Transformation of primary health care in Kazakhstan: moving towards a multidisciplinary model
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Abstract

Kazakhstan has consistently strongly advocated strengthening primary health care (PHC) both in Kazakhstan and abroad. Currently, it has a unique multidisciplinary team-based PHC model, which is the most dramatic departure from the experience of other countries in the eastern part of the WHO European Region. Since the early 1990s, Kazakhstan has had a sustained political commitment towards a PHC-centred health system. Over the next two decades, multiple transformations were introduced to move towards multidisciplinary team-based PHC, and the transformation continued to be supported through system enablers such as governance, human and physical resources, financing and the digitalization of PHC. This case study describes this whole-of-system transformation to Kazakhstan’s model of care between the 1990s to the present. Early results and lessons from implementation are also reflected upon. The case study aims ultimately to offer first-hand insight and expertise for countries at varied stages of embarking on large-scale PHC transformation.

Keywords

PRIMARY HEALTH CARE
DELIVERY OF HEALTH CARE
HEALTH SERVICES
HEALTH POLICY
KAZAKHSTAN
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Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>GP</td>
<td>general practitioner</td>
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<tr>
<td>NGO</td>
<td>noongovernmental organization</td>
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<td>PHC</td>
<td>primary health care</td>
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<tr>
<td>TB</td>
<td>tuberculosis</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<td>USSR</td>
<td>Union of Soviet Socialist Republics</td>
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Featured key messages

This case study documents Kazakhstan’s approach to transform primary health care (PHC) over the past two decades towards holistic people-centred multidisciplinary team-based PHC to better address psychosocial needs and socioeconomic determinants of health and describes how the changes introduced have been supported by wide-reaching system changes.

Kazakhstan radically transformed the model of PHC service delivery in a phased step-wise manner. Six phases characterize the transformation over time and include:

- 1992–2002: initial piloting of a family medicine approach;
- 2003–2004: temporary halting of the reforms and giving priority to specialized health care;
- 2005–2010: reintroducing family medicine–based PHC focusing on the health system levers;
- 2011–2015: solidification of family medicine and expansion of PHC teams to better address psychosocial needs;
- 2016–2020: strengthening of a multidisciplinary approach, addressing the root causes of people’s ill health and psychosocial health needs; and
- 2020 and beyond: focus on increasing access to high-quality services in rural and remote areas.

Transforming the model of care

Strengthening the foundation based on family medicine and nursing and moving from a mono-profile to multidisciplinary PHC teams. Kazakhstan pioneered a multidisciplinary approach towards PHC, the closest level of care to the socioeconomic root causes of diseases. Reorganizing PHC enabled the role of PHC as coordinator of care pathways and the first contact to the overall health services delivery system to be strengthened and the demand for the more resource-intensive narrow specialists and specialized care to be reduced. Scaling up the family medicine principles over time consistently sought to better tailor services provided by general practitioners (GPs) and PHC nurses to individual health needs and social determinants of health. Increasing autonomy and responsibility of PHC nurses in providing disease prevention services, follow-up and at-home visits allowed GPs to spend more time for individual care planning and patient consultations. Building on this, adding psychologists and social workers to the team enabled psychosocial needs and the socioeconomic root causes of diseases to be addressed better. The professionalization of management has also helped to implement the policies in practice, improving the overall planning and operations of PHC facilities.

Gradually expanding the services package and improving accessibility. The package of services has been continually broadened over time, combining clinical and non-clinical services. To more effectively address health needs related to noncommunicable diseases, the package was expanded to include a range of diagnostics and outpatient medicines for key noncommunicable
diseases, and disease management programmes were added. With the move towards multidisciplinary teams, mental health and social services were also added to the PHC package. Services are provided on increasingly diversified delivery platforms, including through direct consultations, home visits, mobile teams and remote consultations.

**Redesigning services to improve the role of PHC as the first point of care, closest to the needs of the population served.** The approach to population empanelment has been revised to emphasize patient choice and the principles of PHC as close and the most accessible regular entry point for care. In parallel, PHC-friendly protocols and guidelines to expand scope of practice have been developed. Referral guidelines have been reviewed to strengthen the gatekeeping function of GPs, improve the overall management of noncommunicable diseases through disease management programmes and improve the health of pregnant women and infants through a universal progressive patronage model.

**Engaging the community in decision-making in improving PHC and promoting health.** New mechanisms for community engagement include their input in community assessment of health needs, feedback on the quality of health services and their suggestions for designing and organizing services through focus groups and surveys.

**Key health system levers have underpinned the transformation over time**

**Governance.** Strengthening governance capacity at the central policy level by revising the organizational arrangements and mandates of national actors was complemented by motivating regional and local governments to give priority to and lead PHC transformations, also providing more autonomy for PHC facility managers. It was important to promote wider understanding among the public and health care workers on the importance of getting PHC services closer to people and the upstream causes of diseases and aligning the services to contextual health needs.

**Human resources.** Training of GPs and nurses has been given priority over time, with gradual introduction of family medicine as a specialty. Improving the content and quality of training programmes have been in focus in the later stages of the transformation as well as initiatives to increase the volume and retention of trained PHC professionals through incentive schemes.

**Health financing.** Spending on PHC increased, enabling effective implementation of an expanded benefit package and scope of practice. Gradual centralization of the pooling of funds from the district and regional levels to the national level was an important step in reducing inequity between the regions. Introduction of per-capita payment mechanisms with pay-for-performance add-on payments was an important step to give PHC professionals incentives to provide a full range of services without unnecessary referrals.

**Digitalization.** The digitalization improvement process has focused on implementing national registries, which enabled: (1) new empanelment principles for PHC facilities to be implemented; (2) pay-for-performance incentives for the PHC workforce to be introduced; (3) disease registries to be managed; (4) care pathways in PHC to be improved, including electronic
appointments, electronic prescriptions, and planned hospitalization referrals. Engaging patients in self-management is enabled by ensuring digital access to their electronic health records and notifications. The internal business processes of providers in PHC are being digitized by implementing local and regional systems of electronic health records.

**Early results**

Although the system and health outcomes have not yet been evaluated and monitored in detail, and this is a priority area for future PHC development. Nevertheless, trends over time demonstrate increase in the utilization and effectiveness of PHC services according to the indicators collected at the PHC centres with best practices. The data also demonstrate declining hospitalization rates for priority noncommunicable diseases and overall declining trends related to noncommunicable disease mortality that outpace the average trends for the countries of the Commonwealth of Independent States and the WHO European Region as a whole.
About the Primary Health Care Policy Papers Series

The Primary Health Care Policy Papers Series aims to provide concise, evidence-informed and policy-relevant snapshots of pertinent topics related to primary health care (PHC). Country-specific editions of the series aim to capture PHC developments across the WHO European Region for contextualized evidence and policy changes in practice. The Series is designed to support the efforts of Member States in their evidence-informed policy-making related to strengthening PHC.

The WHO European Centre for Primary Health Care of the WHO Regional Office for Europe leads this work. Each paper engages a range of topic and country experts and key stakeholders and draws on international and national data sources, scientific evidence and relevant policy documents and reporting.

Country in context: Kazakhstan

<table>
<thead>
<tr>
<th>Population size, in millions (2020)</th>
<th>Kazakhstan</th>
<th>WHO European Region</th>
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<tbody>
<tr>
<td>Life expectancy at birth, both sexes combined (2019)</td>
<td>74.0</td>
<td>78.3</td>
</tr>
<tr>
<td>Gross domestic product per capita, purchasing power parity in US dollars (2020)</td>
<td>26 729</td>
<td>35 340</td>
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Health status

Noncommunicable diseases are the main cause of mortality in Kazakhstan, and cardiovascular diseases continue to be the leading cause of premature mortality. Tuberculosis remains a serious public health challenge, although the incidence is declining over time. The HIV epidemic is ongoing.

Premature noncommunicable disease mortality in 2019, age 30–70 years (%)
Top risks contributing to total disability-adjusted life-years (DALYs) in 2019, all ages (%)

Risk factors

Nearly 31% of mortality can be attributed to high systolic blood pressure. Poor diet (rich in salt and fat) and smoking are major behavioural risk factors in Kazakhstan. Sedentary lifestyles are also a challenge. The prevalence of overweight adults was 54% in 2016, below the average for the WHO European Region (59%).

![Graph showing risk factors]


Health system

In 2020, 52% of spending went to primary care, outpatient specialized care and outpatient medicines. The number of physicians is higher in Kazakhstan than in many other countries of the WHO European Region and is increasing over time. Kazakhstan has fewer nurses than the Region average, but the number is increasing over time.

![Graph showing physicians and nurses per 100 000 population]

Note: 2020 data for physicians; 2015 data for nurses in Kazakhstan.

Health services

Access to essential health services in Kazakhstan has increased over time, from 39% in 2000 to 76% in 2019, almost reaching the average of the WHO European Region (77%). This change has been attributed to the policy emphasis of extending coverage of services and improving equitable access.

![Graph showing universal health coverage service coverage index, 2000–2021]

Introduction

Kazakhstan has consistently been a strong global advocate for strengthening PHC. Kazakhstan is widely regarded as the birthplace of PHC, having hosted the 1978 International Conference on Primary Health Care jointly with WHO and the United Nations Children's Fund (UNICEF), which gave rise to the Declaration of Alma-Ata (1), the first globally recognized foundational document on primary health care (PHC). Again in 2018, the Government of Kazakhstan, together with WHO and UNICEF, put PHC back on the global political agenda with the Astana Global Conference on Primary Health Care. As an outcome of the Conference, the Declaration of Astana (2) was adopted, giving priority to strengthening PHC as the driving force towards achieving universal health coverage.

Kazakhstan has been committed to transforming PHC across the country in the approach put forward in the Declaration of Alma-Ata. Kazakhstan’s global leadership for PHC has been paralleled by national policies for transforming PHC across the country. Over the past three decades, the goal has remained consistent: improving the health system’s response to changing health needs, meeting the expectations of citizens and improving health outcomes. In this period, PHC in Kazakhstan, one of the first in the WHO European Region, has undergone tremendous changes, shifting from a biomedical disease-centred and specialist-oriented approach towards an increasingly holistic, multidisciplinary team-based PHC model of care. The transformation has been supported by changes in system levers, such as health financing and the health workforce.

In the process of transformation, Kazakhstan has been able to overcome implementation bottlenecks at the policy and facility levels and other challenges along the way thanks to the longstanding commitment towards a PHC-centred health system. In the very first years after independence, specialized services were given priority for investment in the context of financial constraints since health outcomes were worsening because of the socioeconomic situation in the country. PHC was not able to provide a full range of services aligned with best practices since the limited resources were focused on critical population health needs and expectations at the front line. There was a parallel trend in increased use of narrow specialists’ services, higher out-of-pocket payments, along with privatization of health care with a further culture of medicalization and commercialization. Kazakhstan stayed committed to strengthening its PHC despite these challenges and took a stepwise approach to transformation. The COVID-19 pandemic also paralleled the later stages of PHC transformation. The pandemic has served to illustrate that the changes that have been implemented have enabled an effective dual-track response, providing COVID-19 care and continuous essential services. Multidisciplinary PHC teams, which already had established connection with the community served, enabled rapid implementation of PHC mobile teams, and digital solutions played an important role in Kazakhstan’s COVID-19 response to ensure continual access to comprehensive care.

This case study documents Kazakhstan’s approach to transform PHC over the past three decades and describes how the changes introduced have been supported by wide-reaching system changes. The case of Kazakhstan’s PHC transformation is one of long-term policy commitment, with a stepwise
approach to implementation and whole-of-system changes adopted. Previous literature on Kazakhstan provides an overview of changes in the health system in general (2–4), although a detailed description of PHC reforms is lacking. The experience offers relevant expertise for countries at any stage of embarking on large-scale PHC transformation. This case study aims to address this gap. The case puts changes in the historical context and endeavours to systematically describe the PHC transformation and sequencing to the implementation process. The study captures changes from the late 1990s, when the first foundations towards family medicine were laid and ultimately focuses on the transformation of model of care with supporting changes in health system levers.
Making the case for PHC transformation in Kazakhstan

Over the first decade following independence there was a sharp rise in the burden of noncommunicable diseases, especially cardiovascular diseases, and the inherited model of care struggled to address it. Following independence from the Union of Soviet Socialist Republics (USSR), Kazakhstan inherited a Semashko-based system for delivering health services. This approach to health services would prove to be increasingly strained to adequately address the population’s changing burden of disease and increasing demand for health services. During the 1990s and into the early 2000s, the burden of disease changed considerably: rates of infectious diseases declined, and cardiovascular diseases and cancer became the leading causes of mortality (5) (Fig. 1). Between 1990 and 2000, cardiovascular diseases were a high and rising cause of death, followed by cancer, while infectious diseases and maternal and neonatal disorders remained low.

Several factors in the early post-independence period signalled the inability of the inherited model of care to address rapidly changing population needs.

Financial constraints and skewed allocation of public funds towards specialized care. An economic crisis during the first years of independence resulted in budgetary constraints in all public sectors, including health. Public spending in this period covered only a fraction of the costs facing health care organizations. Increasingly strained health care budgets were also allocated to address the increasingly negative health outcomes requiring hospitalization and specialized services, largely hospitals and inpatient specialized care settings rather than PHC (5,7). The health budget was set as 10% of the overall government budget in most years of the 1990s. PHC received a small portion of this overall health budget (less than 10%), since most of the budget went towards hospitals, though some of them included outpatient polyclinics in their structure (6%) (8). There was an inverted pyramid structure, with most resources allocated to specialized care, and PHC received what was left over. The resulting underinvestment of
High rates of informal and out-of-pocket payments. In this context of financial constraints of public health funding, fees for outpatient services were introduced (7) and patients had expenses for self-purchase medications and even medical supplies. This increase in out-of-pocket expenses for services and pharmaceuticals reduced the accessibility of care, especially for vulnerable populations (7). Annual hospitalization was implemented for most people with noncommunicable diseases to manage their chronic noncommunicable diseases, a service induced by hospital specialists to generate informal co-payments. It also became increasingly common for patients to choose self-treatment with non-prescribed medicines over seeking health care services, even when needed (9).

