times more often, patients with hypertension have their cholesterol and blood glucose levels measured (41-55% and 41-54%, respectively). Data on management of HTN patients in the selected raions of Osh region show low levels: the proportion of patients receiving antihypertensive drugs in Alai raion was 21-24%, in Uzghen raion – 11 -21%, moreover, over the past year, the proportion of such patients in Uzgen raion has decreased by almost 1.9 times; BP was measured at least twice a year only in 39-45% of patients with hypertension in Alai raion and in 28-31% of patients in Uzghen raion; it is extremely low level of testing the blood of such patients for cholesterol and glucose levels (respectively, in Alai raion - 2% and 4-8%, and in Uzghen raion - 6% and 9-11%), that is 2-12 times lower than the average republican levels (Table 3).

**Table 4. Indicators on managing patients with HTN in the KR, in selected regions, 2021-2022, %**

| Regions | Proportion of HTN patients taking antihypertensive medicines | | Proportion of HTN patients whose blood pressure was measured at least twice a year | | Proportion of HTN patients whose blood cholesterol was measured | | Proportion of HTN patients whose blood glucose was measured | |
|---|---|---|---|---|---|---|---|---|
| | 2021 | 2022 | 2021 | 2022 | 2021 | 2022 | 2021 | 2022 |
| KR | 40,3 | 41,8 | 44,5 | 46,2 | 19,5 | 20,6 | 20,2 | 21,0 |
| Bishkek | 55,8 | 70,8 | 60,4 | 66,1 | 41,2 | 54,9 | 41,4 | 53,6 |

[26]Information on examination of patients with hypertension and use of antihypertensive drugs is entered In the Medstat database using the "Outpatient CIF" data.

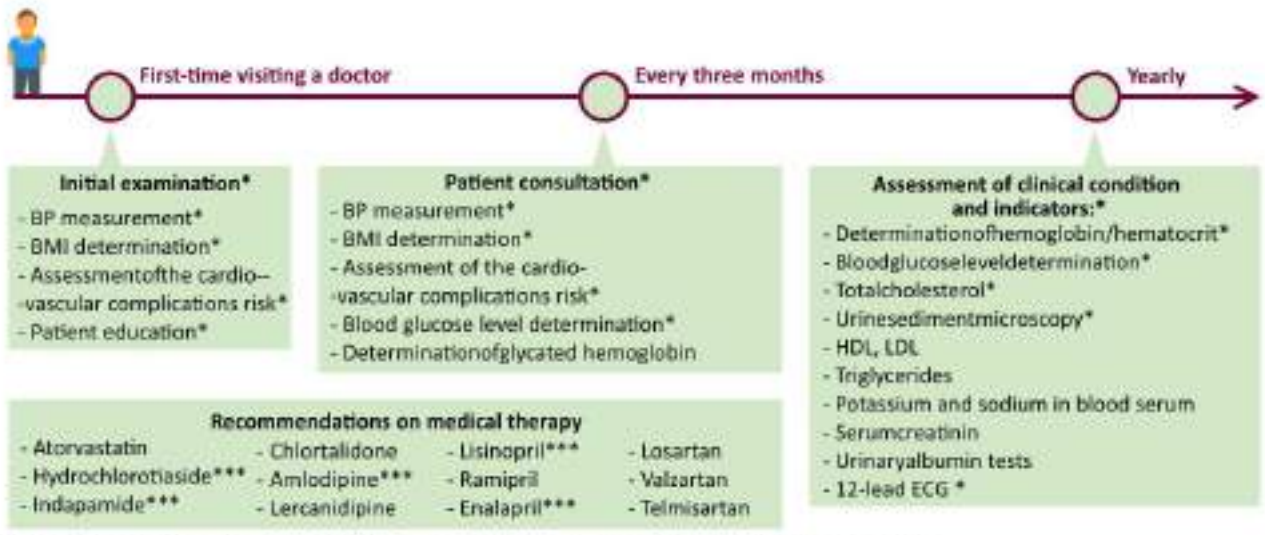
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Osh | 31,1 | 24,8 | 41,4 | 42,1 | 9,3 | 5,1 | 10,4 | 5,9 |
| Alai raion | 21,0 | 24,1 | 38,8 | 45,4 | 1,6 | 2,1 | 4,2 | 7,5 |
| Uzghen raion | 21,4 | 11,3 | 31,4 | 28,0 | 5,8 | 6,3 | 10,9 | 8,8 |
| Issyk-Kul raion | 60,1 | 50,2 | 51,9 | 51,7 | 42,0 | 37,4 | 42,0 | 37,3 |
| Ton raion | 54,9 | 79,4 | 53,7 | 53,9 | 13,6 | 41,4 | 14,7 | 42,2 |

Data source: DB "Medstat"of the E-health Center at the KR MoH

Management of patients with hypertension at the PHC level should be provided in accordance with recommendations of the approved clinical guidelines for the management of patients with hypertension, approved in 2016[27].

This guideline includes all recommendations for diagnosis, clinical aspects and medical treatment as well as indications for hospitalization. For managing hypertension, some laboratory and diagnostic tests are included in the basic package of free PHC services. Some laboratory and diagnostic services not included in the basic SGBP package could be provided within additional packages according to the price list, but they are not provided at the PHC level due to the lack of appropriate equipment and supplies. Recommendations for medical therapy in accordance with the CGs/CPs do not fully correspond to the list of medicines included in the medicine provision program under the MHI ADP at the PHC level. For example, statins to control cholesterol levels, sartans - a group of drugs for reducing arterial hypertension, are not included in the list of reimbursed drugs for patients with hypertension.

**Figure 8. Recommendations of the CG/CP for management of patients with hypertension according to clinical guidelines and services included in the SGBP**

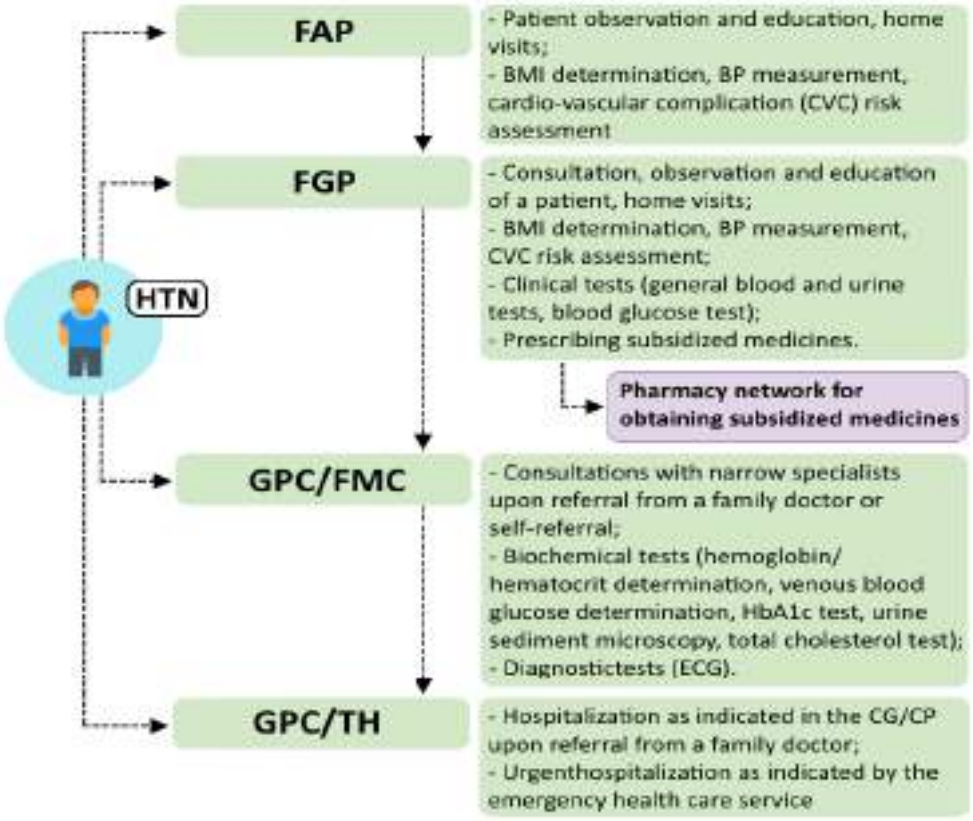



*Included in the SGBP basic package of laboratory and diagnostic examinations and delivered for free
**In addition to the basic package, laboratory and diagnostic tests may be carried out free of charge for the selected category, with co-payments for the insured and according to the price list on a fee basis for the rest
***Medicines are provided based on subsidized prescriptions within the frames of the SGBP Drug Benefit Package and the MHI Additional Drug Package

[27] "Clinical guideline for diagnosis and treatment of hypertension", 2016; http://nccim.kg/?page_id=343

Patients with HTN receive services recommended by the CG/CP at different PHC levels. At the FAP level, a family nurse observes patients, makes home visits, determines BMI, measures blood pressure and assesses the risk of cardiovascular complications (CVC). At the FGP level, a family doctor consults a patient and prescribes subsidized medicines. In FGPs, as appropriate, clinical tests are carried out or taken. At the GPC/FMC level, consultations with narrow specialists, biochemical tests and some diagnostic studies are carried out. Hospitalization of patients with hypertension should be ensured in accordance with recommendations of the CG/CP based on indications for hospitalization and a referral from a family doctor. When visiting health organizations, it was noted that patients often self-refer to narrow specialists and could also be self-hospitalized at different levels of inpatient care, not only in raion TH, but also in regional and national health organizations.

**Figure 9. Receiving services by patients with HTN at the PHC levels**




The research findings based on the analysis of selected outpatient records in visited health facilities, showed that there is inadequate coverage with HTN management services.

Thus, in 15% of the reviewed cases of hypertension there was no data on visiting a family doctor in 2022. Blood pressure measurements were taken at every visit in 97% of the cases reviewed, and body mass index (BMI) measurements were done regularly in 77% of cases. Data on the CVC risk assessment in patients with hypertension were available in 10% of the reviewed outpatient cards and there was no information on patient education.

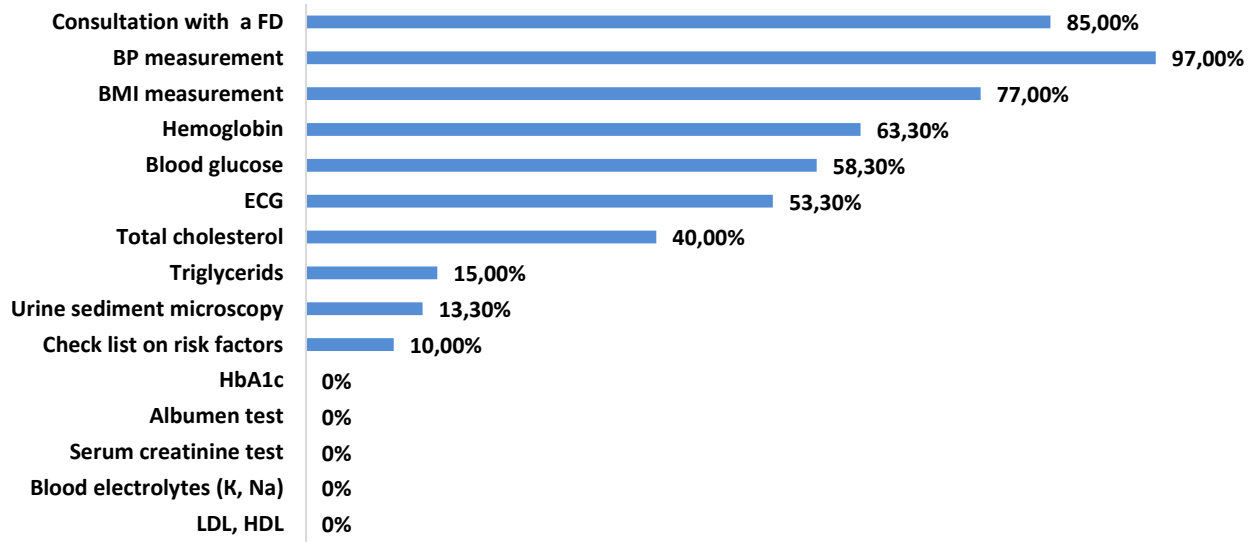
According to the clinical protocol, it is recommended that every patient with hypertension takes a blood glucose test once a year to assess a cardiovascular risk. Data on coverage of HTN patients with laboratory examinations showed that the general blood test results (hemoglobin) for the previous 12 months were available in 63% of the cases reviewed and blood glucose level tests - in 58% of the cases reviewed.

Some laboratory tests are not adequately detailed and are not fully consistent with the approved clinical protocols.

In accordance with recommendations on hypertension management for risk stratification and identification of lipid metabolism disorders, it is compulsory to test the total cholesterol once a year. Based on the package of free services, only total cholesterol is tested. At the same time, health professionals noted that it is reasonable to test cholesterol in combination with determination of triglycerides, cholesterol HDL (high-density lipoproteins) and cholesterol LDL (low-density lipoproteins), because for correct assessment of cardiovascular risks it is important to understand the ratio of different fractions of lipoproteins. Within the study, cholesterol test was carried out only in 40% of the reviewed cases, while in none of the cases reviewed there was data on measurement of lipid profile indicators (HDL, LDL) for the entire period of patient observation.