Disease-oriented and clinical focus of skill sets in training for district internists, narrow specialists and paediatricians. During this period, district internists, paediatricians and narrow specialists continued to receive traditional medical training focused on diseases, often being trained in a hospital by surgeons and other specialized service providers. As a consequence, the PHC workforce lacked a broader range of internationally recognized competencies (10) needed to deliver PHC-based care as the first contact of the population with the health system and to provide more comprehensive and holistic assessment of conditions and coordinate and establish more effective care pathways.

Services focused on narrow specialists rather than district internists in PHC because of their low resolutive capacity. Care pathways in this period were predominately organized around territory-based polyclinics, with narrow specialists playing a central role. Given the lack of appropriate competencies and capacity among PHC professionals, services by narrow specialists were de facto perceived as more reliable and trustworthy and of higher quality than services provided by general practitioners (GPs). People were more inclined to access narrow specialists for suspected clinical conditions directly, preferring them for diagnosis or confirming a diagnosis, treatment, follow-up visits and prescriptions. They were also in greater supply, increasing the ease with which patients could access their services. Bypassing the services of GPs, patients received fewer preventive services, contributing to a fragmented, reactive model of care and ultimately increasing the burden of complications and avoidable hospitalizations.
Six main phases of Kazakhstan’s PHC transformation

Since the 1990s, Kazakhstan has embarked on continual transformation of PHC which can be clustered into six key phases.

Facing the growing burden of noncommunicable diseases and in the context described, in the 1990s Kazakhstan embarked on a long-term phased approach to reorient the health system towards a family medicine–based PHC model. The strategic direction informing the transformation draws on international evidence strongly supporting the hypothesis that health systems based on PHC are more efficient and provide better health care, more equity in health and greater patient satisfaction with fewer resources \(^{11,12}\).

Over the three decades, important shifts took place, moving away from a purely clinical focus to delivering services to one that upholds a strong foundation for a broader psychosocial approach with increasing focus on upstream population needs and expectations. Fig. 2 illustrates the six key phases of the transformation process. The phases are categorized to match the overall health care strategies at the highest national level, which focused on PHC as the centre of the health system. The gradual transformation to the model of care was increasingly implemented within a health system approach that built on earlier pilot phases and ensured that key levers such as governance, financing, human resources and digital solutions facilitated sustained changes.

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### Fig. 2. Six phases of the PHC transformation

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<tr>
<td>Initial piloting of the family medicine approach and family medicine ambulatory centres</td>
<td>Temporary halting of the reforms and priority for specialized care</td>
<td>Reintroducing family medicine–based PHC focusing on the health system levers</td>
<td>Solidification of family medicine and expanding PHC teams to better address psychosocial needs</td>
<td>Strengthening of a multidisciplinary PHC approach addressing the root causes of health and people’s needs</td>
<td>Focus on greater accessibility to a wider population, especially those living in rural areas</td>
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### Key Levers

- **Model of care**
- **System levers**

- **GP scope of practice**
- **Empanelment**
- **Financing**

- **Services package**
- **Nurses’ scope of practice**
- **Service**
- **Services design**

- **Multidisciplinary teams**
- **Quality of services**

- **Digitalization**
- **Workforce**
- **Financing**

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Phase 1 (1990s–2002): initial piloting of the family medicine approach and family medicine ambulatory centres

In a first phase to transform PHC, a policy initiative was introduced to implement a family medicine–based PHC service delivery model (13). The services of GPs were to be provided at family medicine ambulatories – a new separate entity at polyclinic facilities and a stand-alone entity in the rural areas. As an initial step, the provision of services was reconfigured for GPs to provide comprehensive care for both adults and children. Pilot facilities delivering family medicine–based PHC at newly established family medicine ambulatories were first launched between 1992 and 1995 in Shymkent and later between 1995 and 1997 in two regions: Zhezkazgan and Semipalatinsk. Further, they were opened in some other regions as well.

Phase 2 (2003–2004): temporary halting of the reforms and priority for specialized care

In this stage, there was a temporary setback in the transformation process, which is common during the early stages. By 2003, the previously existing system of polyclinics with focus on narrow specialists was re-established, with the previously piloted family medicine ambulatories closing. Initial steps towards family medicine were reverted by ministerial orders on PHC services delivery (14), in urban areas (15) and rural areas (16). In effect, the implementation process was ultimately incomplete, also in part because of organizational rearrangements between 1997 and 2002 within the health ministry and staffing changes at the ministerial level (17).

With the benefit of hindsight, system enablers to support the transformation at scale were clearly lacking: changes in governance, lack of sustainable financing mechanisms, insufficient non-clinical skill set of GPs and nurses and dilapidated infrastructure. Previous initiatives to introduce family medicine were a positive change.


In 2005, a five-year health system reform plan was launched emphasizing the need to move towards a PHC-centred health system (5), making the case for shared responsibility over one’s health between the people, government and employers. The concept of a family medicine–based PHC approach was reintroduced, with growing understanding that non-clinical competencies are equally important for delivering the wider range of clinical competencies.

A concept on a unified national health system put forward in 2009 (7) took this vision further, introducing free choice of providers, a pay-for-performance system and quality improvement processes. The unified national health system was an important step to align financing across regions and reduce inequities.

Financing changes recognized the need for a two-component per-capita financing approach with stimulus and that PHC should be given priority in the distribution of financing over inpatient care in the health care budget. Electronic systems were deployed, improving transparency and data management in PHC, enabling capitation payments for providers in practice to be implemented.
Phase 4 (2011–2015): solidification of family medicine and expanding PHC teams to better address psychosocial needs

The next phase solidified the family medicine–based PHC model and strengthened health system levers to support it. PHC teams were expanded with three PHC nurses per doctor and social workers and psychologists were introduced. New centres for family health were also piloted to reflect a new team-based approach to PHC services. This was a first step towards integrating social work and mental health into PHC. Youth centres and healthy lifestyle centres were also introduced (18). Attention was paid to multisectoral public health work and digital support to expand PHC functions. Dramatic changes to the system levers were also ongoing such as improving PHC training. Two-tier training was introduced for nurses with applied and academic bachelor’s degrees.

Phase 5 (2016–2020): strengthening of a multidisciplinary PHC approach addressing the root causes of health and people’s needs

Between 2016 and 2020, the next phase of the transformation brought the large-scale solidification of a multidisciplinary approach to PHC, provision of psychosocial care and expanded autonomy of nurses. Concrete policy steps were made towards a more people-centred model of care provided by multidisciplinary teams consisting of GPs, PHC nurses, social workers and psychologists. This phase also included PHC strengthening for universal health coverage, emphasizing the importance of early prevention and PHC digitalization. Early adopters such as the Enbekshikazakh District in Kazakhstan’s Almaty Region and other facilities were identified as the 17 best practice PHC centres, some of which have demonstrated the vision for PHC in practice (Box 1).

Integrated disease management programmes that defined the roles and responsibilities of PHC multidisciplinary teams in managing people with priority noncommunicable diseases (specifically arterial hypertension, diabetes, heart failure and chronic obstructive pulmonary disease) and the universal progressive patronage model were also initiated.

Another important change took place in digitalization and related infrastructure update. The government invested in technical infrastructure in health care facilities across the country. Local computer networks were implemented in all PHC facilities, enabling the stagewise transition to paperless management of health and administration data. PHC professionals improved their digital literacy skills, and patients obtained access to their own health records.

Phase 6 (2020 and beyond): focus on greater accessibility to a wider population, especially those living in rural areas

In 2020, previous changes to transform PHC were formalized as part of the renewed Code on the Health of the People of Kazakhstan and the Health Care System (19). The latest health reform has focused on improving the accessibility of PHC services such as increased investment in mobile care units delivering services in rural areas. Mobile teams in PHC became a significant way to lessen the burden at the hospital level during the height of the COVID-19 pandemic. Telemedicine services to provide remote consultations to the population have also been more widely implemented in
Box 1. Kazakhstan’s PHC family medicine–based model implemented in the Enbekshikazakh District, Almaty Region

Enbekshikazakh District in the Almaty Region has a population of about 300,000 and is predominantly rural, with the city of Esik having the largest population (42,000). The rest of the population is spread over 50 villages. The population of Enbekshikazakh District faces several socioeconomic challenges, including low levels of literacy and income, high unemployment and unfavourable living conditions.

These factors are attributable to important (upstream) determinants of health and contribute to key behavioural risk factors for noncommunicable diseases, such as imbalanced diet, smoking and alcohol consumption. Before the reformed model of care was introduced, trends included increasing rates of noncommunicable disease complications, preventable acute needs among children and high premature mortality, especially among men and vulnerable groups. This increased the demand for specialized services, increasing the challenge to get a sufficient quantity and profile of narrow specialists.

Recognizing the importance and need to consider the local population’s needs in organizing health services, the District enthusiastically adopted the national concept for the development of population-oriented PHC approved by the Ministry of Healthcare in 2018.

Enbekshikazakh Multidisciplinary Interdistrict Hospital served as a key hub for transforming the model of care in the District. The hospital provides inpatient and ambulatory primary care services as well as diagnostic and rehabilitation services to just over half the people living in Enbekshikazakh District (175,000 people, equivalent to 55,000 families). To uphold the intended PHC approach, the hospital led efforts to focus on giving priority to disease prevention measures to identify noncommunicable diseases at early stages and avoid unnecessary complications. Improving the health literacy of the population regarding the importance of preventive services was also given priority.

Specific changes introduced included reorienting and retraining district therapists and district paediatricians into GPs. An important goal was to train GPs to provide holistic and coordinated family- and community-centred services. PHC managers and other key PHC team members were trained not only in family medicine but also in social work, population engagement, management and economics.

Attention was also focused on expanding the role of nurses, shifting some functions from physicians, specifically screening and preventive examinations, filling prescriptions, follow-up visits after hospitalization, maternal care, support for high-risk groups in catchment areas and increased responsibility for patient education. To optimize the redistribution of tasks, each GP was assigned three PHC nurses, each providing different services (independent counselling and triage, noncommunicable disease management programmes and patronage services at home). Nurses were assigned one priority service area but were trained in all three to cover for others during vacations and sick leave.

the context of COVID-19-related isolation measures. The roadmap includes developing care pathways from the first visit to the PHC to receiving specialized care in rural areas, school health care and ensuring wide implementation of previous PHC reforms and alignment of levers. Increasing the number of people leading a healthy lifestyle and participating in sports has also been given priority.
Nurses conducting independent counselling played an especially important role in examinations before the doctor sees the patient, providing initial needs assessment, triage and referring patients for laboratory tests and examinations for a full package of test results during visits with the family doctor.

Another key change was services introduced to realize a socially oriented model of PHC. All PHC team members were trained to conduct social and psychological assessments of each patient and to work closely with social workers and psychologists. GPs and PHC nurses were trained to lead social cases of low risk themselves. For medium- and high-risk cases, GPs and nurses work closely with social workers, who can then liaise with representatives of the local akims (local government), social services and the policy and education sectors as needed.

A system for monitoring and assessing quality was also introduced. The hospital went through the process of receiving national accreditation following quality and patient safety improvement cycles. Mechanisms for continuous quality improvement in place include use of evidence-informed clinical guidelines and protocols, mentorships, continual training, incentives and, importantly, population engagement mechanisms. The hospital also introduced a peer-to-peer training system for continuous professional development, in which nurses provide feedback to their fellow nurses. The population actively participates in quality improvement processes through focus groups and a Council of the Population (meeting once per quarter).

Implementing these changes required close collaboration and wide support with the National Association on Primary Health Care and regional authorities. The National Association was key to providing training and change management support. This process included engaging interested parties through joint meetings with local authorities, the professional society and health care workers. These discussions aimed to create a shared understanding of the importance of the transformation and the evidence supporting the changes.

The district has also focused attention on monitoring results. For example, between 2019 and 2021, visits to PHC nurses increased sixfold. A decrease in the workload of narrow specialists (and waiting times) was also recorded at the Esik Clinical Diagnostic Department (from 207,864 visits in 2019 to 81,838 visits in 2021). Patients participating in noncommunicable disease management programmes increased by more than 40%, with a parallel decline of 25% in hospitalization for related therapeutic areas. In addition, ambulance calls from patients with chronic noncommunicable diseases declined by one third.

**Number of consultations with PHC team members and narrow specialists over time (2019 –2021)**

![Number of consultations with PHC team members and narrow specialists over time](image)
Table 1. Overview of key actions to strengthen the model of care and related system levers by phase

Phase 2 is not shown since it essentially reverted the system back to the Semashko-type system.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Phase 1</th>
<th>Phase 3</th>
<th>Phase 4</th>
<th>Phase 5</th>
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<tr>
<td>Focus</td>
<td>Initial piloting of the family medicine approach and family medicine ambulatory centres</td>
<td>Reintroducing family medicine–based PHC focusing on the health system levers</td>
<td>Solidification of family medicine and expanding PHC teams to better address psychosocial needs</td>
<td>Strengthening of a multidisciplinary PHC approach addressing the root causes of health and people's needs</td>
<td>Focus on greater accessibility to a wider population, especially those living in rural areas</td>
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<td>Model of care interventions</td>
<td>Introduction (pilots) of family medicine ambulatories with strong role of GPs and GP-centred services with clinical focus</td>
<td>Piloting free choice of provider in some regions</td>
<td>Attention given to systemic levers to support future changes in the model of care</td>
<td>Expanding the role of general practice nurses: team expanded to three nurses per GP</td>
<td>GPs focusing on more complex tasks such as individual care planning</td>
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<td>Strengthening the role of GPs instead of district internists and pediatricians</td>
<td>Task shifting from GPs to nurses, key role of nurses in conducting at-home visits</td>
<td>Introduction of disease management programmes and a universal progressive patronage model, with nurses playing a key role</td>
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<td>Legislative framework to strengthen the GP gatekeeping role, including planned hospitalization</td>
<td>Building legislative framework to introduce psychosocial services (2009), first introduction of psychologist and social workers’ services (2011), healthy lifestyle and youth health centres (2011)</td>
<td>Introduction of nurses with expanded practice (2018)</td>
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<td>Codified free choice of provider nationwide with transition towards mixed empanelment: free choice of provider during campaign and otherwise free choice within the area of official residence</td>
<td>Transition towards mixed population per each GP (both adults and children)</td>
<td>Defined role and solidified the implementation of the psychosocial services integration</td>
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<td>PHC triage</td>
<td>School medicine tuberculosis (TB) services</td>
<td>Building of multidisciplinary teams</td>
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<td>Increased role of PHC managers</td>
<td>Introduced in PHC fourth-category ambulance calls (non-life-threatening)</td>
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<td>Projects for community empowerment and active participation in designing services</td>
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Organization of services. Focus on extending access to care in rural areas via mobile care units, mobile teams, remote services (telemedicine etc.), built infrastructure.