Electrocardiography (ECG) is the sole mandatory instrumental method for examining patients with hypertension; and according to the CG/CP recommendations, it should be carried out on the 12-lead equipment. The ECG data for the previous year of observation were available in 53% of the cases reviewed (ECG is performed on the 6-lead equipment).

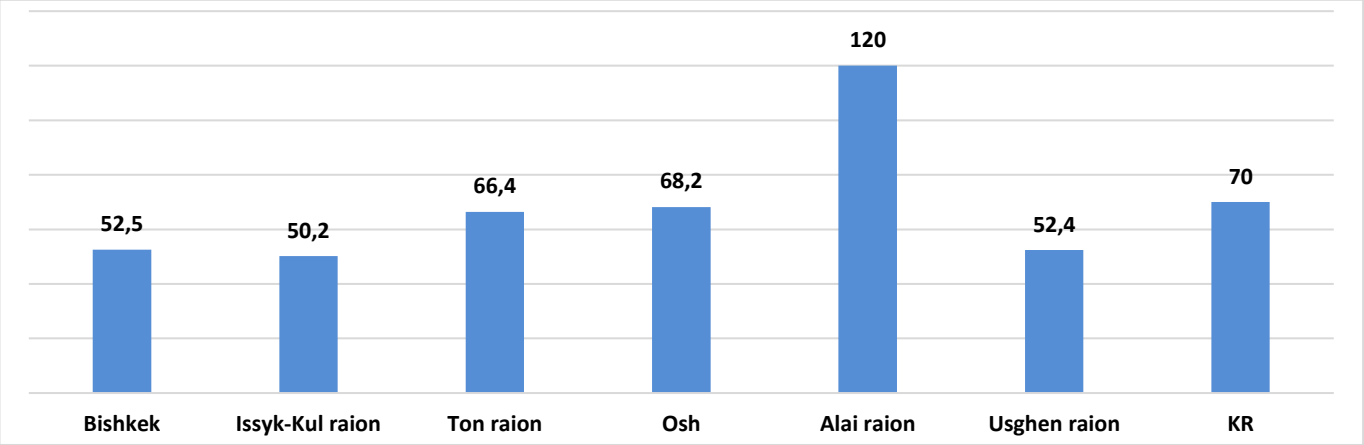
**Figure 10. Health services delivered to patients with hypertension in the surveyed health organizations, %**




Share of the budget that was used to reimburse subsidized prescriptions for patients with hypertension was 27.5% of the total budget allocated for the MHI ADP, while on average 70% of registered patients received at least one subsidized prescription countrywide.

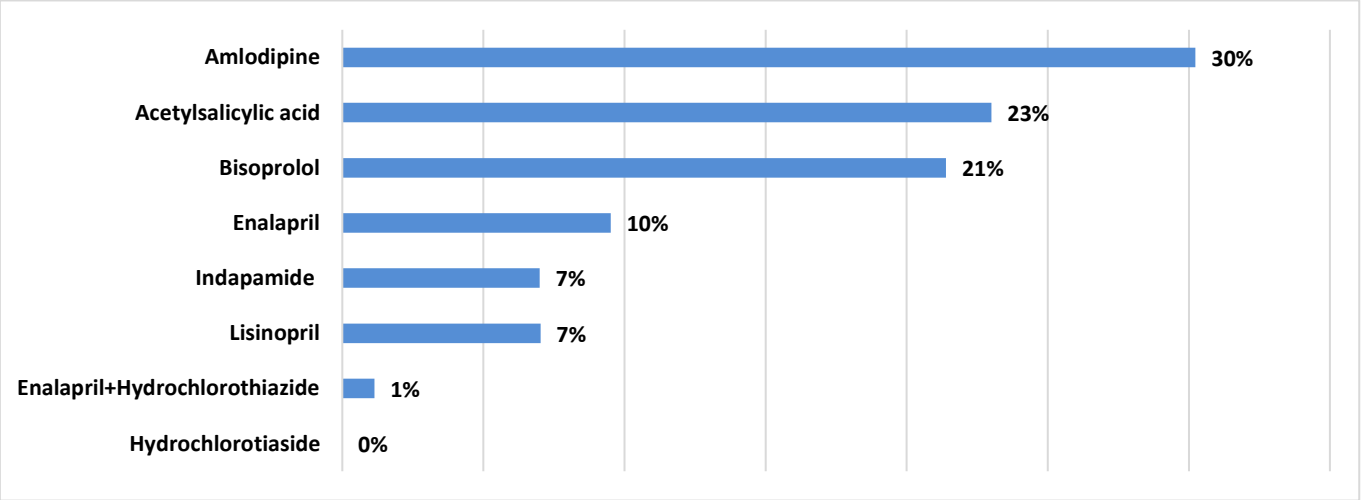
On average 5 prescriptions were issued per person per year countrywide, taking into account that one prescription enables to prescribe the norm for 1 month, utilization of benefits for receiving drugs by patients is inadequate. Thus, in some surveyed areas the coverage with drug benefits was about half only (Bishkek, Issyk-Kul raion, Uzghen raion). Moreover, the average level of drug reimbursement for hypertension was 44%, the rest was paid by patients out of pocket.

**Figure 11. Proportion of patients who received subsidized prescriptions of the total number of registered patients with HTN, 2022, %**




Analysis of the MHIF database on prescriptions to patients with HTN showed that Amlodipine is most often prescribed - 30%, Acetylsalicylic acid - 23% and Bisoprolol - 21% of the total number of prescriptions written for hypertension. The rest of the medicines were prescribed from 1 to 10% of the total number of prescriptions.

**Figure 12. Proportion of subsidized medicines prescribed for HTN of the total prescriptions written for hypertension, 2022, %**




When discussing with family doctors, it was highlighted that low percentage of prescriptions for some medicines is explained by the fact that prices for some reimbursed drugs are very low and patients can purchase them at full price, for example, Enalapril, Amlodipine, Hydrochlorothiazide. The price of these drugs is approximately from 10 to 30 som for 10 tablets, therefore patients do not come to doctors for prescriptions, they buy these medicines themselves at full cost in pharmacies.

Along with that, it was proposed to include some combined antihypertensive drugs in the List of reimbursed drugs for the insured, for example from the group of sartans (Lazartan), which are included in the latest recommendations for medical therapy in accordance with the CGs/CPs.

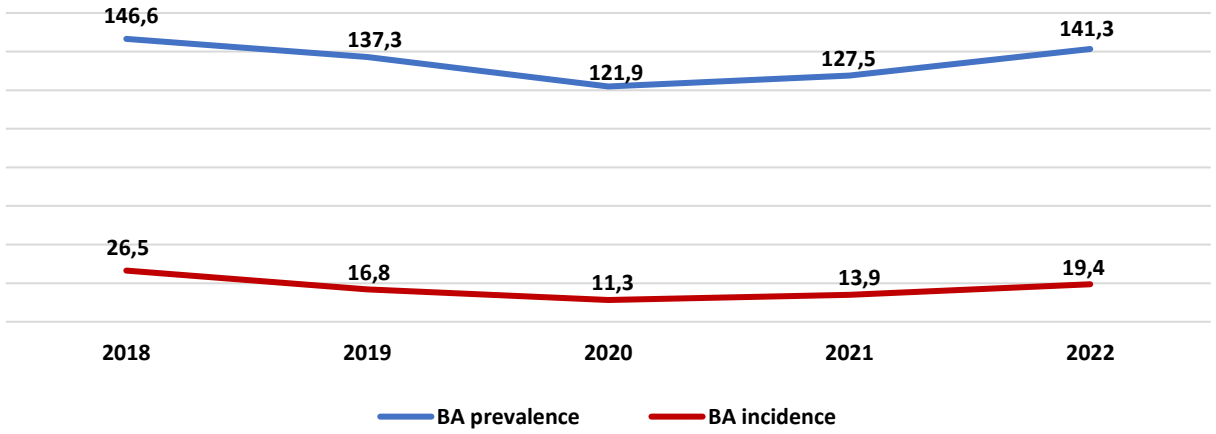
Medicines from the statin group may be prescribed on a subsidized basis to people after a heart attack only for a period of 2 months. Considering that patients with hypertension have a high risk of cardiovascular complications, and it is necessary to allow the prescription of statins to all HTN patients

with significantly elevated cholesterol levels, for the prevention of stroke and heart attack, as well as atherosclerosis.

### 4.2. Delivering services on bronchial asthma management at the PHC level

In 2022, 9.8 thousand cases of bronchial asthma (BA) were registered in the Kyrgyz Republic, which is 141.3 per 100,000 population. Over the past five years, the prevalence of bronchial asthma in the Kyrgyz Republic has decreased by almost 4%. In 2022, 1.4 thousand people were diagnosed with bronchial asthma for the first time and registered, that is 19.4 per 100,000 people. In the period analyzed, primary incidence rate of asthma decreased by almost 27%.

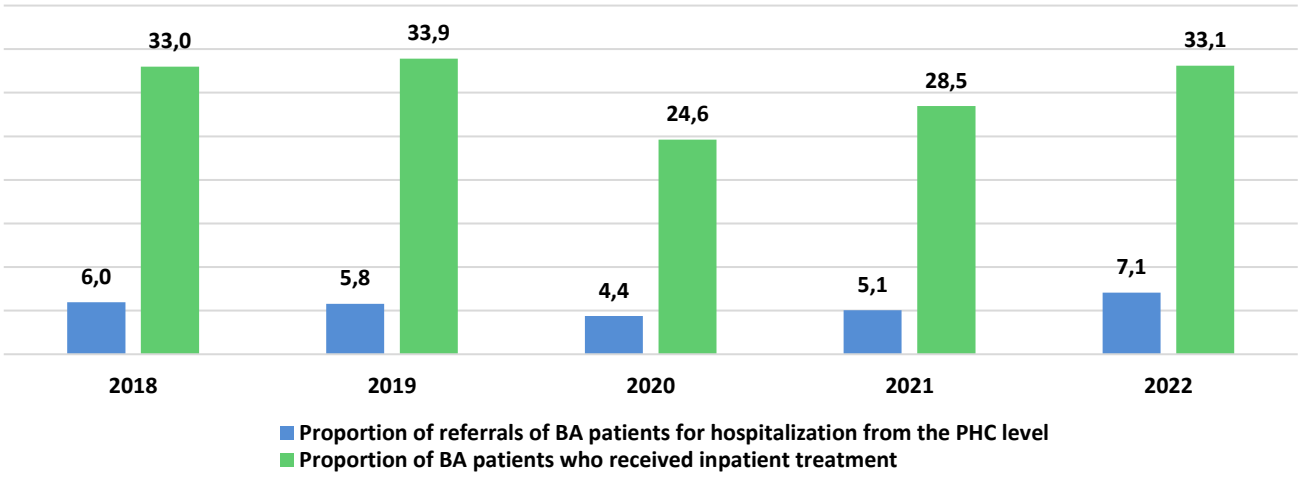
**Figure 13. BA prevalence and incidence rates over time, the KR, 2018-2022 (per 100 000 population)**




Data source: DB "Medstat"of the E-health Center at the KR MoH

The proportion of patients with BA who receive inpatient treatment was more than 33% in 2022, that is, more than a third of patients. Although only 7.1% were referred for hospitalization from the primary health care level. It turns out that most patients are hospitalized on their own, bypassing the primary care level.

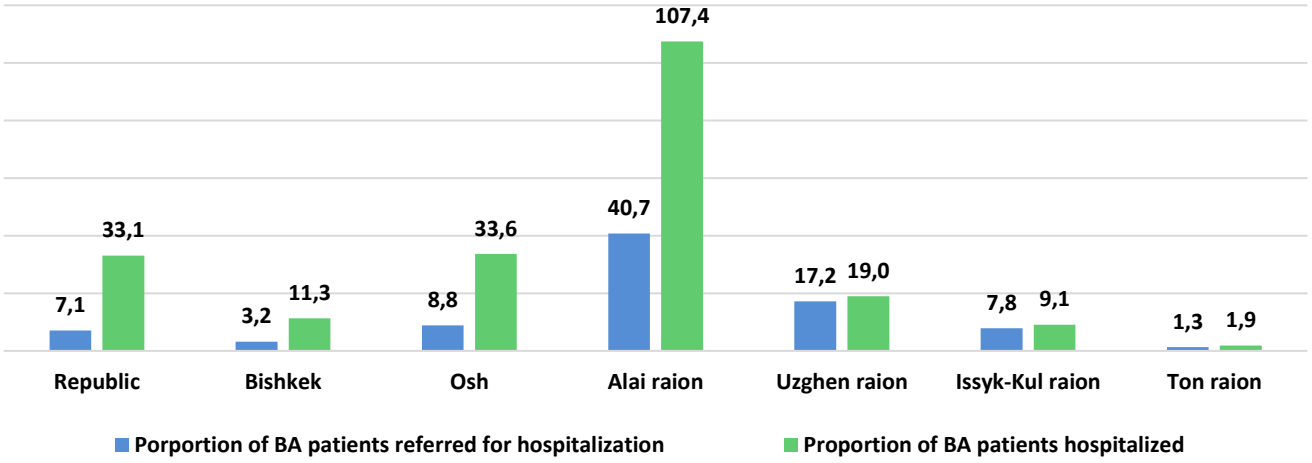
**Figure 14. Proportion of patients with BA referred for hospitalization from the PHC level and actually hospitalized, KR, 2021-2022, %**




Data source: DB "Medstat"of the E-health Center at the KR MoH

There are very high hospitalization rates for BA patients in all selected regions and raions, particularly in raions of Osh region. Thus, in Alai raion the proportion of patients referred for inpatient treatment was about 41% in 2022, while the proportion of actually hospitalized was 107%. It means that every patient with BA was hospitalized at least once during the year, which suggests that in case of asthma exacerbation, patients seek for the emergency health service or directly go to the hospital.

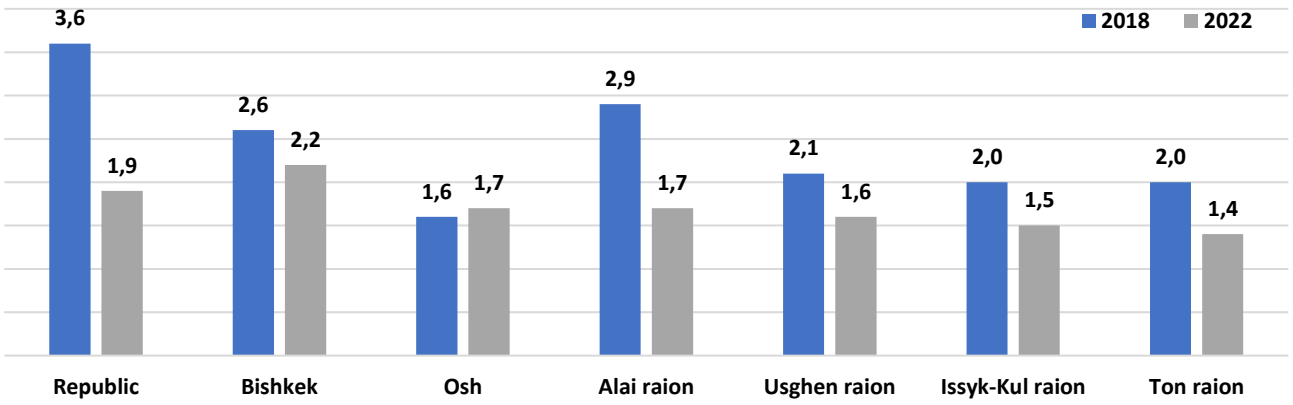
**Figure 15. Proportion of BA patients referred for hospitalization from the PHC level and actually hospitalized, selected raions, 2022., %**




Data source: DB "Medstat"of the E-health Center at the KR MoH

Analysis of statistics from the E-Health Center shows that from 2018 to 2022 the number of outpatient service cases for BA patients at the PHC level per year decreased by more than 47% countrywide. Thus, if in 2018 one patient sought health care at the PHC level on average 3.6 times during the year, then in 2022 – only 1.9 times in average.

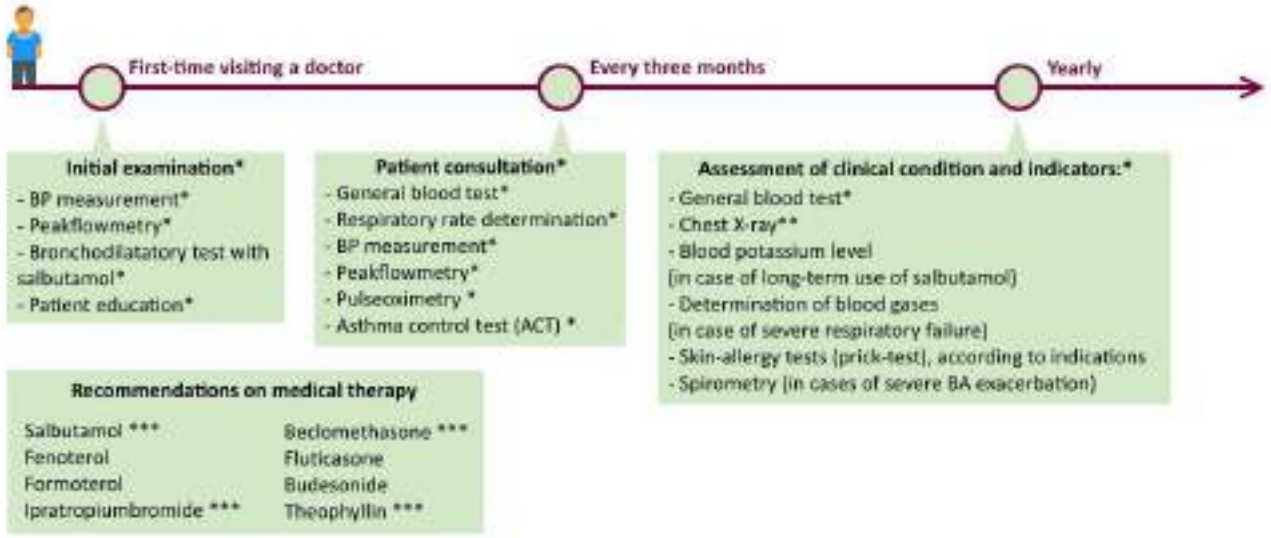
**Figure 16. Average number of health care seeking cases at the PHC for BA patients, selected raions, 2018, 2022. (per 1 patient)**




Data source: DB "Medstat"of the E-health Center at the KR MoH

Currently, a clinical protocol on management of patients with bronchial asthma is applied for diagnosis and therapeutic interventions at the PHC level[28]. According to recommendations for BA management, it is advised to regularly visit a family doctor - every three months - in the absence of complications, and to conduct a number of compulsory diagnostic tests. The basic SGB package involves consultation of a patient, including some diagnostic tests provided by family doctors - peakflowmetry, spirometry, bronchodilator test with salbutamol and assessment of the BA control level (AST test). Chest X-ray is performed at a reduced price within the additional package of the SGBP services. Some laboratory diagnostic services recommended by the CG/CP and not included in the SGBP basic package, could also be provided within additional packages based on the price list, however, they are not carried out at the PHC level due to the lack of appropriate equipment and supplies. For example, determination of the potassium level in blood, determination of blood gases, dermato-allergological tests (prick-test).

**Figure 17. Recommendations of the CG/CP for managing patients with BA and included in the SGBP**



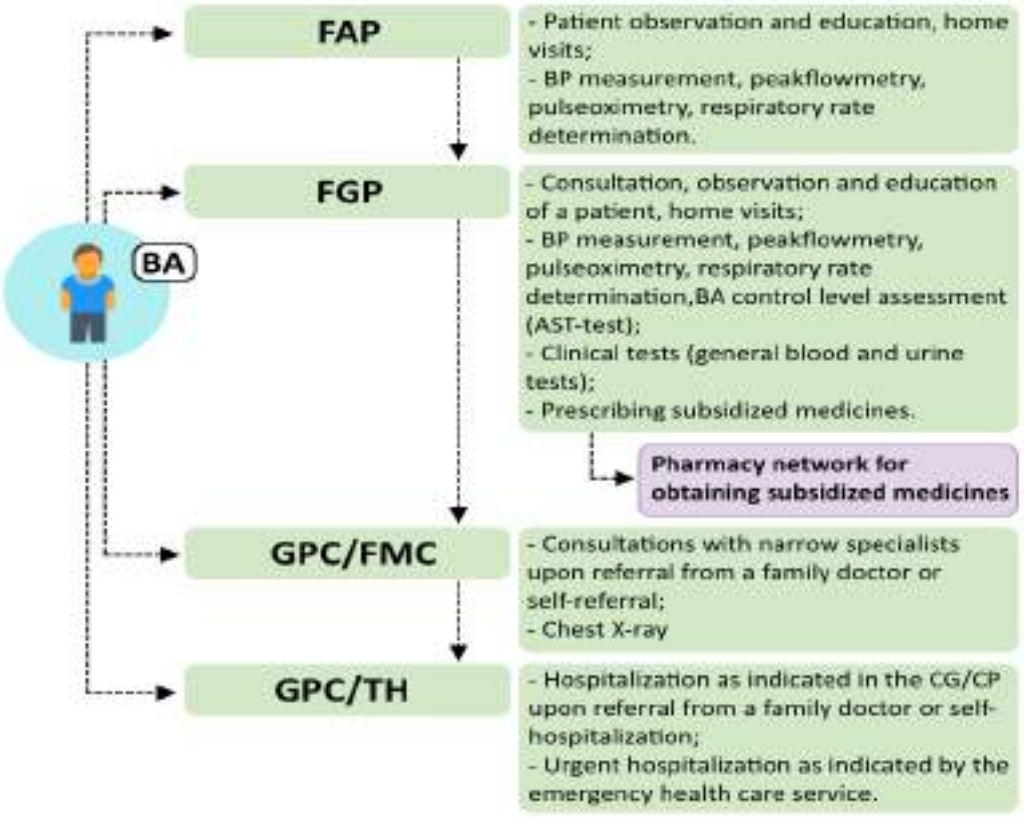

*Included in the SGBP basic package of laboratory and diagnostic examinations and delivered for free
**In addition to the basic package, laboratory and diagnostic tests may be carried out free of charge for the selected category, with co-payments for the insured and according to the price list on a fee basis for the rest
***Medicines are provided based on subsidized prescriptions within the frames of the SGBP Drug Benefit Package and the MHI Additional Drug Package

Patients with BA receive services recommended by the CG/CP predominantly at the level of FAP and FGP. At the FAP level, a family nurse observes patients, makes home visits, measures blood pressure, caries out peakflowmetry, pulseoximetry and determines the respiratory rate.

At the FGP level, a family doctor consults the patient and prescribes subsidized medicines. In FGPs, if applicable, clinical tests are carried out or taken. At the GPC/FMC level, consultations with narrow specialists are carried out, if needed, and chest x-rays are performed. Hospitalization of patients with BA should be carried out in accordance with the recommendations of the CG/CP based on indications for hospitalization and a referral from a family doctor. As the data above show, there is a very high percentage of patients who are self-hospitalized.

[28] Clinical protocols on pulmonology for primary and secondary levels of health care in the Kyrgyz Republic (2019), https://med.kg/clinicalProtocols

**Figure 18. Receiving services by patients with BA at the PHC level**

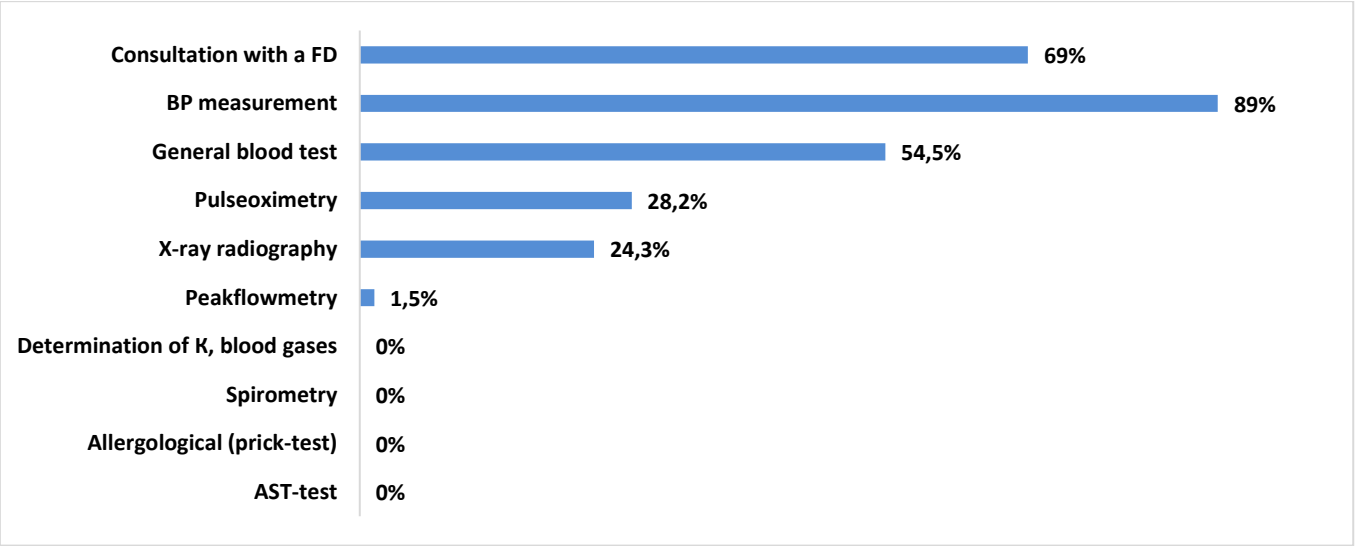



The study findings which were based on the review of selected outpatient cards in the HOs visited demonstrated that there is inadequate coverage of patients with the BA management services in compliance with the approved CGs. Patients with BA were observed by family doctors in 69% of cases, other than that observations and consultations were carried out by different narrow specialists (pulmonologist, therapist, allergologist и etc.), or there were no records on visits to a primary care doctor over the last year in the outpatient cards.