Package of services. Improving and standardizing care pathways from PHC to specialized care, especially in rural areas.

Quality improvement. Including quality indicators into the per capita financing agreements between payer and providers, using incentives for training in disease management programmes and the universal progressive patronage model.
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<th>Phase</th>
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<td>Strengthened the role of regional and district levels of governance. Private medical practice started being allowed. Increasing autonomy at the facility level. Kazakhstan Association of Family Doctors formed.</td>
<td>Consolidation of funds at the national level (2014). Pay-for-performance mechanism as a stimulus component of the complex per capita norm. Most dramatic changes: partial fundholding to disincentivize unwarranted use of narrow specialists’ services. Aligning financing mechanism to enable the introduction of psychosocial services. Improvement of PHC infrastructure.</td>
<td>Revamped and restructured Social Health Insurance Fund. Joint co-fulfilment contracting arrangements to subcontract various services. Clear distinction in costs reimbursement between PHC and consultative-diagnostic services.</td>
<td>Partial fundholding system reverted. PHC professionals do not have financial incentives to play their gatekeeping role. Increase in revenue towards consultative-diagnostic services.</td>
<td>Increased COVID-19-related financing for salary bonus, PCR diagnostic services and mobile teams.</td>
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<td><strong>Financing.</strong></td>
<td>Piloting the health insurance fund. Lack of sustainability, reverted back to line-item budgeting. Per capita mechanism introduced (1998), with stagewise approach to changes in fundholding.</td>
<td>Correction coefficients introduced to adjust per capita norm for different municipalities. Most dramatic changes: partial fundholding to disincentivize unwarranted use of narrow specialists’ services.</td>
<td>Correction coefficients introduced to adjust per capita norm for different municipalities.</td>
<td>Revamped and restructured Social Health Insurance Fund.</td>
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<td>Training of family doctors initiated but focused on combination of clinical competencies and was short.</td>
<td>More training on non-clinical competencies for GPs and nurses. Introduction of two-tier training for nurses: applied bachelor and academic bachelor (2014).</td>
<td>Government standard for GP training was revamped.</td>
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<td>Training improved to add evidence-informed nursing and other disciplines for nurses (2017).</td>
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<td>Educational requirements for psychologists and social workers specified. Practice-based training for multidisciplinary teams to integrate psychologists and social workers into PHC.</td>
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<td>System lever interventions</td>
<td>Digitalization. Adoption of the eHealth Development Strategy (2013) with focus on decentralizing the development of information technology, public-private partnership growth where information technology was subcontracted to private providers to incentivize competition. Nationwide deployment of centralized electronic systems, such as registry of empanelled population, PHC financing, disease registries, portal for planned hospitalization and medicines provision portal (starting 2009).</td>
<td>Digitalization. Investing and creating necessary information technology infrastructure in all PHC facilities, introduction of local networks for digitalizing medical and administrative processes and data flows, stagewise transition away from paper-based records.</td>
<td>Digitalization. Increased adoption of information technology, such as telemedicine, digital monitoring and control of vaccination status and chatbots. Increased patient access to their medical data through centralized portals.</td>
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Transformation to the PHC model of care in Kazakhstan

The move towards a multidisciplinary team-based model of care in Kazakhstan is an example of leapfrogging and ability to overcome implementation bottlenecks in realizing the vision into practice.

Over the past two decades, Kazakhstan’s transformation of the delivery of PHC services has worked across each of the components of the model of care, as summarized in Fig. 3 and described below. Models of care can be characterized by four core components: (1) health service organization and facility management; (2) selecting and planning of services; (3) design of services; and (4) community linkage and engagement.

1. Move from mono-profile to multidisciplinary PHC teams with a strong family medicine foundation

**Solidifying the role of family doctors and GPs**

- Role of GPs was strengthened by intentional increase of their resolutive capacity by adding non-clinical skills to their skillset. This reduced in need for narrow specialists for amenable to PHC conditions.

- As skillset of PHC nurses grew in parallel, more functions were delegated from GPs to the nurses. This allowed them to dedicate more time for more complex tasks such as individual care planning and have more dedicated time for individual patient consultations, increasing patient satisfaction and addressing the complex root causes of disease.
There was a stepwise transition from district internists or paediatricians towards family-oriented GPs with strengthening non-clinical competencies and task-shifting to PHC nurses. In the early 1990s, there were initial steps to introduce family medicine in Kazakhstan through pilot projects. By 1996, with the support of international donors, dozens of family medicine ambulatories with one or multiple GPs were set up in Zhezkazgan and Semey regions (21). This was a significant step from polyclinics with district internists or paediatricians co-located with narrow specialists, providing fragmented services separately to children, young adults and older adults. There is some documented improvement with the expanded capacity of GPs to diagnose and treat the most common diseases themselves and their ability to assess the population’s health needs and conduct necessary population-wide activities.

However, wider scale-up of these pilots was not supported by the system levers, such as health workforce competencies and sustainable health financing. The quality of the services provided varied between practices largely because of the short and predominantly clinical focus of GP training. In the absence of essential non-clinical skills in the early phases of the transformation, GPs were not able to individually tailor services or engage patients in decision-making as intended. Importantly, reorganization of PHC did not include plans to increase role and autonomy of nurses, engage them as active members of PHC and delegate responsibilities from GPs. In part, this also resulted from the lacking system levers related to health workforce policies, such as needed volume of nurses and the lack of competencies. In addition, independent GP ambulatories were poorly supported with diagnostics and laboratories, which made care seeking inconvenient.

Until 2005, at the legislative level district internists and paediatricians’ responsibilities were limited to preventing common diseases, and more responsibilities were given to GPs (15). The retraining process was ongoing, with an estimated one fifth of doctors in PHC (formerly, district internists and paediatricians, gynaecologists and, to a lesser degree, stomatologists) retrained to be GPs (22). In addition, there were no mixed empanelment districts, so in essence, retrained GPs came back to work in separate districts for adults and children (21).

Starting in 2015, there were accelerated steps to scale up PHC countrywide based on the principle of family medicine, when GPs started being responsible for a mixed population: both adults and children. The retraining efforts countrywide into GPs or family doctors were ongoing (see the subsection on health workforce). GPs received more time to focus on individual consultations with patients, as time-consuming at-home visitations were delegated to nurses with increased skills (see the subsection on the health workforce). Their role as a gatekeeper to other levels of care strengthened (see subsection on design of services). Referral protocols and transfers were reviewed to strengthen the gatekeeping function of GPs.

After 2015, GPs’ role as care coordinators solidified. As they shifted more tasks to PHC nurses and gained more time and competencies for complex tasks, individual care planning became a service to be provided by GPs in addition to patient counselling (23). They were also supported with introduced clinical protocols and guidelines and incentives, mainly through the introduction of the disease management programmes (Box 2).
Concurrently, there was a process of strengthening the role of GPs as providers of the full cycle of services in PHC and limiting unnecessary referrals to narrow specialists and specialized levels of care. In the early stages, specialists were still dominant in PHC, since they remained easily accessible with their responsibilities still defined in the scope of PHC until 2006, even though there was technically a requirement for GP referral \((14,15,24)\). Clinical protocols and guidelines also supported that the narrow specialists needed to confirm the diagnosis given by a GP for conditions amenable to PHC \((25)\). In 2006, changes were made to separate ambulatory and polyclinic care provided by PHC physicians \((24)\) and consultative-diagnostic care provided by narrow specialists. This was followed by the period between 2007 and 2010, with a step back from investment in PHC, as attention was diverted into high-tech specialized care and hospital infrastructure as well as large polyclinics \((21)\).

Changes in health financing, especially introducing complex capitation, incentivized PHC professionals to provide effective results-oriented services and limit unnecessary referrals to specialized levels of care (see subsection on health financing). This took place in parallel to the retraining of specialists into GPs as government incentivized retraining to cover the health workforce deficit, especially in regions. GPs and other PHC workers were better equipped with skills, clinical protocols, guidelines and aligned financing tools to provide preventive, curative and rehabilitative services within PHC and ensure the continuum of care.

**Expanding the role of general practice nurses**

- Expanding the role and autonomy of nurses has been integral in strengthening the resolutive capacity of PHC. Pre-doctoral consultation conducted by PHC nurses allows to go through necessary tests and acts as a filter, allowing GPs to conduct more time for consultation with patient.
- As their skillset grew, they became more engaged in the patient counseling and prevention activities, including Disease Management Programme and Universal-Progressive Patronage Model. Their role is key in providing at-home services, taking the burden off GPs.

The responsibilities and capacity of PHC nurses have been gradually expanded during the transformation process with an acceleration in phases 4 and 5. In the 1990s, the roles and responsibilities of PHC nurses were limited, similar to many PHC systems of systems of countries in this part of the European Region. The division of tasks was inefficient. Nurses ultimately performed the tasks that are typically done by auxiliary non-medical support staff and GPs – the tasks of the nurses, compared with countries with well-established PHC. The proportion of nurses per PHC physician was low: two nurses per physician. There were also large differences in the salary and skill set of PHC physicians and nurses. Nurses had almost no decision-making authority and/or independent counselling of patients, except for some rural areas with a strong feldsher or nurse.

The role of general practice nurses was redefined in 2006, mandating nurses the authority to conduct check-ups before seeing the doctor, refer patients for laboratory tests and provide consultations on prevention and self-management \((15)\). However, the revised mandate of district nurses still overlapped with that of general practice nurses. As the health information
systems were being updated, the burden of manual paperwork and administrative duties began to lift from the PHC nurses (22). In the fourth phase of the transformation, the process of task shifting to nurses began as the number of nurses increased to three nurses per GP, and the scope of PHC nurses practice was redefined. Standardized scope of practice enabled more delegation from GPs to nurses and better redistribution of roles and responsibilities between the three PHC nurses. National policies laid out plans to transfer one quarter of responsibilities from doctors to trained nurses (26). As their skill set improved, PHC nurses increased their autonomy and responsibilities: right to prescribe, conducting at-home visits, dynamic management, active patronage and identifying chronic conditions in mobile care units (18). The third nurse per physician in PHC has not yet been implemented nationwide, and the Ministry of Healthcare sets up incentives such as pay-for-performance indicators to incentivize wider adoption. It is up to the regional health authorities and PHC managers in each region to underpin and mobilize resources to attract and retain PHC nurses, especially for the patronage role.

PHC nurses have a big role in the universal progressive patronage model and disease management programmes, providing a range of preventive and rehabilitative services. Nurses gained more autonomy and key role in implementing the universal progressive patronage model and disease management programmes starting in 2015 (23). The introduction of universal progressive patronage included redefining training for patronage nurses and other PHC workers that provide patronage, including UNICEF-recommended college training of nurses, creating standard operating procedures, retraining of staff at pilot facilities, training of those who would manage quality-of-care monitoring, train-the-trainers capacity building and creating related medical documentation forms. In delivering the universal (required) part of patronage, PHC nurses or feldschers conduct all the visits. PHC nurses are responsible for at-home visits for patients discharged from hospitals, calls for at-home services and in cases of threat of infectious diseases. This significantly took the burden of time-consuming home visits from GPs and increased the autonomy and job satisfaction of nurses – overall resulting in a more efficient use of health human resources.

In this period, nurses were also mandated to provide services in the context of disease management programmes, triage, healthy lifestyle schools, screening and other preventive and chronic disease management services (Box 2).

From 2018, the role of nurses with expanded practice was introduced in pilot facilities across Kazakhstan. The scope of practice of nurses with expanded practice includes providing independent professional nursing care, including a nursing assessment of a patient’s condition, making a nursing diagnosis, prescribing a nursing intervention plan and monitoring effectiveness in accordance with clinical protocols and clinical nursing guidelines. Piloting the introduction of nurses with expanded practice began with aligning the scope of diagnosis and interventions provided by nurses to the international classification of diagnosis and medical interventions by nurses. The role of the nurses with extended practice is now written into the current Code on the Health of the People of Kazakhstan and the Health Care System (2020).
Box 2. Dispenserization versus disease management programmes

Dynamic patient management is a dramatic improvement from dispenserization, common for countries in this part of the European Region. In Kazakhstan, nurses and feldshers now play a key role since the programme was revamped.