Key management and treatment outcomes include achieving and maintaining the BA symptoms under control based on the spirometry and peakflowmetry measurement data. Unfortunately, peakflowmetry which is one of the important examinations to assess the severity and monitor the effectiveness of treatment for a patient with BA, is performed very rarely - only in 1.5% of the cases reviewed. Spirometry is applied to determine respiratory function (functions of external respiratory activity) and it is a fairly effective diagnostic method, but not carried out due to the lack of appropriate equipment at the PHC level. At the same time, the available methods of BA control are the AST test to assess the effectiveness of treatment and the reversibility testing to confirm the reversibility of bronchial obstruction, which are also not performed at PHC level.

The required examinations based on indications, such as determination of potassium level in blood (when Salbutamol is taken for a long time), determination of blood gases (in case of severe respiratory failure), dermato-allergological tests (prick-test) are also not carried out at the PHC level - in none the facility laboratories visited. In 2022, of mandatory laboratory methods for BA at the PHC level, general blood tests were performed only in 54.5% of cases, and coverage of patients with chest radiography once a year was 24.3% (Fig. 19).

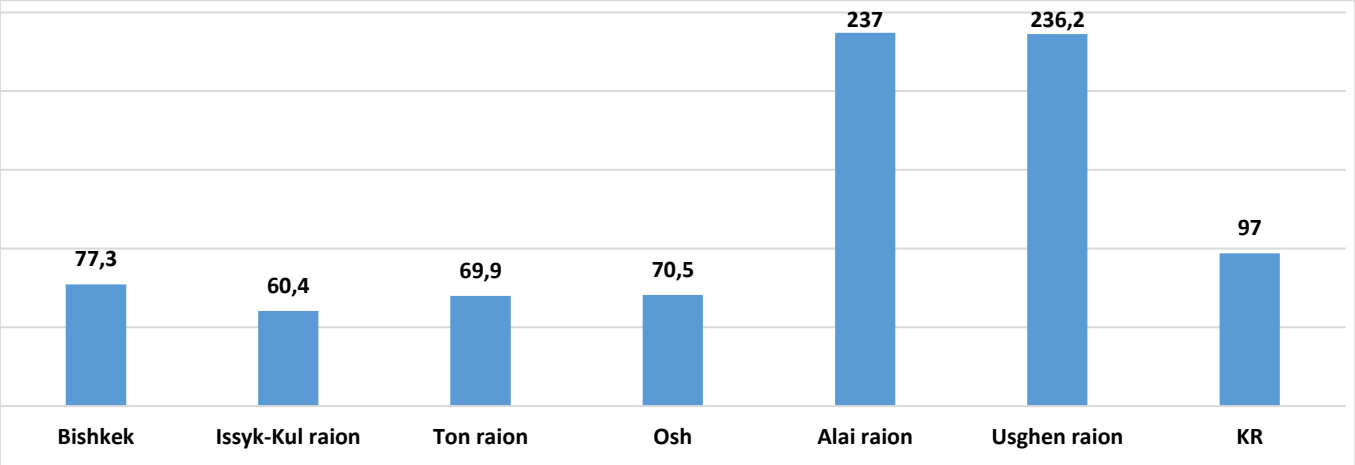
**Figure 19. Health services delivered to patients with BA in the surveyed HOs, %**




In 2022, the share of budget that was used to reimburse subsidized prescriptions for patients with BA was 7% of the total budget allocated for the MHI ADP, while 97% of registered patients received a reimbursed prescription at least once. On average, 4 prescriptions were issued per person countrywide, given that one prescription allows to prescribe the norm for 3 months, we may assume that the need for the entire year was covered.

The average reimbursement level by the MHIF was 87% when drugs were sold in the pharmacy network; patients paid the rest. It means that a patient paid out of pocket the difference between the retailed price and the established reimbursement price (about 13% of the total medicine cost).

***Figure 20. Proportion of patients with BA who received the subsidized prescriptions, 2022, %***



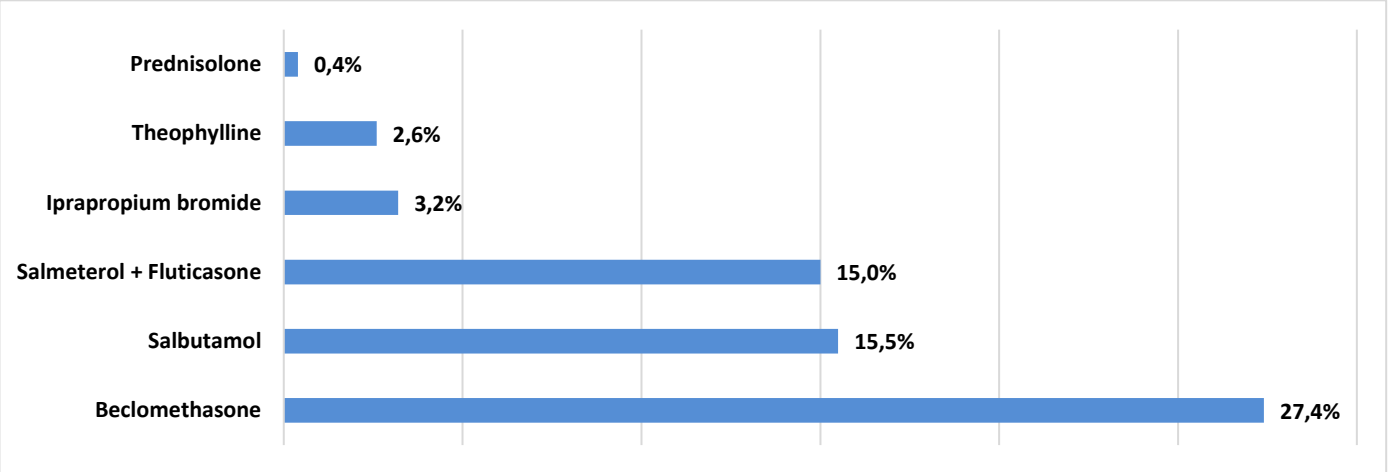

*More than 100% - several prescriptions were issued to one patient during the year
Source: Database of electronic prescriptions within the MHI ADP, the MHIF

According to the clinical protocol it is recommended to use a number of medicines, of which 4 medicines are included in the list of reimbursed drugs for the insured within the MHI ADP. In addition, patients with BA may also receive medicines under the second subsidized medicine provision program - the SGBP drug package - free of charge.

Data on dispensing and drugs within the ADP showed that Beclamethasone is most often prescribed -

27.4%, Salbutamol and the combination drug Salmeterol - 15% each, depending on the total number of prescriptions written for BA.

**Figure 21. Proportion of subsidized medicines prescribed for BA of the total prescriptions written for bronchial asthma, 2022, %**




During focus group discussions, patients with BA mentioned the problem of availability of medicines in the pharmacy network for the BA treatment, particularly in regions. Some patients cannot purchase medicines because they are not available in pharmacies. Most pharmacies dispensing subsidized medicines are located in regional centers only, therefore about 15% of prescriptions written by doctors for patients with BA remain unfulfilled by the pharmacy network due to the lack of required medicines in the available pharmacies or unavailable pharmacies.

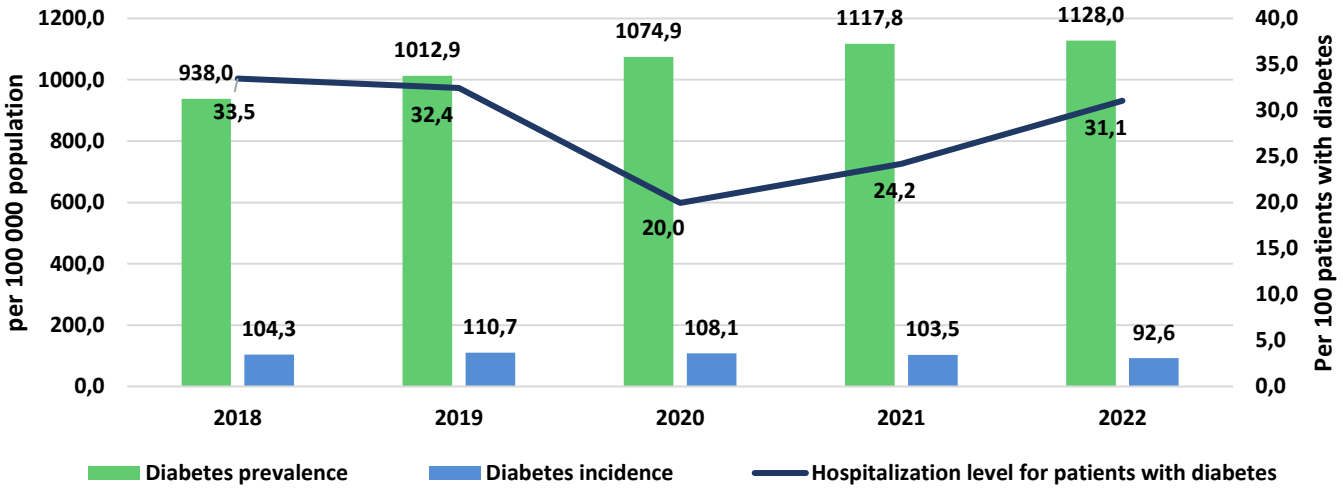
For example, in Issyk-Kul district with its center in Cholpon-Ata, there is only one pharmacy for the entire district that provides medicines within the MHI ADP; the district extension is about 70 km. Patients have to permanently travel long distances to buy a prescribed medicine at a discounted price. Patients from Alai district go to the regional center, Osh (a distance of more than 130 km) for the required medicines.

### 4.3. Delivering services on diabetes management at the PHC level

In 2022, totally 78.7 thousand patients with diabetes mellitus (DM) were registered in the republic. Every year, from 93 to 111 new cases of diabetes are registered per every 100,000 population, while the incidence rate of diabetes, that is, newly diagnosed cases, is constantly decreasing; it decreased by 11% as compared to 2018. This points to low detection of diabetes at the PHC level.

At the same time, there is a high level of hospitalizations for diabetes; from 18 to 24 thousand patients with diabetes receive inpatient treatment annually, which is approximately a third of all registered diabetes cases.

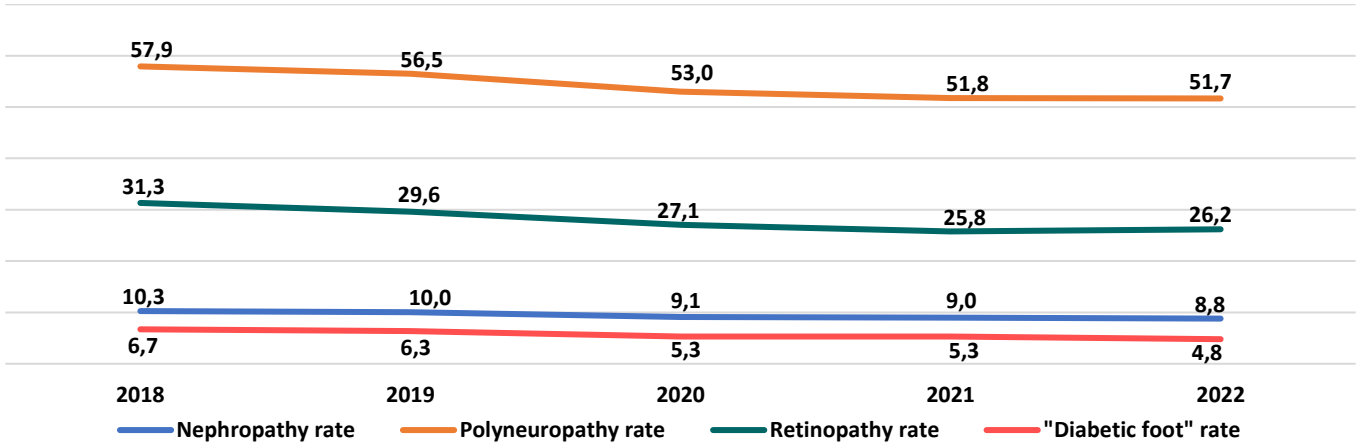
**Figure 22. Diabetes prevalence and incidence over time, (per 100 000 population), hospitalization level for patients with diabetes (per 100 patients with diabetes), Kyrgyz Republic, 2018-2022**




Data source: DB "Medstat"of the E-health Center at the KR MoH

In general, high level of diabetes complications should be mentioned. The most common complication of diabetes is polyneuropathy, which is observed in more than half of patients – 52-58%. Retinopathy is diagnosed in 26-31% of cases annually and nephropathy - in 9-10% of patients with diabetes. Such complication as "diabetic foot" is observed in 5-7% of patients with diabetes.

**Figure 23. Diabetes complication rate, KR, 2018-2022, %**

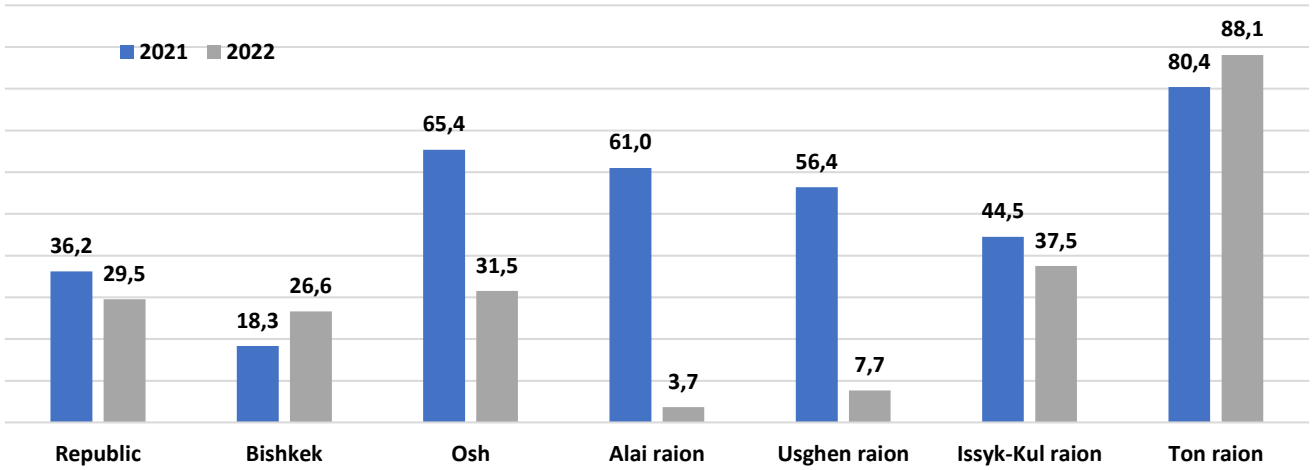



Data source: DB "Medstat"of the E-health Center at the KR MoH

To assess the treatment quality at the PHC level in accordance with the approved recommendations, starting from 2021, data on the number of patients with diabetes tested for glycosylated hemoglobin have been included in the reporting forms and are collected by the e-Health Center.

According to the data for 2021-2022, only about 30-36% of patients with diabetes were tested for glycohemoglobin countrywide. The level of testing patients with diabetes for glycosylated hemoglobin in the selected areas is also inadequate. According to statistics reports of 2021, only 18-27% of patients with diabetes were tested for glycohemoglobin in Bishkek, and 32-65% - in Osh. 61% of patients with diabetes in Alai and 56% in Uzghen were tested for glycohemoglobin; in Issyk-Kul and Ton raions these rates were 38-45% and 80-88%, respectively. However, in 2022 the rates have drastically dropped.

**Figure 24. Proportion of patients with diabetes tested for glycohemoglobin, selected raions, 2021-2022, %**




Data source: DB "Medstat"of the E-health Center at the KR MoH

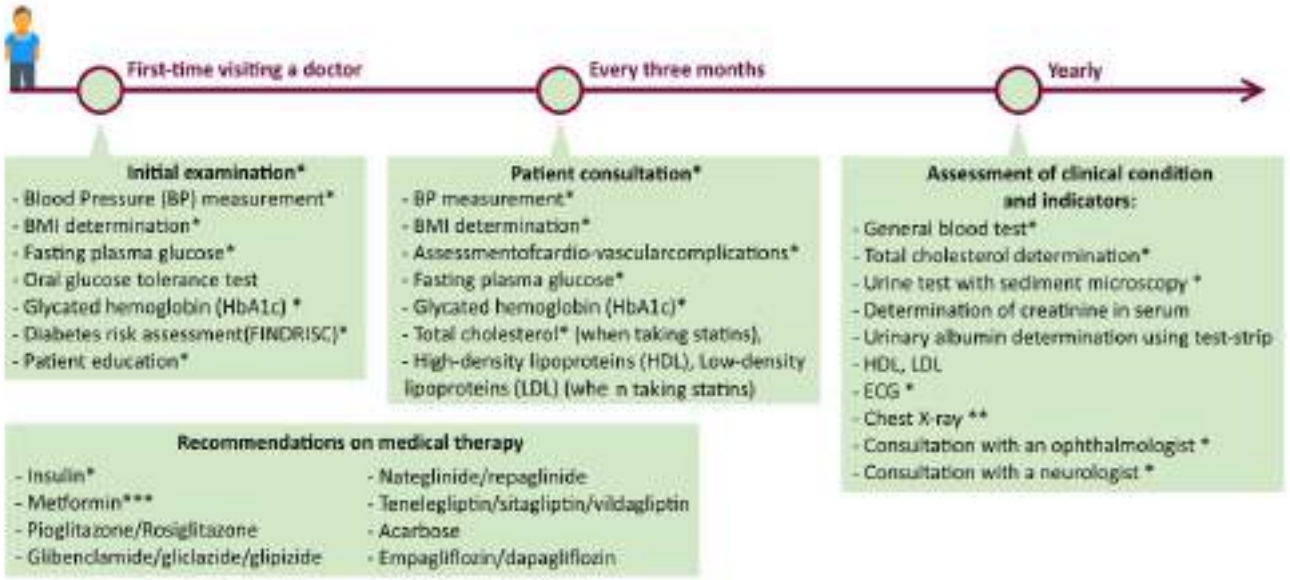
When managing patients at the PHC level, the "Algorithm for managing patients with type 2 diabetes (PEN 2)" is used, approved by Order of the Ministry of Health #258 as of March 10, 2023.[29] This algorithm recommends basic screening tests and diagnostic criteria, assessment of the cardiovascular complications (CVC) risk development, prevention strategies and principles of type 2 diabetes treatment.

For managing diabetes, patient consultation and basic laboratory tests are included in the basic package of free SGBP services (determination of blood glucose level, glycated hemoglobin (HbA1c test), total cholesterol). It should be noted that according to the recommendations, the glycated hemoglobin test (HbA1c test) can be performed free of charge only once a year, although it is recommended to carry it out every 3 months, that is, 4 times a year. Currently, health organizations perform this test for free once a year for people with diabetes; in other cases, the test is performed within the SGBP package of services according to the price list with 50% co-payment (the discounted cost is about 270 kyrgyz soms).

An oral glucose tolerance test, which is compulsory during the initial assessment, is not specified in the service package, but can also be carried out as part of the additional packages according to the price list. However, it is not carried out by health organizations due to the lack of appropriate equipment and supplies.

[29] Algorithm for managing type 2 diabetes at the PHC level: https://med.kg/uploads/10f681cc-b3c0-4163-84ef-1ff31c5034bf-%D0%90%D0%BB%D0%B3%D0%BE%D1%80%D0%B8%D1%82%D0%BC%20PEN%202%20%D0%A1%D0%94%202%20%D1%82%D0%B8%D0%BF%D0%B0.pdf

**Figure 25. Recommendations of the CG/CP on managing patients with diabetes covered with the SGBP**



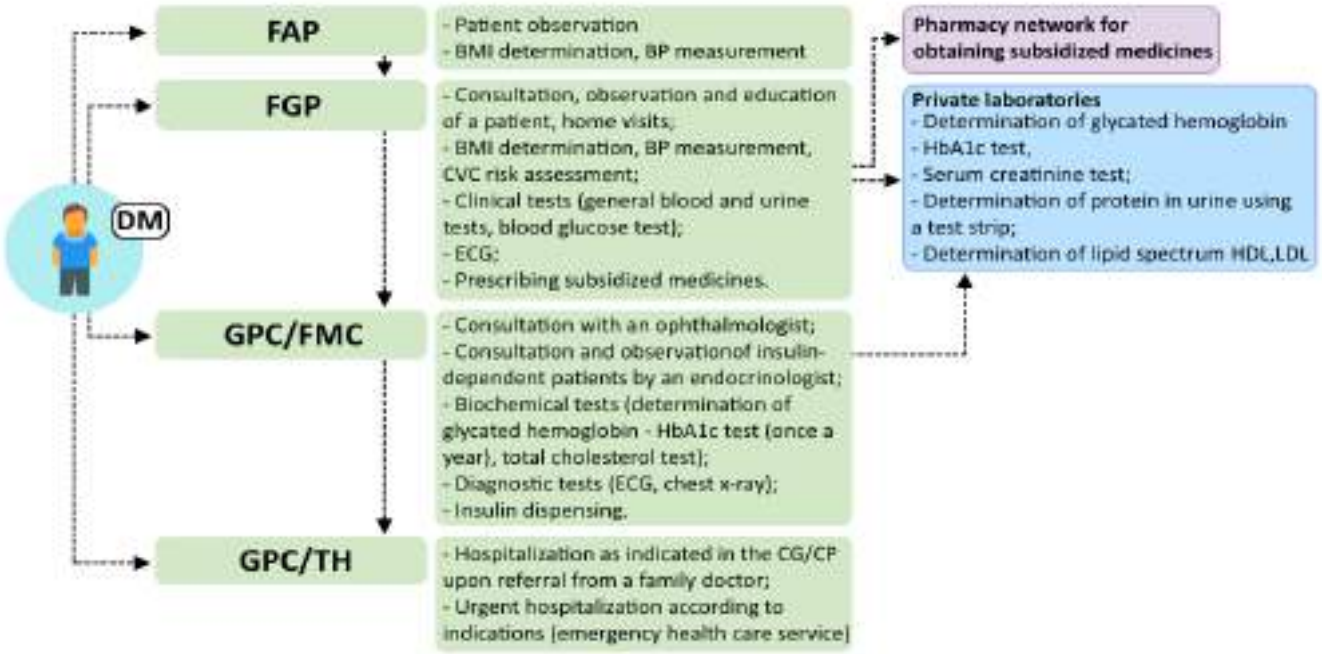

*Included in the SGBP basic package of laboratory and diagnostic examinations and delivered for free
**In addition to the basic package, laboratory and diagnostic tests may be carried out free of charge for the selected category, with co-payments for the insured and according to the price list on a fee basis for the rest
***Medicines are provided based on subsidized prescriptions within the frames of the SGBP Drug Benefit Package and the MHI Additional Drug Package

Patients with type 2 diabetes receive services recommended by the CG/CP basically at the FGP level. When visiting a health facility, it was noted that patients with type 2 diabetes are most often observed by family doctors in FGPs; at the FAP level, family nurses are not involved in management of these patients, although they could also manage them. Family nurses in FAP mentioned that patients prefer to receive services from a family doctor. At the FGP level, a family doctor is counselling a patient who is taking tableted medicines and prescribes subsidized drugs. In FGPs, if applicable, clinical tests are carried out or taken as well as ECG.

Insulin-dependent patients are observed by the endocrinologist only at the GPC/FMC level. At the same level, most of the recommended laboratory diagnostic examinations are performed: biochemical tests, ECG and chest x-ray.

Some diagnostic tests recommended by the CG/CP could also be carried out as part of an additional SGB package of services, but are not performed due to the lack of reagents and test systems (determination of creatinine in serum, protein in urine using test strips, determination of HDL, LDL). Therefore, patients have to take these tests in private laboratories on a fee basis. Hospitalization of patients with diabetes should be provided in accordance with the recommendations of the CG/CP based on indications for hospitalization and a referral from a family doctor, however, self-referrals of patients to hospitals are also frequent.

**Figure 26. Receiving services by patients with diabetes at the PHC levels**



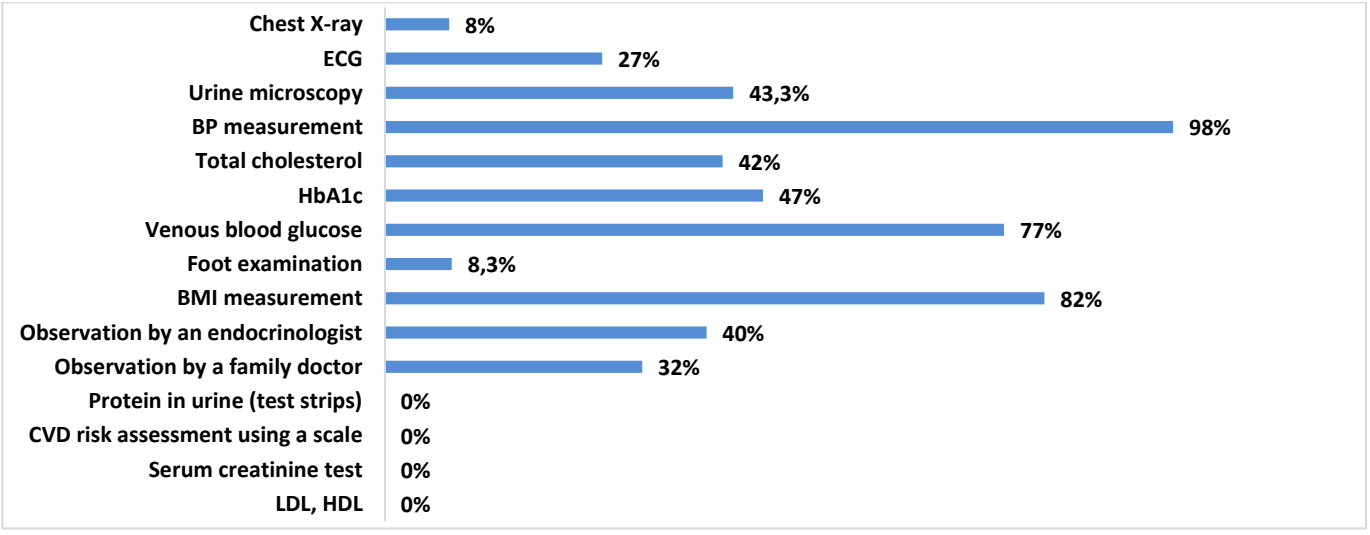

Findings of the study based on the analysis of outpatient cards in the selected regions showed that in 72% of the cases reviewed, patients with diabetes visited a family doctor or an endocrinologist over the past year. Moreover, in 40% of the cases reviewed patients were managed by the endocrinologist.