Dispenserization was popular in the USSR starting in the 1970s and is a massive screening effort to stratify the attributed population into risk groups based on target diagnoses (ranging from healthy people with no risk factors to people with multimorbidity). The intention was to provide early identification of chronic conditions, prevention of complications and rehabilitation. The dispenserization system is largely inefficient because of a biomedical approach, since it consumes resources for laboratory tests and for compulsory annual preventive hospitalization. In its essence, it is a disease-centred approach, focused on identifying disease and burdening the health service delivery system through needed regular input of consultations and diagnostics, not focusing on individual needs related to psychosocial determinants of health. The system of dispenserization also expanded the role and volume of services provided by narrow specialists, forcing all patients to undergo check-ups from them twice a year (25). It did not enable patients agency in managing their own conditions. Responsibility was on narrow specialists to confirm the diagnosis and send them for additional tests, incentivized by financial mechanisms. Later, as the role of the core PHC team (GPs and nurses) was strengthened, this responsibility to conduct dispenserization was given to nurses. Increased authority of nurses is a positive development. However, the dispenserization as a whole was still a disease-centred system focusing on resource input rather than positive health outcomes, clinical in nature and not tailored to individual needs. It also burdened the PHC team with busywork of calling and following up with patients to go through necessary tests and examinations. Incorrect incentives were put in place to diagnose and refer for tests rather than focus on better individual health outcomes.

Kazakhstan has moved forward from a dispenserization system towards disease management programmes. In 2011, disease management programmes were first introduced to move towards a patient-centred approach in managing people with noncommunicable diseases. It requires the work of a multidisciplinary PHC team, aligning the roles and functions of PHC professionals of an expanded multidisciplinary PHC team to address psychosocial behavioural root causes leading to noncommunicable diseases. It is a dramatic improvement towards holistic integrative services.

The programme was first piloted and included new training for PHC specialists and developing an electronic database. New guidelines, characterized by combining clinical and non-clinical aspects of diagnosis and management, individual and population-level outcomes and person-centred communication, particularly for managing people with noncommunicable diseases in PHC, have been applied and transcend various aspects of the model of care (27). PHC specialists encourage patients to participate in disease management programmes and are responsible for ensuring that patients have a multidisciplinary care team, continual health monitoring via individual diary, teaching patients how to manage their condition, receive patient feedback and directly engage patients in developing and implementing their individual care plan (23).

The distribution of roles was first redefined in 2015 (28). Now, nurses and feldshers but also patients themselves play a much larger role in disease management. The process starts after a diagnosis by a PHC specialist or narrow specialist or referral from inpatient care. GPs create individual care plans, which are then entered into the electronic information system.
Nurses then conduct an initial examination and monitor patients to follow the GP's treatment plan and, if there are no complications, inform the patient about the volume and frequency of services to be provided. Nurses are also responsible for providing healthy lifestyle information, prescribing and scheduling follow-up visits. If complications arise, nurses refer patients to GPs. If complications continue or increase, GPs then refer patients to narrow specialists or inpatient care.

Another positive difference is that patients are empowered and their voices are included in care planning. Patients have agency in managing their disease more proactively since they sign a contract. Patients that ultimately join disease management programmes do so voluntarily, signing an informed consent form that emphasizes their own role and responsibilities. Attention has been put through The transformation has focused attention on improving services tailored to self-management linked to disease management programmes. Specific approaches introduced and improved on include a focus on patient communication, developing patient-specific action plans with concrete goals for the patient, individual plans of action that summarize health recommendations, lifestyle management, detecting important symptoms and decision-making guides for health care professionals and patients alike. Each effort aims ultimately at increasing patients’ agency and engagement in their health and lifestyle.

Financial incentives were established for disease management programmes that aim to motivate PHC providers to include more patients in the programmes. However, the focus of these incentives on the quantity of patients in disease management programmes has limited the focus on monitoring individual health outcomes. This resulted in rather basic implementation of disease management programmes in some PHC practices and is an area for further improvement. In addition, they remain diagnosis oriented. Although the process was simplified and the role of nurses has increased, challenges around unnecessary tests and overuse of narrow specialist consultations persist since the programme is still oriented towards diagnosis and the roles of team members are not clearly delineated yet.

As an initial step, three noncommunicable diseases were in focus: arterial hypertension, diabetes and chronic heart failure. Further steps outlined plans to introduce disease management programmes for bronchial asthma and chronic obstructive pulmonary disease and an electronic database of indicators on disease management programmes. As of 2023, these initiatives still need to be implemented.

**Pioneering a multidisciplinary approach to PHC**

Psychologists and social workers were introduced into the PHC system to bring psychosocial services closer to people. Further, multidisciplinary teamwork made all members of the PHC team more sensitive to the psychosocial needs of the population and enabled them to address the root causes of diseases, often socioeconomic in nature.

Kazakhstan’s move towards a multidisciplinary approach is the most dramatic departure from the experience of other countries in this part of the European Region. Countrywide implementation of this initiative is a still unfolding process, and best practice PHC centres as well as change agents such as National Association on Primary Health Care act as important implementation enablers.

Giving priority to multidisciplinary teams reflects the implementation of family medicine principles, paralleled by a growing understanding that GPs
alone would not be able to address the complexity of the population’s health needs. Introduction of multidisciplinary teams was especially relevant to address the upstream socioeconomic determinants of health and better meet the needs of vulnerable people. Specifically, disparities between urban and rural areas and frequent visits to doctors without addressing the root causes of certain conditions signalled the need for greater attention to the mental health of the population and a comprehensive biomedical and psychosocial approach to care.

As such, multidisciplinary teams were given priority, with GPs as leaders of the expanded multidisciplinary teams. The role of psychologists is to diagnose and conduct counselling for behavioural conditions, psychological evaluation, provide suicide prevention services for children and teenagers and self-management for patients with chronic conditions. Social workers’ responsibility is to provide social medicine diagnostics and counselling, including assessing information technology at home, conducting screening, training patients in self-managing chronic conditions, referring to the organizations outside PHC such as local government and nongovernmental organizations (NGOs) and helping to navigate the health system.

In the early stages of the PHC transformation, international development projects were launched with the aim to pilot the multidisciplinary delivery of psychosocial care in primary care (Box 3). These projects were initiated before formal policies to include psychosocial care in PHC were introduced and served to generate evidence on the importance of delivering services based on a multidisciplinary team.

In 2009, an important policy defining standards for special social services in health care, including the ambulatory-polyclinic level, was first defined in joint work between the Ministry of Healthcare, Ministry of Education and Ministry of Labour and Social Protection. Polyclinics and family doctor ambulatories were mandated to have a department of psychosocial care with psychologist and social worker offices. The roles and responsibilities of social workers and psychologists in PHC ambulatories were defined as well as the healthy lifestyle practitioners. This legislative change was

**Box 3. Early projects to train professionals for working in multidisciplinary teams served as a proof of concept and accelerator for wider roll-out**

In the 2000s, with the support of the United States Agency for International Development, the Demeu Project (a family medicine training centre) was launched with the aim to introduce social programmes and services in PHC. Through this initiative, trainers gained practical experience and guidelines were prepared. Based on the Demeu Project, UNICEF implemented a project to advance youth-friendly clinics. From this, the first youth health centre opened its doors in Kazakhstan (2004–2007). Demeu had a family-based approach to PHC practice, independent nursing practice, psychosocial services, youth-friendly services, community council, support groups, patient schools, clubs, volunteer movement, training leaders from the community, unified health information system and a training centre. Based on the centre, 145 psychologists and social workers, 360 public health care professionals and 182 medical students received training.
implemented later in the fifth phase of the reform. By the end of 2013, 500 psychologists and 2000 social workers provided psychosocial services in PHC, and in 2014, 731 psychologists and 2060 social workers (29).

In phase 5 of the reform, further efforts to solidify a holistic approach in PHC to deliver biomedical and psychosocial care through multidisciplinary teams were accelerated. The roles, responsibilities, qualification and educational requirements of social workers and psychologists as well as the role of youth health centres were further defined (23,30,34,35). Initially in accordance with staffing norms, each GP had a part-time social worker and a part-time psychologist (20%). In 2017, PHC teams were still understaffed, since there were three quarters of the required number of psychologists and one quarter for social workers (24). By 2019, the PHC system had gained about 3900 social workers.

The legislative framework was further updated in 2020–2021 to define even further qualification requirements, services provided by social workers, a stimulus component and incentives for social workers. According to a forthcoming publication on mental health in PHC, clinica protocols for mental health, including for mental health services in PHC, were updated to introduce international guidelines such as the WHO Mental Health Gap Action Programme intervention guide for mental, neurological and substance use disorders in non-specialist health settings and others. In 2019, independent mental health institutions were reorganized to introduce mental health centres and offices in urban and rural PHC. Roles in the PHC team have been refined to include a psychosocial approach, mandating all PHC team members to identify potential mental health conditions and refer them.

Social workers get actively engaged when GPs or nurses identify moderate and high-risk psychosocial cases during visits at home in the universal progressive patronage programme. Social workers conduct more in-depth secondary assessment to understand legal, social and psychological needs and work in team with GPs, nurses and sectors outside PHC, if necessary (such as the police). For more on the care pathway for psychosocial cases, see the subsection on designing services.

**Professionalizing management to enable prompt organizational changes in the PHC system**

As the PHC model of care was enhanced, professionalizing management became essential to support the implementation of the transformation, especially once multidisciplinary teams were introduced. The tasks of strategic planning, human resource planning, financial planning and management, performance monitoring, change management and reporting and improving PHC facility environments to increase patient-centredness increasingly required managerial expertise and experience.

The role of PHC managers was first proposed in the early stages of the PHC transformation following the introduction of independent GP ambulatories (13). It was separated from the clinical role of chief medical officer and was limited to facility management, performance assessment and human resources documentation.

In the next stage of the PHC transformation, health care organizations gained greater autonomy over resource management (starting in 2008; see
the subsection on governance). Health care facility managers needed a broader range of responsibilities equivalent to that of manager, administrator and chief medical officer (17). The demand for skilled managers became increasingly evident. The Health Sector Technology Transfer and Institutional Reform Project supported by the World Bank aimed at modernizing the health management training system (7). From 2009, responsibilities for the head of facilities (as a whole, not only PHC) and their deputies were defined and integrated clinical work, quality of care, strategic development and economic and administrative support (31,32). In addition, new legislation also included a redefined scope of practice for heads of departments and head nurses and nurse managers as additional management staff, showing the increased complexity of management and distributed leadership.

Although the requirements and responsibilities for health care facility managers have developed, pure PHC facility managers have limited autonomy. Managers of regional hospitals, which have PHC in their structure, have the autonomy and capacity to redirect investment towards PHC units to reduce the burden on their secondary level. In urban areas, where most PHC facilities are stand-alone structures, PHC managers do not have as many resources and autonomy to implement changes to the extent as they have been implemented in PHC within hospitals.

In the example of best PHC practices, the PHC policy changes were implemented to a greater extent in facilities with strong management. Regional hospital managers with commitment to PHC strengthening reallocate budgets and invest in strengthening the workforce, infrastructure and other types of capacity at the PHC facilities, which are part of the regional health care facility structure. Implementing the policy changes requires effective collaboration with stakeholders outside the PHC facility, such as local district and region administration, health departments, police, social services, local businesses and NGOs (27). This requires a manager who can facilitate such discussion and build bridges across sectors. Phased change management within the PHC team also requires a manager who acts as a change agent, translates legislative changes into practice, improves teamwork and builds change within the team. The goal is to create a more horizontal teamwork with distributed leadership in which managers and peers provide open and respectful feedback in the ongoing transformation efforts.

New projects such as MIOMOS that developed and implemented a mechanism for public monitoring and gathering feedback from the population in health care organizations in Kazakhstan also require skills of facilitation and collaboration. PHC managers are also responsible for creating a patient-centred environment in the PHC facility in which patients can receive accurate information on how to access services and on their care pathways and rights as soon as they step into the facility.
2. Gradually expanding the package and improving accessibility

Expanding the package of services to provide holistic health care

Before the family medicine pilot initiative in the 1990s, the services provided in PHC were limited to curative services and immunization.

Starting in 1992, initial steps were taken to ensure family medicine ambulatories with GPs in the centre. Family doctors and GPs stationed at family medicine ambulatories were expected to provide a wider scope of services than district internists and paediatricians and diagnose a wider clinical range of common diseases. An important addition was made to include elements of population health management, with GPs being responsible to know the sociodemographic and health profile of the empanelled population and conduct prevention measures such as healthy lifestyle campaigns and family planning. Another important development was to coordinate the population-level interventions with other sectors such as social services.

In phase 4 of the transformation (2011–2015), focus shifted towards more patient-centred services that would also address psychosocial needs. Psychologist and social worker consultations and services as well as youth health centre services were included in the package of services in 2011, based on the standards for social care (2009) and methodological guidance (2011). By 2014, there were 87 youth health centres, and 300,000 people received services in 2014 (29).

Starting in 2015, psychosocial services were further implemented. In 2016, standards of care related to mental health services in primary care were defined more and stipulated that GPs in PHC practice should identify mental health issues and refer if needed to physicians at mental health offices or primary centres for mental health (24). In 2019, a professional standard for psychosocial care delivery in health care organizations was established (25).

GPs were to assess social status of the family, carry out individual care planning and coordinate disease management programmes. Disease management programmes were introduced at that time, with GPs being the main coordinators (Box 2). The universal progressive model of patronage was added and later standardized in 2017. The universal part of the model (required) mandates two visits before birth and nine visits at home for pregnant women, infants and children five years and younger. PHC nurses and feldshers then also conduct the progressive part of patronage in cases of high clinical and/or social risk, potentially engaging with a multidisciplinary team (23).

Starting in 2017, school health care was moved from education to the health system. Services were to be provided by school nurses (one nurse per 500 students). PHC facilities opened health care units at educational institutions and got licensed. The services of school nurses include disease prevention, immunization, preventive examinations and managing timely dispensersization at PHC facilities.

Secondary services were integrated into PHC. Starting in 2018, PHC integrated with mental health and addiction care. This included the
transition of psychiatrists and addiction specialists into PHC staff to increase accessibility to the outpatient psychiatric and addiction care services. The goal is also to fight stigma and discrimination. Early results include increase in use of services by 10% for the borderline mental disorders by the end of 2018. TB services were also integrated into PHC starting in 2018. Some TB doctors were transferred into PHC. If TB is detected by GPs, the patient is referred to a TB doctor at the same PHC facility, who prescribes and creates a care plan and decides whether referral to the inpatient level is necessary. The PHC team is responsible for prevention, timely detection and further management on the outpatient level. There is a separate chemist nurse (since 1998) and a separate office for collecting sputum and dispensing TB drugs (35). Recent changes include the introduction of visits to the premedical and examination offices before a visit to GPs for the purpose of early detection of precancerous and cancer diseases (36).