The results of cardio-vascular complication development risk assessment were presented in none of the selected cards. Also, outpatient cards had records on lower limb examination in 8% of cases only.

Laboratory and instrumental (imaging) examinations of patients with type 2 diabetes were also not carried out comprehensively: blood glucose levels were determined in 77% of cases (on average 2-3 times a year, but not at every visit). Determination of glycated hemoglobin once a year was carried out in less than half of the cases reviewed - 47%.

Determination of the lipid profile of LDL, HDL, protein in urine using a test strip, and creatinine in serum were not carried out in the cases reviewed due to the lack of appropriate equipment and supplies in health organizations.

**Figure 27. Health services delivered to patients with diabetes in the surveyed HOs, %**



It should be noted that despite the fact that in 2020 HbA1c tests for patients with diabetes were included into the basic package of free SGBP services, the coverage still remains inadequate. During focus group discussions, doctors noted that this test is often not performed in HOs due to the lack of reagents.

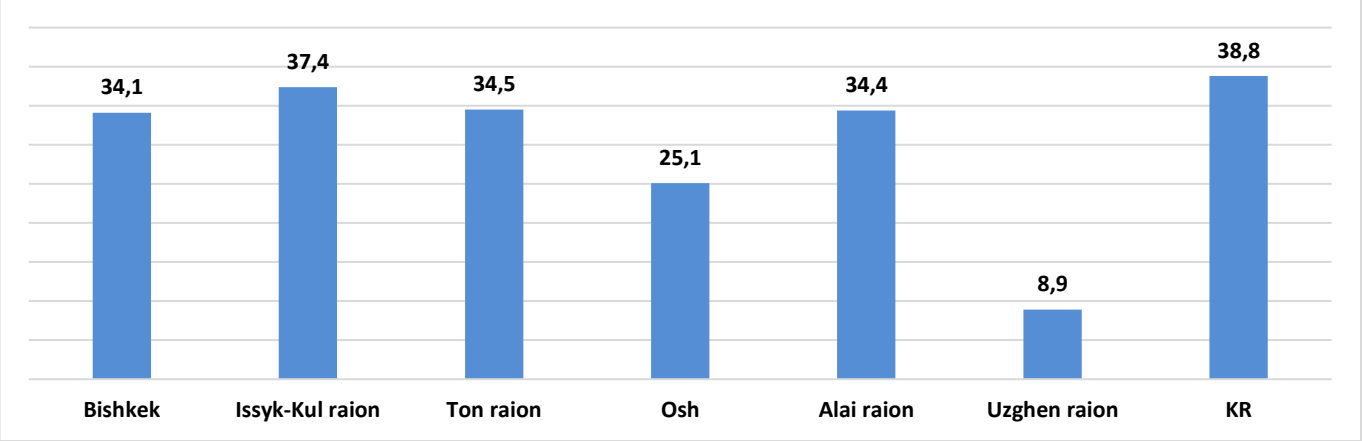
The lack of reagents is due to untimely procurements of drugs and supplies related to tender procurement procedures. It was noted that often tenders do not take place because of the fact that there are no suppliers of the required goods; or because of small amounts purchased by some HOs, and suppliers do not participate.

During focus-group discussions patients noted that they often undergo this testing in private laboratories for a fee, its cost is about 800 kyrgyz soms. Another reason for testing in private laboratories is that both PHC doctors and patients often do not trust the results of PHC tests, so that doctors have to refer patients to private laboratories. For example, in one of the laboratories of the surveyed health facilities, there is a modern analyzer for testing glycated hemoglobin, however, the endocrinologist prefers to refer patients to a private laboratory. Along with that, patients who participated in the focus group discussion were not aware of the possibility to take this test at the PHC level for free once a year.

Medicines provision for patients with diabetes within the SGBP guarantees free use of insulin, which is procured using the republican budget funds and provided to patients with diabetes free of charge at the GPC/FMC.

The share of budget that was used to reimburse the subsidized prescriptions for patients with diabetes was 13% of the total budget allocated for the MHI ADP, while on average only 38.8% of registered patients received at least one subsidized prescription. Of the raions surveyed, the lowest level of prescription is observed in Uzghen raion - about 9% of patients of the total number of registered patients in this area.

**Figure 28. Proportion of patients who received subsidized prescriptions of the total number of registered patients with diabetes, 2022, %**




The CP recommends using a number of antidiabetic tableted medicines. In 2021, the first-line drug for treatment of type 2 diabetes - Metformin - was included in the List of reimbursed drugs.

Analysis of the database on medicine provision under the MHI ADP countrywide showed that the average level of reimbursing drugs dispensed for diabetes was 61%.

In 2022, in 56% of cases, Metformin was prescribed at a reduced price of the total number of prescriptions for patients with diabetes. At the same time, there are norms for dispensing Metformin based on the subsidized prescriptions - no more than 600 tablets per year. During focus-group discussion, it was

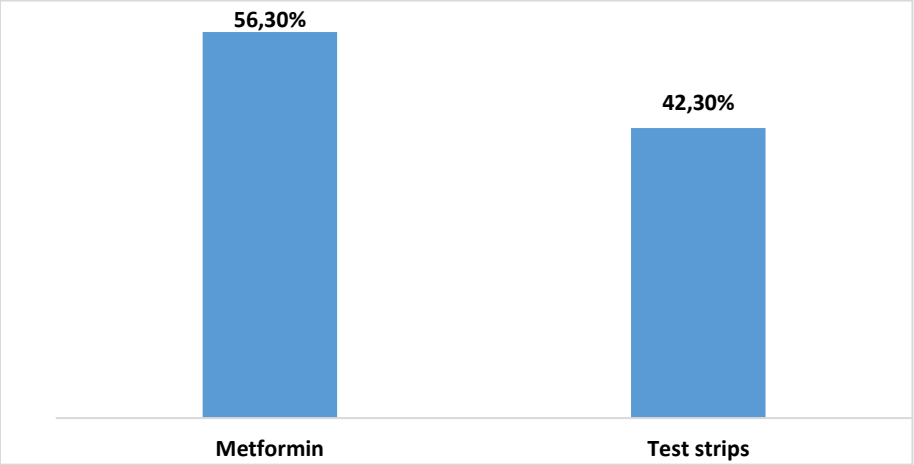
mentioned that patients have to take this medicine permanently and this norm is inadequate for continuous and appropriate diabetes control. However, doctors noted that daily norm of 1500 mg of Metformin is optimal for patients.

Besides, patients with diabetes can obtain test strips for measuring blood glucose levels. The dispensing norms were increased in 2023: up to 2000 test strips per year for those who under 18 years old and 500 test strips per year for adults.

During discussions with patients using insulin, it was noted that sometimes up to 10-15 test strips are used per day and this norm is also inadequate for permanent monitoring of blood glucose. During discussions with doctors, it was noted that the established norm of 2000 test strips per day is optimal and sufficient for patients with type 1 diabetes. It is necessary to increase the dispensing norm upto 2000 strips per year only for adult patients over 18 years of age who have type 1 diabetes.

It was also noted that the pharmacy chain does not have a wide range of test strips, so they often cannot purchase test strips of those companies that match the glucometers they have.

**Figure 29. Proportion of subsidized medicines of the total number of prescriptions for diabetes, 2022, %**




### 4.4. Prenatal cate at the PHC level

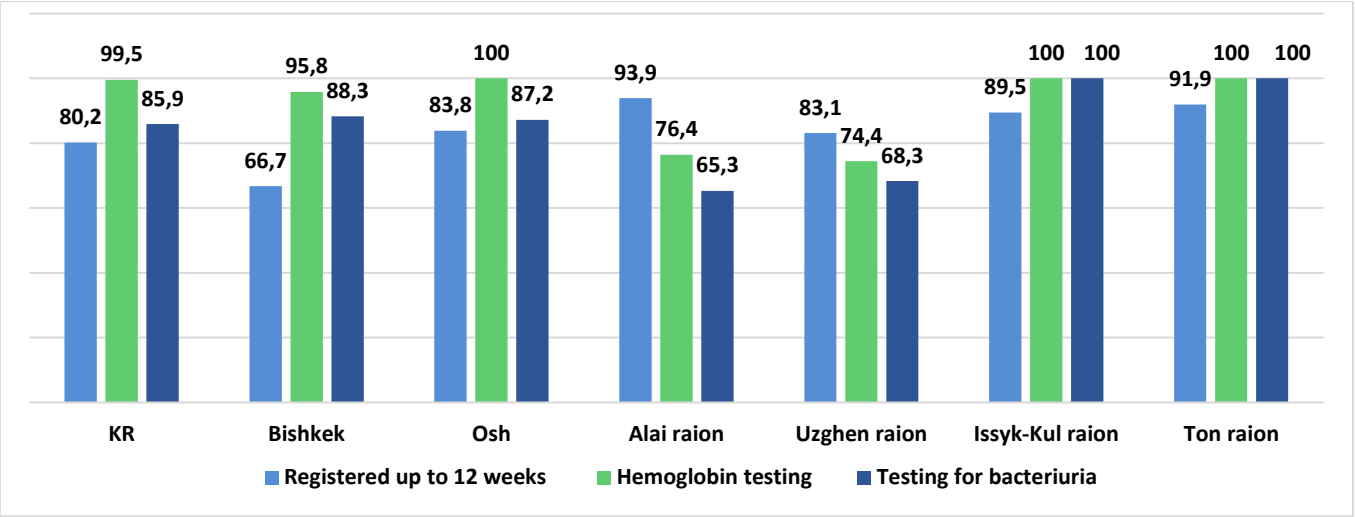
Every year, from 215 to 237 thousand pregnant women undergo antenatal supervision in health organizations of the republic.

Early coverage of pregnant women with antenatal care and basic tests were included in the reporting forms of the E-health Center to track the quality-of-service delivery by FGP doctors.

Since 2021, data on prenatal care have been transferred to the outpatient electronic databases, filled out directly by family doctors.

According to the E-health Center reports for 2022, prenatal care indicators were quite high in the selected regions. On average, 76-100% of pregnant women were tested for hemoglobin level. According to the E-health Center's reporting forms, in 2022 86% of pregnant women were tested for bacteriuria.

**Figure 30. Registration and examination of pregnant women in selected raions, 2022 (%)**




As recommended by clinical guidelines for antenatal and postnatal care [30] the basic list and timing for examination of pregnant women at the outpatient level involves physical, laboratory, functional and instrumental methods of diagnostics. 9 visits to the PHC are recommended for the entire period of pregnancy observation. The initial consultation for pregnant women should take place in the period up to 12 weeks, further visits should take place every month until 20 weeks, afterwards every 2-3 weeks until 28 weeks, in the period from 29 to 36 weeks of pregnancy - every week until childbirth.

Most of the clinical guideline recommendations are included in the basic package of free SGBP services, however, some key tests (Wassermann reaction, testing for hepatitis B and C, HIV infection, oral glucose tolerance test) were not included in the SGBP basic package. These tests could be provided by PHC as part of the additional package with a discount, but health facilities do not have the equipment or capacity to conduct them. Therefore, pregnant women take these tests in the laboratories of hospital ADDs, AIDS centers and private laboratories; and pay for these tests.