Diversifying service delivery platforms to include direct consultations, home visits, mobile clinics and remote consultations

Historically, there were two platforms for delivering primary care services, direct consultations and at-home visits, both of which were traditionally conducted by district internists and paediatricians. There has traditionally been high demand for in-person visits driven by patient expectations to see doctors rather than accessing services remotely, such as telephone consultations. However, data have shown that half of home visits for adults and nearly 80% of home visits for children were unnecessary (25). Kazakhstan went beyond at-home visits and added telemedicine, mobile teams and mobile clinics to expand multiplatform services delivery and meet people where they are. PHC also provides emergency medical services for non-life-threatening situations.

At-home visits by mobile teams. Mobile teams at PHC are also multidisciplinary and consist of GPs, nurses, social workers and other PHC workers, with nurses playing a key role in service delivery in coordination with GPs. From 2011, PHC nurses gained more autonomy to deliver at-home visits, including follow-up after hospital discharge. They continue to hone their skills via peer-to-peer feedback and continuous professional development training. Social workers also began to conduct home visits in 2015. This expansion to diversify the providers delivering at-home care helped to reduce the burden on GPs and enabled investment in the quality and time of GPs for face-to-face patient appointments at the health care facility. The range of services to be provided through PHC home visits was also redefined in 2015 and included: patronage, active patient visitations, inpatient at-home care, family planning questions, healthy lifestyle, social medicine support, psychological care, dynamic chronic disease management and palliative care. They target vulnerable social categories of the population and conduct planned visits to pregnant women and children (within the universal progressive patronage model).

Mobile teams played a particularly important role in the dual-track PHC response, whereby basic essential PHC services were maintained and COVID-19 cases managed. PHC mobile teams were introduced to monitor people with COVID-19 who did not require hospitalization, including those with known risk factors and pneumonia. Mobile team members were trained to collect COVID-19 samples. The number of services provided by the mobile teams dramatically increased even after the pandemic peaked, reaching
8.8 million services provided in 2022 versus 591,000 in 2020 (Fig. 4). Political commitment at the ministerial level played an important role in improving the delivery of services by mobile teams. At the height of the pandemic, the Minister of Health met with the working group to improve the work on the go, and financial allocation has also been increasingly attracting and retaining health care workers to join the teams.

![Graph showing services provided by multidisciplinary mobile teams in PHC are dramatically increasing](source: Ministry of Health of Kazakhstan. Presentation on PHC during the launch of the WHO PHC Demonstration Platform)

**Telemedicine.** Telemedicine was first introduced as a service delivery platform in 2010. This was made possible through a rural health care investment project that was initiated in 2004 by the Ministry of Healthcare (7). Initially, it was mostly used for doctor-to-doctor consultation, usually at an inpatient level: for example, consultations between doctors of district and urban health care facilities and doctors of national and regional facilities. Teleconsultations with patients were scaled up during the acute stages of the COVID-19 pandemic to triage patients. Payment mechanisms were revised as well, so that health care providers would get paid for providing telemedicine consultations to patients. Nurses would identify symptoms that required a GP’s attention or immediate referral to emergency care. Doing so enabled a lower risk of exposure to COVID-19, especially for patients with noncommunicable diseases. Face-to-face consultations were still made available for those needing in-depth consultation or those who could not use teleconsultations, with a triage system in place to separate patients with COVID-19 symptoms from the others. Over the course of the pandemic, telemedicine regulations were updated. Since early 2021, for non-emergency care and COVID-19 cases, monitoring is done in ambulatory care, including remote consultations using digital services. In 2021 alone, 6.5 million telemedicine services were provided in PHC via text, calls and video. In the example of Enbekshikazakh Multidisciplinary Interdistrict Hospital (Box 1), a central call centre for coordination purposes was set up to organize the work of mobile teams. Call centre staff supported patients to continue to self-manage their needs, assess the condition of family members and relay information to their GPs. In addition to a hotline, people access via telemedicine, text and video calls for remote monitoring. There are still some challenges lying outside the health sector, such as weak Internet signal in remote and rural areas, which pose a barrier to timely and rapid communication.

**Mobile clinics.** Wide accessibility to PHC in rural and remote areas has been a long-term priority. In 2013, there were 49 mobile clinic units, fully equipped to conduct screening and consultations with the team of PHC workers (29). In 2020, 49 mobile clinic units covered 240,000 residents of 226 villages.
Currently, 149 fully equipped mobile complexes provide a full range of screening, diagnostic and treatment PHC services in rural areas. They scaled up and provided 1.8 million such services in 2021 in rural and remote areas of Kazakhstan (Fig. 5). In addition, two health care trains cover 117 train stations across the whole country.

Ambulance services of the fourth category (for non-life-threatening conditions). PHC received responsibility for some emergency medical services as well. Round-the-clock services for the fourth category of ambulance services in the absence of an immediate threat to life and health (arrival of an ambulance team in 60 minutes) include acute conditions or exacerbation of a chronic disease without sudden and pronounced disorders of organs and organ systems. Feldsher teams and special medical emergency teams of PHC were created. If a PHC facility has less than 20,000 attributed population, services are outsourced to the regional emergency medical station.

3. Redesigned services to increase the role of PHC as the first point of care, closest to the needs of the population served

Adjusting the approach to population empanelment, emphasizing choice and the principles of PHC as a geographically accessible, regular entry point to care

Empanelment assigns people to a certain provider or care team (37). People can be empanelled using various methods, not mutually exclusive, such as by geography or voluntary enrolment. Kazakhstan initially used geographical empanelment, inherited from the territorial-based Semashko model of delivering health services, in which district internists and paediatricians were responsible for people in a certain geographical area, in this case, a district delineated by certain streets. In this approach, polyclinics were traditionally responsible for the whole population living in a defined catchment area, and people had to use that as their PHC. The attributed population size varied depending on population density and could be lower in rural areas. Starting in 1995, in Zhezkazgan and Semipalatinsk regions with family medicine pilots, people obtained the right for a free choice of provider during annual autumn campaigns. Whole families were able to choose one family doctor (21). One such private GP practice has had voluntary empanelment of about 12,000 people.
Starting in 2003, the empanelment principle became mixed: geographical and voluntary, as people received a right to freely choose their provider. In 2009, patient rights, including free choice of health care facility and doctor, were codified. People freely enrol to the PHC provider of their choice (doctor and facility) regardless of their official place of residence (territorial unit: village, village district, city neighbourhood, city and region) during annual empanelment campaigns (every autumn from 15 September to 15 November). Outside the annual empanelment campaign, people are empanelled in PHC facilities in the boundaries of their official place of residence and can only choose another PHC provider in case they change their official place of residence, the PHC provider is no longer operational and other similar circumstances. Between 2010 and 2013, the registry of the attributed population was turned into an electronic database, with great contribution from PHC workers. In 2011, people began to be able to get empanelled with a facility online – the first significant change to the empanelment process, enabled through the wider introduction of electronic systems in primary care. The main requirement introduced was that an individual should be enrolled with only one PHC provider at a time.

In 2015, the empanelment process was further adjusted to reflect changes in health care financing: people could choose a PHC facility based on their voluntary medical insurance. In 2020, the principles of empanelment were further updated to give priority to: family registration, territorial accessibility, free choice within territorial accessibility, patient satisfaction with the quality of care, fair competition regardless of ownership and the departmental affiliation of the facility.

Over time, changes to the normative allocation of the population per PHC physician have adjusted slightly (Table 2). For example, GPs have a narrower range of expected empanelled population in 2020 (1500) compared with 1999 (1600–2000). During the second and third phase of PHC transformation, in which providers were being retrained into GPs, separate offices for adults and children were still prevalent, served by district internists and paediatricians, respectively. The process of transition from district internists and paediatricians was taking place in phases as the staffing shortages were filled, fully transitioning to mixed population catchment areas after 2015.

Table 2. Changes to the normative allocation of the population per PHC physician over time

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<tr>
<td>District internists</td>
<td>1800</td>
<td>2200</td>
<td>2000</td>
<td>2200</td>
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<tr>
<td>District paediatricians</td>
<td>800</td>
<td>900</td>
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<td>500 (0–6 years old) or 900 (0–14 years old)</td>
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<tr>
<td>GPs</td>
<td>1600–2000</td>
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Reviewing referral protocols and transfers to strengthen the gatekeeping function of GPs

In the early stages, district internists and paediatricians and later GPs were always the first-line physician and gatekeeper for other levels of care.
However, the gatekeeping function of PHC was not fully realized in practice because of the low resolutive capacity and limited trust of the population in family medicine and, in effect, reliance on narrow specialists persisted.

Between 2005 and 2011, changes were introduced through government resolutions (38) to strengthen the gatekeeping role of GPs throughout the country (17). The introduction of GP referrals to hospital care via an electronic portal system introduced by ministerial order in 2010 was a key enabler of this (39). In addition, since there was more investment in the guaranteed benefit package, the population had incentives to use GP services to get laboratory tests and prescriptions for covered medications when medically necessary.

With improvements made to the PHC financing mechanism (see subsection on PHC financing) in 2014, rules were clearly outlined for service delivery by narrow specialists with and without a referral from a GP and in emergency and urgent cases. Financial incentives were put in place to reduce the unwarranted use of narrow specialists. This motivated PHC workers to provide services to achieve positive results without the need for further referral. It was also stipulated that repeated visits to a narrow specialist within one case could be carried out without PHC referral. No more than three narrow specialists’ consultations within one case were allowed. This also strengthened the GP gatekeeping role and deterred narrow specialists from referring a patient for additional consultations or diagnostic tests without GP approval.

In this same period of the PHC transformation, the system of PHC filtering (triage) was introduced. In 2015, rules for PHC triage and the rules for at home care in lieu of inpatient care were defined (40). Inpatient care at home is to be organized by GPs and provided by PHC teams. In cases of acute disease (or condition) or exacerbation of a chronic disease, PHC specialists (including registration desk nurses) refer patients to the premedical care office (filter), where a nurse provides necessary premedical services. In cases where qualified or specialized health care is needed, nurses or feldshers call the doctor on duty. If it is necessary, the health care worker calls for an ambulance and sends the patient in an emergency to a round-the-clock hospital according to the health care needs.

Social cases can be identified by GPs and nurses either during consultation or at-home visit in the context of universal progressive patronage model. Each social case gets a social passport, filled by the social workers, where social risk factors, conducted services, and other crucial information on socioeconomic status of the family.

Social cases are stratified into low-, medium- and high-risk groups. GPs and nurses independently manage social cases with low risk in PHC, and social workers manage medium- and high-risk cases in PHC. In high-risk social cases, a multisectoral group is created that meets twice a month and in emergency cases, including the deputy manager for PHC, PHC professionals and other invited external stakeholders such as police and education representatives. When resolving cases requires external assistance, an interagency collaborative group is created with social services, police, educational institutions and municipal government to resolve this issue at its root cause.
Most recently, there was a step back from strengthening the role of GP as a gatekeeper to incentivize the use of consultative and diagnostic services because of changes in financing mechanisms. A fee-for-service mechanism was introduced, and consultative and diagnostic departments started opening or expanding to increase overall PHC facility income. PHC teams are incentivized to refer to the consultative and diagnostic department by their managers and, hence, are losing the gatekeeping incentive. There was also a public demand to allow access to the list of services provided by narrow specialists without GP referral such as emergency cases and traumas (including ophthalmologists and otolaryngologists), emergency dental care, dermatologists, midwives and gynaecologists and psychologists (in attributed facilities), oncologists and haematologists, in diseases of dynamic management, youth health centres, repetitive narrow specialists in the context of the same case and in care provided by mobile units (41).

**Patient-centred environment in PHC**

PHC facilities were reorganized to create a more patient-centred environment. For example, registration desks were expanded and became patient support services desks equipped with radio communication. Patient support services provide guidance on services, the social health insurance system, care pathways and patient rights and resolve other questions. They are guided by the value of here and now in resolving issues (42).

An appointment system was introduced to resolve the longstanding issue of lines. People can make an appointment online using the eGov mobile app, central portal for all public-provided services, call or make an appointment in person at the registration desk or request another appointment when in contact with the members of PHC teams.

Nurses help to regulate the patient flows on every floor of the facility to send them to either GPs or nurses, monitor how warranted referrals to narrow specialists are, monitor laboratory testing and resolve issues within their competence. The waiting time to consult a GP was reduced by 80–86% (42).

**4. Engaging the community in decision-making in improving PHC and promoting health**

The numbers of NGOs and associations related to health and health care have been increasing since the early 2000s. One example is the Diabetes Association of the Republic of Kazakhstan. In 2007, the number of NGOs in the health sector increased to 140. The government has supported NGOs by allocating public funds, for example, for initiatives related to the prevention of socially significant diseases and rehabilitation. At the end of 2020, there were 234 health-related NGOs (43). A public council is working with the Ministry of Healthcare to provide citizen review for the drafts of legislation: by the end of 2020 they reviewed 918 legislative drafts. NGO representatives are included in the Formulary Commission and tender commission overviewing the purchasing of medicine and medical devices.

In April 2020, a project called MIOMOS developed and implemented a mechanism for public monitoring and gathering feedback from the population in health care organizations in Kazakhstan. It was piloted in seven regions and 17 health care facilities in Kazakhstan. This project was
supported by the World Bank, organized by the Ministry of Healthcare and implemented by the National Association on Primary Health Care and 17 PHC facilities throughout the country. The project enabled health care professionals to engage regularly with community members to discuss their satisfaction with the PHC services, expressed by community health needs and the issues that need to be solved. Focus groups and round-table discussions are implemented with the population, health care professionals, NGOs and public committees. For example, areas for improvement related to governance, infrastructure, raising awareness and coverage issues have been identified through this process. The representative responsible for the project PHC staff also reports back on the implemented solutions.

Other feedback mechanisms include patient support services through internal audit departments. A regulation introduced in the later stages of the transformation stipulates that patient complaints need to be resolved within five calendar days. Surveys have also been introduced for assessing patient satisfaction.
Health system levers

Governance

At the national level, there has been a longstanding commitment to strengthen PHC. The highest level (presidential) support was strong for improving population health and well-being, focusing on PHC and retaining the vision of the Declaration of Alma-Ata and Declaration of Astana. The Ministry of Healthcare has developed PHC policy to create a universal policy framework for PHC across the entire country. The Ministry of Healthcare created health care strategies and a corresponding road map aligned with the PHC transformation phases. With time, a role for the focal point specializing in PHC became defined, situated within the Department of Health Care Organization. Currently, the Ministry of Healthcare stands as the authority to envision the strategy of PHC development, shape the legislative framework to realize the vision and create road maps for practically implementing the legislation. PHC lies within the Department of Health Care Organization. The Republican Centre for Health Development was established and carried out functions of policy analysis and monitoring of the overall health system, including PHC. These functions have remained nascent and can play an important role in the next phases of the reform to even out implementation progress (17).

Regional and local governments play an important role in implementing PHC policies and tailoring them to the regional and local contexts within the universal national policy framework. They are mandated to realize the vision for PHC in practice in oblasts (regions) and cities. In the 1990s, as part of the Committee of Health, 14 oblast and city health departments ran most health care facilities, including PHC facilities. Their power and role were increased through legislation supporting decentralization, specifically the Law on Local Self-government (1995) (8). In phase 2 of the transformation starting in the 2000s, oblast administrations obtained authority over managing health care facilities and financial resources and obtained further responsibilities for licensing the health care facilities. In light of the Declaration of Astana, there was wider understanding of multistakeholder engagement, with an increased role for local government as an implementing agent. The implementation of PHC reforms has been most successful in these areas, where national-level guidelines and legislation received high commitment and mobilization of resources from regional- and local-level authorities and active participation and change management from committed facility managers partnering with professional associations for capacity building.

Over the time period, ownership forms have been diversified and facility autonomy significantly expanded within the public sector. The proportion of private PHC facilities has increased in the public–private mix. More importantly, there was a transition to more autonomous forms of operating public PHC facilities such as state enterprises. The Law on Local Self-government (1995) (8) enabled some health care organizations to become autonomous, legally separate entities and to manage their own budget. In phase 2 of the transformation, some enterprises, while still state-owned and funded, obtained some authority over funds and could charge fees for some services (17).
New mechanisms for advocating for PHC professionals are now in place. In the 1990s, there were few professional associations of physicians, and these bodies lacked an influential role, in contrast to the bigger role played by the Health Workers Union (8). During the mid-2000s, the number of NGOs and associations across the country increased. In that context, the Kazakhstan Association of Family Physicians became the largest and most active professional association for health care workers (17). The Association of Nurses was also created. In 2018 the National Association on Primary Health Care was formed to support the implementation of PHC transformation in the country.

**Human resources**

**Workforce volume**

In the past two decades, Kazakhstan has made significant investments to increase the number of GPs, especially in rural and remote areas. Similar to other countries in this part of the European Region, in the transition period to a market economy and economic crisis, there has been a significant loss of health workforce, especially in PHC. The wages in the health care sector were low, and there were cases of default and inability to pay wages for longer than six months. The prestige of PHC has been declining because of the lack of funding and dilapidating infrastructure. Personnel were ageing, transitioning from PHC to better-paying specialized health care services or leaving the health care sector as a whole (17). The gap was wider in rural areas, since the rural areas experienced general outmigration. District internists and paediatricians had to rely on multiple jobs and monetary gifts from patients.

Starting in 2005, the commitment to strengthen human capital in health care gained momentum back. The government invested in staff replacement efforts in which district internists and paediatricians, narrow specialists, received direct transfers for retraining to work as GPs in PHC (21). By 2010, 5000 doctors had been retrained to become GPs. Starting in 2017, general practice is obligatory for all medical school graduates (those who finish five years of bachelor training and two years of internship), which has significantly contributed to the PHC workforce (Fig. 6).

There has also been longstanding intensified investment to cover the workforce gap in rural and remote areas. As oblast administrations gained more autonomy over PHC facility management, they provided social packages for new specialists in rural areas, such as accommodation, transport and land (7). These efforts are continuing: health care workers receive a significant one-time payment to work in rural and remote areas, and salaries are 25% higher than in cities. In regions with highly committed mayors and health authorities, health care workers receive significant subsidies for purchasing or constructing housing. Those who receive an educational scholarship for rural areas have an obligation to work in regions for three years, with the programme implemented through interministerial collaboration between the Ministry of Healthcare, Ministry of Education and Ministry of Finance. In 2015, a government programme was implemented, To the Villages with a Diploma, in which those willing to work in rural and remote areas received housing subsidies and one-time payments. There are still issues with retaining health care workers in rural and remote areas, especially young professionals. The reasons are not necessarily financial:
often family members (spouses and children) of health care workers in rural and remote areas lack infrastructure for their development: job opportunities, kindergartens and extracurricular activities. Another aspect, especially relevant for young professionals, is the lack of career and continuing professional development.

The ratio of nurses per 100 000 population stabilized from 2004 (7). The latest publicly available data for 2021 on staffing availability shows 68% for GPs and 81% for nurses (44).

Changes in human resources management, which started in 2011, have also contributed to analysing and improving the working conditions of PHC workers. Between 2011 and 2015, broader human resources for health reforms were aimed at increasing municipal expenditure on training health care professionals, developing professional development programmes and ensuring the social protection of health care workers. In 2012, the Human Resources for Health Observatory opened to become a think-tank for human resources for health in Kazakhstan. The Observatory works to identify human resources for health shortages, competencies for health care specialists, areas for improving the management system of health organizations and data collection on human resources for health. Between 2016 and 2019, a national policy of human resources for health management was defined and approved. In the context of this policy, the managers of health care organizations received training and renewed human resources policies, and differentiated remuneration methods were developed. A national information system for human resources for health accounting was also created. Training plans were developed using forecasting methods for future shortages or excess health care professionals, and new professional standards were being developed.

Competencies of GPs: there have been stepwise changes to reorient training from disease-centred clinical training to family medicine, with ongoing reforms. Currently, to become a GP, medical students need to graduate from five years in bachelors at a medical university (admission after high school) and two years of mandatory internship in general practice. There is also a two-year residency, with graduates becoming family doctors. Departments of family medicine are considered to be for graduate interns, even though some credit hours are offered in different departments. PHC facility-based employees.
practical clinical bases have to receive accreditation and then can act as platforms for clinical practice. Departments of evidence-informed general practice are considered to be for graduates at the bachelor level. At the residency level, only three classes have graduated so far, so assessing the impact is difficult now. Programmes are developed at the Republican Educational-Methodological Centre and Family Medicine Committee, and medical universities have up to 10% flexibility in changing the programmes.

Improving the skills of the family medicine practitioners was the first step in reorienting towards a family medicine–based PHC model of care in Kazakhstan. The first initiatives to train GPs started in 1989 in the USSR. At the time, it was considered that GPs’ competencies were merely a combination of clinical skills in internal medicine, paediatrics, otolaryngology and others, without giving attention to non-clinical aspects of the GP work. This approach was echoed in the 6–8 months of training, which consisted of short cycles of narrow specialties at specialized hospitals (21). In the early 1990s, the training of physicians according to existing regulations was not geared towards general practice. Physicians were trained for six years, with a small proportion specializing in internal medicine (8). Previous reports show that there was an oversupply of physicians who had specialized training – reflecting a general excess employment in the government sector during this period (8).

Between 1992 and 1997, laws to introduce family doctors or GPs were put in place. In 1995, family practice was introduced as a four-month course at postgraduate medical universities, focusing on clinical skills (8). Corresponding in time with the opening of GP ambulatory pilots in Zhezkazgan and Semey, the first Department of Family Medicine was formed at the Almaty State Institute of Postgraduate Medical Education based on the Department of Therapy (21). Beginning in 1997, changes were made to convert the sixth year of training into general practice with a one-year residency (internship). The first departments responsible for retraining district internists and paediatricians as GPs were established at the Almaty State Institute and the Kazakh National Medical University. By 1998, family medicine departments were launched in all six medical universities in Kazakhstan. In 1998, Kazakhstan’s national Association of Family Doctors was formally launched, marking an important step in the professionalization of the family medicine specialty.

When family medicine was first introduced in 1999, the competencies for GPs or family doctors were not well defined. The approach to training in this initial period was still predominantly biomedical (such as clinical competencies for prevention and curative skills), with family medicine generally understood as the sum of different specialties in one. The non-clinical skills that had proven to be essential in western European models of family medicine training were lacking. Rules for continuing medical education were added: GPs or family doctors were required to provide documentation for 72 hours of continuing medical education and pass professional examinations to confirm their qualifications every year during the first three years of practice and every five years thereafter (13). During this early stage of the transformation, this requirement was unfortunately not enforced because of budget cuts. Moreover, in this early phase, the mass retraining of PHC doctors into family doctors was not sufficiently supported by the creation of jobs, resulting in limited opportunities for physicians to apply their new skills (45).
Between 1998 and 1999, all medical universities with family medicine departments had initiatives in training-the-trainer in family medicine. Residency programmes in family medicine (two years of postgraduate training) were introduced in 1997, with 12 students in the first cohort. These initiatives were put on hold afterwards, reflecting the wider policy environment in which PHC transformation was paused.

Starting in 2007, family medicine was recognized as a separate discipline in GP training (46). At the time, faculties of internal medicine preparing internists and paediatricians were reorganized into GP practice faculties to prepare GPs in two-year intern programmes (46). The programme was still clinical in nature and compiled training in internal medicine, paediatrics, obstetrics and gynaecology. Standards were still based on the model of countries in this part of the European Region (47).

The system for continuing medical education became more flexible, enabling credit hours for the mandatory training course to accumulate (every five years) (7). Also, the organization of medical education was transferred from the Ministry of Education and Science to the Ministry of Healthcare in 2003 (17), after which new standards for medical training were enacted. There was also an introduction of attestation for faculty at medical universities and independent quality control of the medical education (47). In 2019, the Kazakhstan Medical Council was created to coordinate medical universities’ efforts to improve medical education.

Between 2011 and 2015, recognition grew that family doctors needed a more holistic approach and patient-centred communication skills. Therefore, more attention was given to non-clinical competencies, such as effective communication with patients and their families, engaging them in decision-making related to their care plans and collaborating with other health care professionals. GPs had an expanded list of competencies, including: effective team communication skills, sharing tasks and responsibilities within the team, accepting and supporting the autonomous and expanded role of nurses and initiating and managing shared care plans for patients with complex needs. Another important competency was the ability to conduct holistic needs assessment, in contrast to only biomedical assessment of needs. This new skill set followed recognition of the growing importance for the role of social workers and psychologists to address the health needs of individuals and the population. A government standard of 2017 for the first time attempted to include GP competencies. Internships were oriented towards preparing GPs in two years, with the reasoning being workforce loss because of the burnout and transition into narrow specialists (46).

The next reforms in medical education started in 2019, in which universities started partnering with international experts and universities. The understanding of family medicine principles in general practice grew and understanding that obtaining GPs with family medicine competencies requires GPs not only at the level of undergraduate education but high-quality postgraduate training programmes in residency based on a competency-based approach (46). Medical universities (Asfendiyarov Kazakh National Medical University, Astana Medical University, Qaraghandy Medical University and Nazarbayev University) gave priority to strengthening their residency programmes by engaging experts from universities across western Europe. Most recently, Nazarbayev University increased training in family
medicine to three years. The issue of recognizing family medicine as a separate field in research studies and PhD programmes remains.

**Training of PHC nurses**

Becoming a PHC nurse requires a multitier system of training. PHC nurses can be trained in vocational school from 10 months to 2 years and 10 months. The bachelor degree in nursing is taught in two tiers: applied bachelor (training lasts 3.5 years) and academic bachelor (four years). Those with an applied bachelor can conduct independent nursing consultation and can take on tasks shifted from GPs. Those with an academic bachelor can conduct managerial functions and train other nurses. Those who continue after academic bachelor can receive master in nursing for two years and PhD in another three years.

In the early 2000s, there was a lack of nursing educators and the content of training was outdated. The entry requirement for nursing school was nine years of schooling (primary and secondary school). The training requirements by certification type varied from nurse assistant certificate (one year of training), nursing diploma (two years), nursing specialized diploma (three years), midwife (three years) and feldsher (up to four years) (8). A pilot institution Emily was established in 1994 with the collaboration of medical colleges in Arizona, USA. This was a first initiative to train nurses in a multitier programme, including nurses with a bachelor degree in nursing (47).

With time, the educational requirements for nurses also became more defined (15). Becoming a general practice nurse required basic secondary medical education with general practice specialization. However, the curricula content was still outdated (17). Starting in 2007, applied bachelor-level training in nursing was introduced in seven medical universities in Kazakhstan. Feldshers and midwives received additional training in diagnosis and prescribing (17).

In phase 3 of the PHC transformation, one goal was to increase the role of nurses as independent health care professionals and upgrade their training to the postgraduate level. Nursing education was further revamped in 2010 with the introduction of a multitier system: applied and academic. The applied bachelor is practice-oriented, with half the credit hours dedicated to practice in simulation centres and medical facilities and the other half dedicated to theoretical training and independent work. The curriculum includes more training on improving communication skills. The methods applied aim to engage students and enhance their critical thinking. The applied educational programme is based on practice-oriented training, and clinical practice is therefore 50% of the total volume and takes place in simulation centres and clinical sites with mentors. A further 30% is theoretical training and 20% for independent work. The teaching methods used, such as: active and interactive teaching methods, develop thinking, form communication skills and develop independent work skills and motivation for learning.