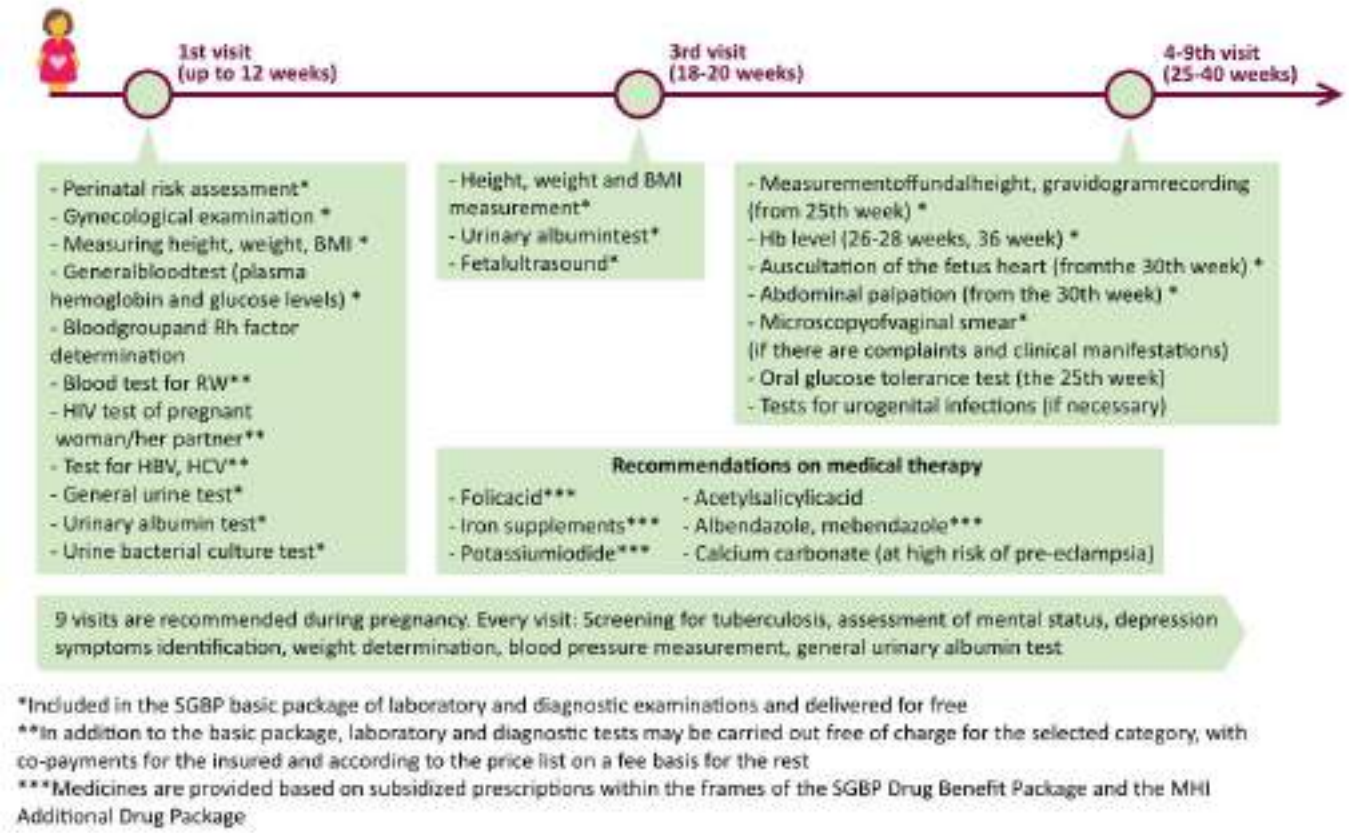
It should be noted that bacterial urine culture (bacteriuria) is included in the basic package of free services, but is not always available and provided free of charge. It cannot be performed at the PHC level, so PHC facilities have to make contracts with laboratories of the sanitary and epidemiological surveillance service. However, in practice, PHC facilities do not always enter into contracts with laboratories of the sanitary and epidemiological surveillance service, therefore pregnant women take this test for a fee. Its cost is about 200-500 kyrgyz soms.

Therefore, bacteriuria for pregnant women was included as an indicator for tracking and paying under the RBP project. Since this indicator was low due to the limited PHC budget, the MoH decided not to carry out bacterial urine culture, but to carry out a simple test by Gram's method that could be done by PHC laboratories. And bacterial urine culture should be carried if there are indications.

[30] Clinical guidelines for antenatal and postnatal care:https://diseases.medelement.com/disease/%D0%B4%D0%BE%D1%80%D0%BE%D0%B4%D0%BE%D0%B2%D0%B0%D1%8F-%D0%B8-%D0%BF%D0%BE%D1%81%D0%BB%D0%B5%D1%80%D0%BE%D0%B4%D0%BE%D0%B2%D0%B0%D1%8F-%D0%BF%D0%BE%D0%BC%D0%BE%D1%89%D1%8C-%D0%BA%D0%BF-%D0%BA%D0%B8%D1%80%D0%B3%D0%B8%D0%B7%D0%B8%D1%8F-2023/17743

It should be noted that in all raions, SES laboratories conduct this testing, and it is also done by all private laboratories, a wide network of which is also available in all raions. The problem lies more in fulfilling the SGBP norm - free bacteriuria for pregnant women.

**Figure 31. Recommendations of the CG/CP for pregnancy management and their compliance with the SGBP**

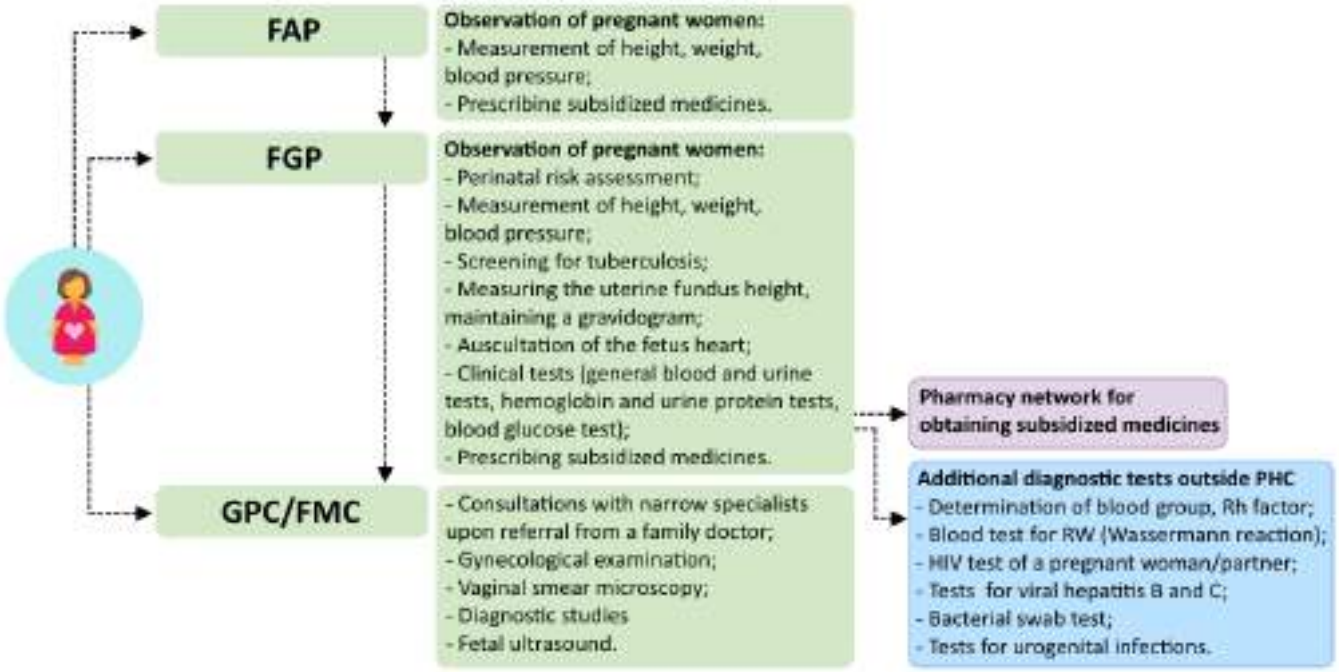



*Included in the SGBP basic package of laboratory and diagnostic examinations and delivered for free
**In addition to the basic package, laboratory and diagnostic tests may be carried out free of charge for the selected category, with co-payments for the insured and according to the price list on a fee basis for the rest
***Medicines are provided based on subsidized prescriptions within the frames of the SGBP Drug Benefit Package and the MHI Additional Drug Package

Pregnant women receive limited services recommended by the CG/CP at the FAP level - registration and observation, anthropometric measurements, prescribing subsidized medications. Basic diagnostic tests are performed at the FGP level by a family doctor. Some additional examinations and ultrasound of the fetus are conducted at the GPC/FMC level. In order to take other compulsory laboratory tests not carried out at the PHC level, pregnant women are referred to other laboratories of the health care system or private laboratories.

During focus group discussions, pregnant women noted that they were very uncomfortable taking additional tests in other health organizations. They have to get there on their own and sometimes several times due to long lines and limited time for taking samples. It was also mentioned that all tests outside the PHC should be paid.

**Figure 32. Receiving services by pregnant women at the PHC level**




Analysis of the individual cards of pregnant women for 2022 in the selected health facilities showed that due to late registration, the recommended 9 visits were achieved only in 69.4% of the cases reviewed. Most of the laboratory tests were carried out in 77.8% (determination of Rh factor) and 100% (general blood test) cases of the total number of cases reviewed.

It should be noted that in the reviewed individual records of pregnant women there were no data on assessment of mental state, identification of depression symptoms, that are recommended by the CGs and are mandatory at every visit of pregnant women.

**Figure 33. Health services provided to pregnant women in the surveyed health facilities, %**

It should be noted that during pregnancy, all outpatient health services are delivered in accordance with the clinical protocol, however, there are some issues related to the availability of these services at the PHC level.

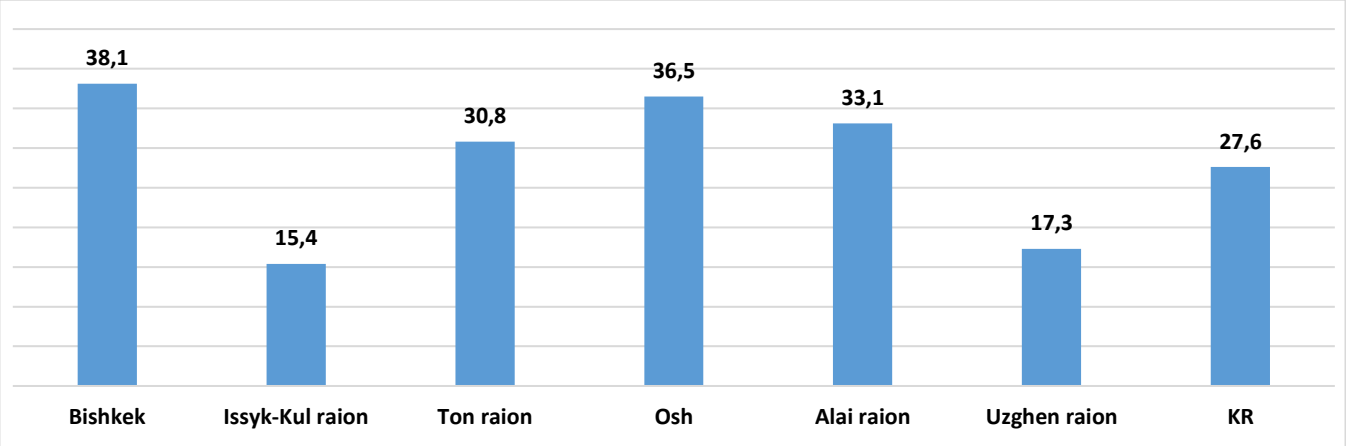
Ultrasound examination of the fetus is most often carried out in private laboratories, despite the availability of ultrasound machines in health organizations. Along with that, despite the inclusion of ultrasound in the list of basic free examinations within the SGBP, ultrasound is performed for a fee in health organizations (its cost is about 500 soms). During focus group discussions with pregnant women, it was noted that doctors most often recommend to do ultrasound examination in private laboratories, since the machines are modern there with Doppler readings and other additional parameters.

Inadequate coverage of pregnant women with tests for rhesus blood factor and urine bacteriuria is explained by the fact that many PHC organizations do not provide these tests and refer pregnant women to the laboratories of the sanitary and epidemiological service (SES laboratories) or private laboratories.

The share of budget that was used to reimburse the subsidized prescriptions for pregnant women amounted to 9.4% of the total budget allocated for the MHI ADP, while on average only 27.6% of registered pregnant women received at least one subsidized prescription in 2022 countrywide. Of the surveyed raions, the lowest level of prescribing is observed in Issyk-Kul raion - about 15% of the total number of registered pregnant women in this area.

Considering that all pregnant women are automatically insured for free, regardless of the status, and also that family nurses in all FAPs and FGPs are allowed to hand out the subsidized prescriptions for pregnant women, there is an exceptionally low coverage of pregnant women with the available subsidized drug program.