In 2017, the training started including classes on evidence-informed nursing, at-home nursing care, socially significant diseases, nursing care for chronic diseases, the eHealth system and the health insurance system (47). In the same year, specializations started including nursing in PHC, leadership in nursing, nursing in internal therapy, palliative care and specialized nursing
care. However, it is argued that the number of credit hours to study management is insufficient (47).

**Training of psychologists and social workers**

Phase 4 of the reform specified education and work experience requirements and individual competencies aligned with the job responsibilities for different types of social workers and psychologists across the health system (30). Psychologists are required to have at least a bachelor degree in psychology and social workers a bachelor degree in sociology, social pedagogy, applied bachelor in nursing or other social science discipline (27). Currently, 350 general social workers are studying for their bachelor.

Almost 20 000 PHC professionals took short training courses at the National Applied Science Centre for Mental Health, and all medical students take courses on mental health. Mental health education was introduced at all levels of medical education: mental health course in the bachelor and a psychiatry course in the internship.

In some facilities, to avoid the trap of co-location versus collaboration, PHC team members in some facilities were trained by Canadian trainers through multidisciplinary training courses using participatory learning methods (27). In selected other facilities, this work has been conducted by the National Association on Primary Health Care, an implementation change agent and professional organization that conducts training. Social risk assessment, working with vulnerable populations and creating social passports were also covered in on-the-job training. It covered such topics as holistic assessment of health needs, PHC leadership, organizational culture and working in teams, integrative approaches and person-centred communication (27). The interdisciplinary training along with PHC team members such as GPs supports psychologists and social workers new to the health system in navigating working in the PHC team and the organization of the PHC services. Multidisciplinary and participatory approaches in training enabled more efficient teamwork and collaboration between PHC team members. After training, nurses also became more attentive to individual psychosocial health needs and accordingly provided tailored individual services. When, for example, a behavioural risk factor such as smoking exacerbated existing noncommunicable diseases, nurses engage psychologists and social workers to jointly design and implement care planning.

Kazakhstan has no national-level guidelines on integrating social workers into the work of PHC teams. The integration usually happens informally, with social workers having channels of communication with other social workers working in health care. It is currently up to social workers themselves to self-advocate in their work with PHC teams, since the health care facility managers and human resources leads have not yet been trained in integrating new members to PHC teams. In some facilities, social workers do not work to their full potential, since they are directed by managers to provide auxiliary support, such as helping patients navigate the facility, explain the entitlements in social health insurance or navigate their further pathway in the health system in case of referrals. More work could be done to direct social workers’ skill set towards social assessment and multisectoral collaboration in addressing the socioeconomic root causes of diseases.

The Social Workers Alliance, a national association created in 2020 that has nine branches across the country, conducts significant advocacy work for
social workers. They advocate for strengthening the education for social work, developing professional standards for social workers and perform other work on educational methods and standards. Active members of the Social Workers Alliance acted as trainers and participated in pilot projects for the universal progressive patronage model, supported by UNICEF and the Ministry of Labour and Social Protection. Currently, they support the sustainability of this initiative by conducting courses in social case management, intersectoral collaboration, social work methods and deep needs assessment training.

**Health financing**

- Kazakhstan increased financing of PHC showing increasing political commitment towards strengthening and investing in PHC
- Centralizing the pooling funds at a national level with was an important step in reducing inequities between the regions
- Introduction of per-capita payment mechanism with pay-for-performance component was important to incentivize PHC professionals to provide full range of services without unnecessary referrals

Kazakhstan has transformed its health financing arrangements since the mid-1990s (2,26). A mixed social insurance model was introduced combining payroll tax and retaining a large general tax component. After many precursors, the health financing arrangements took their present form in 2015 as a socially oriented health insurance system. In 2015, the Law on Mandatory Social Health Insurance was enacted, followed by the creation of the non-profit joint-stock company Social Health Insurance Fund, which is now a single payer contracting public and private health care providers on an equal basis. This implies that insured people can choose to be empanelled at private providers subcontracted by the Social Health Insurance Fund and receive services free of user charges. The Centre for Citizens collects contributions.

From the perspective of PHC transformation, the following aspects of health financing reform were particularly relevant: (1) progressively giving priority to PHC in health budgets; (2) pooling financing at the regional and then national level for greater equity; (3) expanding the benefit package; and (4) new incentives.

**Progressively giving priority to PHC in health budgets**

PHC has been increasingly given priority in health budgets over the years when using the national definition of PHC to obtain a time trend. This definition is different from the global definition since it includes consultative and diagnostic services provided by narrow specialists and emergency medical services for conditions amenable to PHC. In 2022, the financing for PHC reached 56% of the public health expenditure, growing from 40% in 2007 (17). Financing for PHC is planned to further increase to 60% of current health expenditure by 2025. This is a very important factor showing continuing high-level political commitment and investment behind successful transformation.

Despite these significant increases, international comparisons place Kazakhstan on the lower end of the spectrum in the proportion of public
Expenditure on health allocated to PHC among upper-middle-income countries in the WHO European Region. Using the global definition of expenditure on PHC, Kazakhstan allocated 40% of its health budget to PHC in 2020. PHC expenditure as a proportion of health budget ranged from 31% in the Netherlands to 62% in Malta (Fig. 7).

Fig. 7. PHC spending a share of current spending on health in the European Region, 2020

Notes: HIC: high-income countries; UMIC: upper-middle-income countries; LMIC: lower-middle-income countries, in accordance with the World Bank income groups for 2020.
Source: WHO Global Health Expenditure Database (GHED), 2020

Although Kazakhstan allocates a greater share of the budget to PHC, its overall public expenditure on health is below the WHO European Region average. Government expenditure on health in Kazakhstan varied between 1.7% of GDP in 2019 to 2.7% in 2009 and constituting 2.5% of GDP in 2020 because of COVID-19-related financing. This is at the lower end of the WHO European Region where government health expenditure was 5% of GDP on average in 2019, with 3.4% of GDP on average among upper-middle-income countries (Fig. 8).

Fig. 8. Public spending on health as a share of government spending in the European Region, 2020

Notes: HIC: high-income countries; UMIC: upper-middle-income countries; LMIC: lower-middle-income countries, in accordance with the World Bank income groups for 2020. The red line indicates public spending on health at 13% of the government budget.
Source: WHO Global Health Expenditure Database (GHED), 2020

Equalizing regional financing through pooling

Before 2014, PHC financing was characterized by regional inequalities. Between 1997 to 2013, PHC financing came from the local budgets and varied according to the level of socioeconomic development of the region.
Each oblast developed its own per capita rate, which varied significantly from 169 to 486 tenge per inhabitant per month.

Since the per capita rate was calculated by dividing the total funds provided by the budget by the number of empanelled people in the region, it did not fully consider the real costs of PHC facilities. This led to an imbalance in per capita financing between oblasts and inequality in access to PHC services. Many PHC facilities, especially in less economically advanced regions with the greatest needs, experienced a shortage of funds, which was exacerbated by personnel turnover and low salaries of health care workers compared to the inpatient sector. Between 2001 and 2008, inequity between regions declined, with the per capita difference decreasing from 4.2-fold to 2.1-fold (7). The 2005–2010 strategy envisaged pooling funds at the regional level. The new health care development strategy proposed the concept of a unified national health system in 2011. As one of the steps, budgets were pooled at the national level, including PHC and other outpatient services.

This pooling enabled financing mechanisms to be further improved. Tariffs in the regions were equalized over time using additional allocations from the national budget. This enabled a complex per capita rate norm to be implemented in which the base complex per capita rate norm was the same for all health care organizations in the country, with corrective coefficients for different regions. Corrective coefficients include sex and age; population density and heating season duration; environmental coefficients in six oblasts; additional allocations for rural areas; and a correction coefficient in five remote oblasts to ensure sustainable functioning. The budget for stimulating the PHC workforce doubled, and stimulus payments began to be automatically calculated based on eight performance indicators at the level of the PHC facility and health care district.

How was the benefit package expanded to support the new services delivery vision?

PHC is included in both the state-guaranteed benefits package and the social health insurance package. All citizens of Kazakhstan, qandas (ethnic Kazakhs who previously have not had Kazakhstani citizenship and have relocated to Kazakhstan) and permanent residents are entitled to the guaranteed benefits package, covered by the state. After 2018, the Social Health Insurance Fund became the single payer coordinating payments for both state-guaranteed benefits package and social health insurance package, subcontracting both public and private providers on an equal basis and with identical requirements. Entitlements from the social health insurance package differ based on contribution status to the Social Health Insurance Fund. Those who are employed or self-employed and self-payers not in the social categories contribute to the Social Health Insurance Fund, whereas the state contributes to the Social Health Insurance Fund for those in 11 social categories. All these groups, as well as military personnel, employees of special government agencies and law enforcement officers, are entitled to both the social health insurance package and the state-guaranteed benefits package, which include a full range of PHC services. Those who do not contribute to the social health insurance package and are not in social categories are only entitled to the state-guaranteed benefits package. The state-guaranteed benefits package includes emergency medical services, PHC services, specialized outpatient services, other specialized services including day hospital or inpatient services, medicines, palliative care, transplantation, treatment abroad and TB services.
In terms of PHC, the state-guaranteed benefits package entitles both contributors and non-contributors to GP consultation, curative services, disease prevention, rehabilitation, immunization, healthy lifestyle consultation, active patronage and dynamic monitoring of patients with chronic diseases (Fig. 9). Contributors to the Social Health Insurance Fund additionally get prevention and early detection of diseases and disease diagnostics in PHC. Contributors and non-contributors alike are entitled to medicines coverage, PHC vaccinations in accordance with a list and medicines and medical devices included in the list for those with socially concerning diseases in a predefined list. Co-payments or full out-of-pocket payments are required in non-emergency cases when health services are sought in PHC facilities by people not empanelled there and when private services are sought at facilities not subcontracted by the Social Health Insurance Fund. However, people who are uninsured or non-contributors to the Social Health Insurance Fund receive preventive services from GPs and PHC nurses but have to pay out of pocket if they are referred to narrow specialists or for diagnostic tests.

Most PHC expenditure is allocated to general outpatient care and medicines and medicinal products, similar to other countries in the WHO European Region. Medicines coverage in PHC has been progressively given priority since it was introduced in 1993, dramatically increasing from 46 conditions in 2018 to 175 conditions in 2022. Coverage free of user charges has been gradually expanded to a wider population. Since 2012, everyone purchasing medicines for seven types of noncommunicable diseases that had been 50% subsidized started to receive these free of user charges. The list was also updated in 2018 to only include medicines with proven efficacy in accordance with international recommendations. In the same year, pooling of financing at the national level enabled outpatient medicines to be purchased through a single distributor at the volume requested by each PHC organization, with the Social Health Insurance Fund as the payer. The medicines that are free of user charges are distributed at the pharmacies within the zone of empanelment.

As part of implementing the 2011 health care strategy, social work in PHC received additional financial allocations. By 2015, per capita payment and
additional performance-based payments were allocated for psychologist and social worker services, including at the youth health centres.

Psychiatric and addiction care services, which were integrated into the PHC level, are covered by the mental health centres. They are paid additionally per patient with a mental disorder through a co-fulfilment agreement. The same mechanism applies to TB services, where regional TB centres cover costs through a co-fulfilment agreement per patient with TB.

Other services are also paid per capita but additionally outside the basic per capita payment to ensure increased allocation of financing with added services. Those include fourth category emergency services (non-life-threatening), at-home inpatient services, third-stage palliative care and school health care. The new tariff for school health care was introduced per capita: per schoolchild each month, with the number of schoolchildren defined depending on the number of schools in the PHC facility empanelment area.

Emergency medical services of the fourth category for non-life-threatening conditions that were transferred to the PHC level are paid per capita for one empanelled person per month. If these services are outsourced, PHC covers the costs per call.

**New purchasing mechanisms and incentives supporting a new service delivery model**

With increasing reorientation of the health system to a PHC approach, a per capita mechanism replaced the previously used traditional line-item budget. The goals were to improve the alignment of facility funding to the size and complexity of the empanelled population for each PHC facility and to initiate competition between providers by piloting a free choice of providers. Kazakhstan had inherited a Soviet approach of line-item budgeting. This approach led to: (1) unequal distribution of resources, since the assigned budget often was not aligned with the changes in the size of the population served and (2) inefficient use of resources, since budgets could not be transferred between lines. Budget management required approval from the Ministry of Finance and national health authorities. Moreover, input-oriented line-item budgeting led to skewed investment in the promotion of inputs needed, which led to the expansion of specialized outpatient services and hospital beds.

After capitation-based financing was introduced, corrective coefficients were gradually introduced to account for demographic, geographical and ecological differences to address previously existing inequities between regions based on their needs rather than their capacity. Currently, complex per capita financing is implemented in PHC. There is a basic per capita component, universal for the whole country, and a pay-for-performance component based on a set of performance indicators. Introducing a pay-for-performance component in addition to the basic capitation in 2011 was a significant step to incentivize PHC professionals to provide a full cycle of services in PHC without unnecessary referrals to specialized levels. The performance indicators and methods of pay for performance were optimized in 2015–2019.

As the services package expanded, a pay-for-performance component was
introduced to incentivize the uptake of these changes. A pay-for-performance component with indicators was introduced for psychologists and social workers’ services in PHC and for the services at the healthy lifestyle and youth health centres. As disease management programmes and universal progressive patronage were introduced, outcome indicators were also included in pay for performance to incentivize the implementation of the programme. There is also a financial incentive for increasing the number of nurses to three per GP to facilitate the uptake of this reform across the regions and retain personnel.