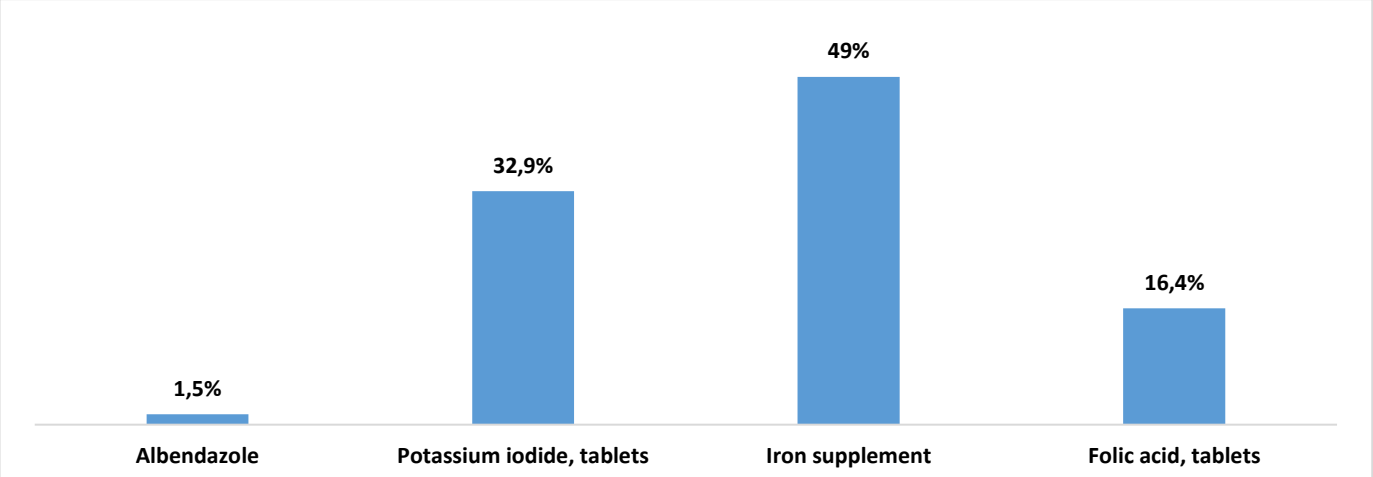
**Figure 34. Proportion of pregnant women who received subsidized prescriptions of the total number of registered women, 2022, %**




In addition, the analysis of the MHI prescription database for 2022 shows a significant difference between prescriptions issued by doctors and those dispensed by the pharmacies to pregnant women. The difference is about 30%, which means that a third of pregnant women do not purchase medicines prescribed by a doctor or a nurse at a discounted price in pharmacies.

The most frequently prescribed medicines for pregnant women are iron - 49%, folic acid - 16% and potassium iodide - 33% of the total prescribed medicines for pregnant women. The average level of reimbursement for medicines prescribed for pregnancy was 44%, i.e. that on average pregnant women paid out-of-pocket around 56% of the retail price.

**Figure 35. Proportion of subsidized medicines of the total prescriptions written for pregnancy, %**




Pregnant women explained the reasons for low coverage with subsidized drugs by: 1) the lack of pharmacies that provide subsidized drugs in the villages they live in; they have to travel far to the pharmacy, most often to the raion center or city; 2) relatively inexpensive prescribed medicines, they can buy them themselves at full price, for example, folic acid costs 30-50 soms for 50 tablets.

According to the pregnancy management guidelines, antiplatelet agents – for ex. acetylsalicylic acid - should be prescribed based on indications, however, the prescription of this medicine for pregnant women is not included in the subsidized prescribing scheme.

## Key findings:

- The basic package of guaranteed services at the PHC level is available to the entire population, however, cannot be fully implemented within the frames of existing financing mechanisms and current service delivery system due to a lack of human resources, inadequate provision of diagnostic and laboratory equipment, and medicines.
- Current PHC model delivering services at different levels and improper referral system for priority conditions complicates patient pathways to receive needed services and leaves them vulnerable since patients must make co-payments or out-of-pocket payments for the guaranteed basic services. The findings of the present study highlight the importance of this and require in-depth study.
- PHC laboratory and diagnostic services within the frames of the SGBP do not fully meet the requirements of the CGs/CPs and could be provided as part of the additional SGBP service package to the insured at a discounted price, but they are not delivered due to the lack of resources at the PHC level.
- The rate of registered patients with HTN remains low - 4.4% in 2022, although a number of studies show the prevalence of hypertension at more than 30%. In contrast to declined HTN prevalence and incidence an increase in mortally for the reason of hypertension and its complications is noted. There is inadequate coverage with services for managing patients with hypertension in accordance with the approved guidelines; not all recommended diagnostic and laboratory tests are carried out regularly, despite the fact that primary health care facilities have the capacity. Coverage with the drug reimbursement program is also inadequate; only 70% of patients have sought for

subsidized medicines and not all recommended medicines are included in the subsidized drug list. There is also low adherence of patients to permanent medicine intake.

- Analysis of outpatient cards for management of asthma in the selected health facilities shows very low coverage with the required services of diagnosing and managing BA at the PHC level. Mandatory types of diagnostics are not provided due to unavailable diagnostic equipment, necessary tests and reagents in the laboratories. Most likely, this is the main reason for high hospitalizations due to BA complications.
- There is a high rate of hospitalizations for diabetes, with approximately one third of registered patients with diabetes receiving inpatient treatment. At the same time, there is also a high rate of diabetes complications. Laboratory and instrumental examinations for patients with type 2 diabetes are not fully carried out and do not comply with approved recommendations. Despite the fact that in 2020, tests for glycated hemoglobin were included in the SGBP basic package of free services, the coverage also remains inadequate, determination of glycated hemoglobin once a year was carried out in less than half of the cases reviewed - 47%. The approved norms for dispensing subsidized medicines for diabetes do not contribute to the permanent diabetes control.
- During pregnancy, all outpatient health services are provided in accordance with the clinical protocol, however, despite the high statistics on taking the required tests and medicines by pregnant women, there are certain problems with availability of these services at the PHC level. Not all the required examinations are carried out at the primary health care level; coverage of pregnant women with medicines at a reduced price, was less than a third - 27.6%.
- The network of pharmacies which sell medicines based on reimbursed prescriptions is underdeveloped, this particularly affects patients living in remote villages.

## 5. Preliminary recommendations

### PHC structure

- In the structure of FMC it is required to determine the PHC organizational structure proceeding from the basic package of PHC services and clearly define which services are provided at what level (GPC/FMC, FGP, FAP).

- PHC must be attractive to the population; this requires improving the PHC capacity and resources to ensure universal access to basic health services, all laboratory and diagnostic tests in accordance with CGs/CPs at the PHC level.

### PHC service package

- Revise and clearly define the PHC benefits package, bringing it in line with health needs of the population and CGs/CPs.

- Broaden the basic PHC package with preventive services, including education services for the population.

- Specify more services in the SGBP for priority diseases, and harmonize the availability of free laboratory diagnostic services with approved clinical protocols.

- Clearly differentiate PHC services from specialized services; ambulatory specialized services - not in the PHC services, but as separate specialized outpatient services provided by the CDD.

- Include social and psychological services into the basic PHC package step by step.

- Develop a reliable system for regular monitoring of the service utilization and availability for the population

in accordance with the SGBP at all PHC levels to provide the guaranteed services free of charge to all patients.

## Patient pathways within PHC, to outpatient specialized and inpatient care

- Evaluate current patient pathways for the most common conditions: referral system and services at different levels (guaranteed, paid).

- Explicitly develop patient pathways within the PHC organization (patients seeking PHC services from a family doctor, referral of patients by a family doctor (or a family nurse) for consultations with specialists and (or) diagnostic tests, referral of patients to other health organizations, cooperation and feedback between primary health care and hospitals.

- To achieve the required outcomes, implement patient pathways so that patients receive the right services according to their needs, in the right way, from the right people, in the right place and at the right time.

- Inform population about new pathways inside and outside PHC, as well as about the benefits and reimbursements guaranteed to them at the PHC level. This would help patients understand their rights and enable them to demand the promised guarantees and benefits.

- Intensify the implementation of online appointment booking to visit a family doctor and a narrow specialist only with a referral note from the family doctor.

## PHC specialists

- Clearly delineate the functions of a family nurse and a family doctor, taking into account the basic package of primary health care services.

- Strengthen premedical nurse offices and the role of the nurse, giving her more autonomy and responsibility in preventive work with the population and NCD patients.

- Exclude narrow specialists from the PHC team, since they provide the specialized health care and belong to the CDD structure. This will allow family doctors to provide more expanded services and improve access to their services within the frames of the SGBP on a free of charge basis not only for their enrolled population, but also for patients from other FMCs.

- Average number of visits per family doctor at all PHC levels should be included as one of the parameters for additional payments to family doctors

# 6. Annexes

## Annex 1. Some indicators of the KR and selected raions (districts)

**Average annual resident population, the KR and selected raions, 2022 (thous. population)**

| Regions | Total population | including | |
|---|---|---|---|
| | | urban | rural |
| **Kyrgyz Republic** | **6975,2** | **2424,7** | **4550,5** |
| **Issyk-Kul region** | **536,1** | **146,2** | **389,9** |
| Issyk-Kul raion | 98,1 | 12,6 | 85,5 |
| Ton raion | 59,9 | | 59,9 |
| **Osh region** | **1448,0** | **105,1** | **1342,9** |
| Alai raion | 92,2 | - | 92,2 |
| Uzghen raion | 288,6 | 62,1 | 226,5 |
| **Bishkek** | **1129,4** | **1123,3** | **6,1** |
| **Osh** | **355,9** | **318,6** | **37,3** |

**Incidence rates and supply of subsidized medicines for 4 conditions in selected raions**

| HO | Total number of patients with HTN | % of patients with HTN who received subsidized prescriptions | Total number of patients with diabetes | % patients with diabetes who received subsidized prescriptions | Total number of patients with BA | % of patients with BA who received subsidized prescriptions | Total number of pregnant women registered during the year | % of pregnant women who received subsidized prescriptions |
|---|---|---|---|---|---|---|---|---|
| Bishkek FMC | 35482 | 52,5 | 17139 | 34,1 | 3581 | 77,3 | 29679 | 38,1 |
| Issyk-Kul raion GPC | 1828 | 50,2 | 877 | 37,4 | 154 | 60,4 | 2115 | 15,4 |
| Ton raion GPC | 1810 | 66,4 | 663 | 34,5 | 156 | 69,9 | 1138 | 30,8 |
| Osh FMC | 8316 | 68,2 | 4371 | 25,1 | 217 | 70,5 | 13473 | 36,5 |
| Alai raion GPC | 2248 | 120,0 | 617 | 34,4 | 27 | 237,0 | 1903 | 33,1 |
| Uzghen raion GPC | 3217 | 52,4 | 1829 | 8,9 | 58 | 236,2 | 9296 | 17,3 |

**Staffing percentage and dual jobholding ratio of family doctors and nurses, in the KR and selected raions, 2022.**

| HO | % of staffing with family doctors | Dual jobholding ratio | % of staffing with family nurses | Dual jobholding ratio |
|---|---|---|---|---|
| **KR** | **77,6** | **1,3** | **90,6** | **1,1** |
| Bishkek FMC | 95,5 | 1,2 | 87,4 | 1,7 |
| Issyk-Kul raion GPC | 82,7 | 1,3 | 98,3 | 1,0 |
| Ton raion GPC | 88,0 | 1,3 | 88,0 | 1,0 |
| Osh FMC | 91,3 | 1,1 | 81,5 | 1,2 |
| Alai raion GPC | 68,7 | 2,9 | 98,9 | 1,5 |
| Uzghen raion GPC | 51,3 | 13,3 | 93,3 | 1,1 |

## Annex 2. The list of free laboratory and diagnostic tests at the PHC level included on the SGBP[31]

| Basic tests | Availability in the organizations visited | Comments |
|---|---|---|
| General blood test | Available in FGP | It is carried out without specifying the number of parameters (3 or 6 parameters), as a result patients often undergo a CBC with differential for a fee outside FGPs |
| General urine analysis and microscopy of urinary sediment | Available in FGP | It is carried out in all PHC laboratories, including remote FGPs |
| Urethral smear microscopy | Available in FMC/GPC | It is carried out by all laboratories |
| Vaginal smear microscopy | Available in FMC/GPC | It is carried out by all laboratories |
| Sputum examination (smear microscopy) | Samples are collected in FMC/GPC and sent to laboratory of TB hospital | Problems with transportation of samples were noted; nurses deliver the samples themselves using public transport, or some patients are informally charged 20 soms for transportation expenses |
| Blood glucose test | Available in FGP | |
| Determination of glucose in urine using a test strip | Not available | Tests for determining glucose in urine are not purchased |
| Determination of cholesterol in the blood | Available in FMC/GPC | Determination of HDL cholesterol and LDL cholesterol is not done; they refer patients to private laboratories |
| Electrocardiogram | Available in FGP | Not all FGPs have ECG<br>According to the recommendations, it is necessary to conduct an examination on a 12-lead ECG; all FMCs have a 6-lead ECG. |
| Determination of glycated hemoglobin in the blood (for patients with diabetes - once a year) | Available in FMC/GPC | It is carried out once a year for patients with diabetes, it is necessary to do it 4 times a year in accordance with approved recommendations |
| Urine test for bacteriuria by Gram's method (for women in the first trimester of pregnancy) | Since 2023, FMC/GPC have started to do bacteriuria by Gram's method<br>Bacterial inoculation is done outside PHC in SES laboratories | Not all FMCs concluded contracts with SES laboratories, so it is carried out on a paid basis |

[31] As amended by the KR Government resolutions #420 as of September 7, 2018 and #636 as of December 30, 2020.

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