Disease management programmes and the universal progressive patronage model were included starting in 2019. Health care workers had a pay-for-performance incentive (20% wage bonus). Performance indicators were set to reach at least 10% of patients with chronic noncommunicable diseases (arterial hypertension, chronic heart failure and diabetes) to become engaged in the disease management programmes. For universal progressive patronage, the performance indicator was set at 10% of pregnant women, newborns and their mothers and children younger than five years covered in the patronage.

To facilitate payment for services being integrated into PHC from specialized care, a co-fulfilment mechanism was introduced. PHC facilities contract with specialized facilities to provide mental health, addiction care and TB services, further integrating these services into PHC.

Digitalization

Expanding the digitalization of PHC with a focus on applications to support empanelment processes, PHC financing mechanisms, care pathways and internal processes within health care facilities

Many desktop applications and databases supporting electronic data collection for PHC were developed in Kazakhstan in the early 2000s, such as outpatient medicines provision and disease registries. Since they were limited by the technology available at the time, these solutions were passive tools for reporting, mostly complementing and even duplicating paper-based processes and data flows, which usually created an additional burden for PHC workers.

The situation changed drastically in 2009 when the Ministry of Healthcare initiated the nationwide deployment of several centralized web applications, driving a vast reform of health care delivery and financing. Newly implemented interactive tools enabled the alignment of approaches, processes and incentives for uniformly developing and transforming PHC across the country. These digital tools also formed a solid foundation for advancing the PHC data infrastructure and established a basic level of interoperability for the computer systems and health care providers at different levels of services delivery. Among the centralized applications implemented, the following have a key role for PHC.

- A registry of the empanelled population (practice panels) was initially introduced as a national master patient index containing essential demographic information and an indication of a patient’s PHC facility and doctor for per capita payments. The system has been enhanced over time
by building additional modules containing key data on patient’s health status, dispensation, immunization and other factors. PHC workers contributed significantly to transferring paper-based data into an electronic portal.

- A portal on the incentive component of PHC per capita financing is used for monitoring PHC quality and effectiveness indicators and assigning the non-mandatory portion of payments to well-performing providers.

- Several registries of diseases or health status have been created, such as registries on cancer, TB, diabetes and maternal health.

- An electronic portal for planned hospitalization is in place, providing a unified tool that supports the care coordination role of PHC.

- A medicines provision portal supports electronic prescriptions and dispensing processes for outpatient care.

In 2013, an eHealth Development Strategy for 2013–2020 was adopted. The policy shifts the continued digitalization of health care in Kazakhstan to focusing on decentralizing and demonopolizing development. It also emphasizes the closer involvement of health care providers and private industry in selecting and implementing digital interventions at the subnational level. In the scope of this strategy, the Ministry of Healthcare was able to engage local authorities (and their respective budgets) in rapidly developing information and communication technology infrastructure and human capacity to streamline the deployment of modern hospital (medical) information systems to all PHC facilities by 2018. These locally or regionally implemented systems supported a gradual digitalization of internal clinical and administrative processes and enabled patient engagement and empowerment through mobile applications.

The COVID-19 pandemic forced the health system to intensify the pace of adopting new technologies, including the wide use of telemedicine, digital monitoring and control of vaccination status, artificial intelligence, chatbots providing information and psychological support and many other applications. Thus, the modality of PHC provision (point of care) further diversified from health care facilities to wherever the patient is (see the subsection on selecting and planning services).

People can access their personal health records via mobile applications linked to the medical information system used by their PHC provider or through the eGovernment portal, which has both web and mobile applications. These tools provide records on vaccination status against COVID-19, their PHC provider and health care services provided, including laboratory results. In addition, digital services such as electronic appointments, empanelment to the PHC provider and requests for certificates (such as leave of absence certificates) and others are also available.

Twenty computer systems are used in PHC, seven of which comprise centralized national applications: Resource Management System, Registry of Empanelled Population, Unified Payment System, Electronic Registry of Dispensary Patients, Bureau of Hospitalization, Electronic Inpatient Registry and an additional component to the PHC tariff (44). Integration of other
computer systems is a priority for the upcoming years. Starting in 2020, all PHC providers contracted by the Social Health Insurance Fund were required to use an electronic information system.

The outlook for the continued digitalization of PHC in Kazakhstan appears promising. The government’s plans include the establishment of a health data ecosystem and retrieving needed data from various sources following a standardized information model to inform clinical decision-making for disease prevention and treatment to support the continuity of care through enhanced interoperability. Further development of telehealth services will be supported at the national level in line with the principles of universal health coverage.
Early results and next steps

How transformation has affected the health system and health outcomes

How the transformation has affected health outputs and outcomes has not been evaluated in detail. The implementation process varies greatly between and within regions. Nevertheless, available indicators offer some insights into the direction of trends over time. For example, positive trends can be observed related to changes in PHC service utilization in recent years. Of the total number of visits to doctors, the proportion of visits to GPs has increased, and visits to narrow specialists decreased between 2018 and 2020 (44) (Fig. 10).

![Fig. 10. Proportions of visits to GPs and narrow specialists, 2018–2020 (%)](source:Nadyrov et al. (44).

In 2017, early results included decreasing use of narrow specialists’ services by 46% and testing by 22%. In GPs’ empanelled population, the number of emergency medical calls decreased by 35% (48). All health care districts had GPs and 97% nurses (although it is still unclear how many GPs had three nurses in their team) (48).

The implementation of multidisciplinary teams has also changed positively. For example, preliminary results from various PHC practices revealed better outcomes among those in which the implementation of disease management programmes was delegated to nurses working with a multidisciplinary approach, engaging social workers, psychologists and family doctors when needed. In addition, a multidisciplinary approach to disease management programmes enables more effective and sustainable communication between patients and their PHC team, increasing patients’ engagement in self-management.

In 2020, a survey of the population’s satisfaction with the quality of PHC services reported the following areas as strengths: short waiting times for consultations; attentive attitude of physicians to patients; detailed information on diseases and explanations for managing needs; coordination of important issues with patients; and physicians considering the opinion of patients and their family members (45). Another patient satisfaction survey (2021, 437 respondents) shows that 63% are satisfied with their PHC organization, 86% are at least partly satisfied with the quality of services from their GP, 50% think they received all needed information during their
consultation and 84% were at least partly satisfied by the overall quality of services at their PHC organization (44).

In terms of health outcomes, early results show that the hospitalization rate for those in disease management programmes declined from 14.5% (2017) to 2.6% (2019) and 2.3% (2020) (27). The management of noncommunicable diseases is also positive, reflected in the continual decrease in the probability of dying from noncommunicable diseases over time (Fig. 11). Between 2000 and 2019, Kazakhstan achieved a 46% decrease – a greater pace of decline relative to the 31% decrease among both WHO European Member States as a whole and the countries in the Commonwealth of Independent States (1).

Fig. 11. Probability of dying from cardiovascular disease, cancer, diabetes or chronic respiratory diseases, 30–70 years old, Kazakhstan, WHO European Region and Commonwealth of Independent States, 2000–2019

Source: European Health Information Gateway [online database] (1).

Next steps

PHC continues to be at the top of the health system development agenda in Kazakhstan. The government has increasingly recognized the importance of developing multidisciplinary team-based PHC practice, mainly through learning of the progress in implementing reform in the districts with the best practice PHC centres.

National policy priorities are currently focusing on increasing accessibility to high-quality health care, including PHC, in rural and remote areas of Kazakhstan. The vision includes developing both physical infrastructure and multiplatform services delivery, particularly mobile units and telemedicine. The rural health infrastructure project aims to build health care and feldsher-obstetric stations in 650 villages covering a population of more than 1 million citizens residents of rural and remote areas. Another focus is to make the organization of PHC more mobile and accessible, and multiplatform services delivery via telemedicine is thus also envisioned to increase. Further integration and synergy between the various digital systems used is also needed.

For sustaining political commitment and getting wider support for implementing multidisciplinary teams-based PHC nationwide, the government has given priority to wider engagement of national
stakeholders. High priority is to demonstrate PHC achievements in the best PHC practices through PHC performance monitoring and management. Data are collected on the PHC responsiveness in the districts with the best PHC practice centres. The next step should be to use, analyse and visualize the data collected for comparison. For example, the Minister of Healthcare has engaged a wide circle of national and regional health managers, academic leaders and professional organizations to visit the WHO Primary Health Care Demonstration Platform in Enbekshikazakh District to discuss further priorities of PHC development and the main causes for unequal progress in PHC development nationwide. This has also become an opportunity for experience sharing and learning.

The Ministry of Healthcare is currently implementing the roadmap approved in 2021, which outlines the plan for developing the health system until 2025. In the context of PHC, it gives priority to (1) increasing the number of PHC facilities in rural areas; (2) increasing coverage with services in remote and rural areas, including with mobile care units; (3) improving physical infrastructure (medical devices) in health care and feldscher-ambulatory units in remote and rural areas; (4) increasing the percentage of health care services provided at the outpatient level of the total volume of health care services provided in the state-guaranteed benefits package and social health insurance package; (5) increasing the coverage of pregnant women with individual and multidisciplinary antenatal care; (6) improving the indicators stimulating the quality of observation of pregnant women at the PHC level; (7) implementing the health passport for married couples; (8) early active detection of pregnancy up to 10 weeks by health care professionals; and (9) increasing the coverage of children younger than one year with proactive surveillance and screening.

**Conclusion**

Being a strong global advocate for strengthening PHC, Kazakhstan has given priority to reorienting its health system to centre on PHC through an intensive transformation, with the ultimate goal of ensuring equitable access to high-quality health services and improving the efficiency of the overall health system. Kazakhstan has chosen a stepwise approach by gradually expanding the package of services for a more holistic approach and selecting pilot districts with model PHC practice centres to act as demonstration sites for other regions. This enabled society – which had previously demonstrated strong preference for specialist-driven services – to gradually accept the benefits of the PHC approach. The gradual approach also enabled political commitment to be built at the national and regional levels to sustain PHC transformation.

Kazakhstan’s path in PHC transformation started similarly to other countries in central and eastern Europe, with the main focus on building family medicine–based PHC. This path presented challenges in the context of traditionally disease-centred services delivery systems, with the population preferring specialized services. To address early bottlenecks, expanding the low resolutive capacity of family doctors was essential, especially in the area of noncommunicable diseases and improving non-clinical skills and competencies, which are essential for strong PHC performance. From a system perspective, early challenges included misalignment between various health system levers (such as the health workforce and financing) necessary to sustain the piloted family medicine–based PHC model of care.
The highlight of this report is the more recent move from mono-profile family medicine–based PHC towards an approach based on multidisciplinary teams. Kazakhstan significantly expanded its PHC teams by increasing the number of nurses and adding mental health and social workers. Learning from challenges in the early reform phase, they ensured alignment of system levers such as financing and health workforce policies. The need to address the root causes of diseases, often driven by psychosocial determinants, prompted the move towards multidisciplinary team–based PHC. This enabled services delivery to move from a disease focus and biomedical approach to better address the determinants of ill health by using both biomedical and psychosocial approach. This is a unique case for all countries of the WHO European Region and beyond. It demonstrates in practice how key recommendations of the Declaration of Astana and PHC for universal health coverage can be implemented.

The pace and success of implementing the PHC transformation varied across regions and across PHC facilities within regions. PHC performance data collected from selected PHC practices reveals uneven performance across PHC facilities. However, there is still no comprehensive systemic approach to PHC performance monitoring and management linked to implementation mechanisms and identification of gaps.

Several factors have led to more successful implementation. First, implementation was most successful in the regions where regional authorities demonstrated greater commitment to implement health reform in accordance with defined national priorities for PHC strengthening. Second, the role of facility managers was critically important in transformation in the context of relatively high autonomy most likely linked to values and belief in the PHC approach and experience in change management. An additional qualitative research study is ongoing to explore the importance of political economy factors in the process of implementation.

These observations provide important insights into the next phase of transformation for Kazakhstan: investing in PHC performance monitoring and management with the objective of evening out implementation gaps, continuing to build political support at the local level and investing in local leadership and organizational development for the new model of care.

Kazakhstan’s experience in PHC transformation towards multidisciplinary PHC teams with more holistic scope of services is getting increasing attention from countries that still struggle to move away from a biomedical approach in PHC. It has become the first country in the WHO European Region to host the WHO Primary Health Care Demonstration Platform. Through this Platform, delegations from other countries embarking on their own PHC transformation visit and engage in intensive experience exchange over several days. They engage with PHC stakeholders in Kazakhstan and see in practice how transformation can be implemented at various levels. This transformation has been recognized within the country at the highest national levels as well. It has catalysed the implementation of the most recent changes in the model of care nationwide.
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Annex 1. Overview of relevant PHC government orders, strategies and the like over time

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<th>Year</th>
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<td>N/A</td>
<td>Law on Protection of People’s Health</td>
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<td>1995</td>
<td>N/A</td>
<td>Law of Local Self-government</td>
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<td>On amendments and additions to some legislative acts of the Republic of Kazakhstan on health issues</td>
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<td>On approval of the instructions for the organization of planned hospitalization in a hospital within the guaranteed volume of free health care through the Hospitalization Bureau Portal</td>
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<td>On approval of the rules for the provision of consultative and diagnostic assistance</td>
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<td>On approval of the standard for organizing the provision of health care and social assistance in the field of mental health to the population of the Republic of Kazakhstan</td>
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<td>2018</td>
<td>176</td>
<td>On approval of the development action plan on primary health care in the Republic of Kazakhstan for 2019–2020</td>
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<td>National concept for the development of population-oriented primary health care</td>
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<td>On approval of the rules for the dynamic monitoring of patients with chronic diseases</td>
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<td>Renewed Code on the Health of the People of Kazakhstan and the Health care System</td>
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<td>On approval of the nomenclature of specialties and specializations in the field of health care, the nomenclature and qualification characteristics of positions of health care workers</td>
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<td>2021</td>
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<tr>
<td>2022</td>
<td>37</td>
<td>On approval of the rules for the provision of specialized health care on an outpatient basis</td>
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