

A scoping review on health services delivery in Kyrgyzstan: what does the evidence tell us?



WHO European Framework
for Action on Integrated
Health Services Delivery

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WHO European Centre for Primary Health Care
Health Services Delivery Programme
Division of Health Systems and Public Health



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Abstract

The review critically examines the relevant reporting over the past five years on health services delivery in Kyrgyzstan, considering the following: what are the key issues facing health services delivery in Kyrgyzstan? What are pertinent policy considerations to accelerate the health services delivery agenda? In 2017, a study applying the method of a scoping review set out to address these questions in the context of increasing momentum for reforming health services delivery in Kyrgyzstan. While focusing on unpacking the root causes of bottlenecks in services delivery, the review also recognized the number of positive and innovative practices that offer firsthand know-how and policy options for tackling the underlying causes of the challenges identified. The review worked to bring together findings and recommendations from more than 150 documents focusing on or related to services delivery published between 2012 and 2017. In doing so, the review aimed to highlight consistencies in messages and to align themes from the perspective of health services delivery using a common framework and approach. The findings of the review were complemented by a series of semistructured interviews with key informants and validated during a week-long meeting on health services delivery with key stakeholders during the Den Sooluk Thematic Meeting on Health Services Delivery on 4–7 December 2017 in Bishkek, Kyrgyzstan. This document reports the key findings and recommendations identified, including recommended actions put forward through the Thematic Meeting for accelerating improvements in selecting services, designing care and organizing providers, strategic purchasing and aligning governance and other system enablers.

Keywords

HEALTH SERVICES
DELIVERY OF HEALTHCARE
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Abbreviations

PEN	Package of Essential Noncommunicable disease interventions
SDC	Swiss Agency for Development and Cooperation
TB	tuberculosis
UNICEF	United Nations Children’s Fund

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The review has also benefited from input through interviews conducted during preparations to identify reports and update ongoing activities while also gathering insights from key stakeholders on the current health services delivery landscape. Stakeholder interviews included representatives from following national organizations: Mandatory Health Insurance Fund; Republican Medical Information Centre; Health Policy Analysis Centre; Kyrgyz State Medical Academy; National Hospital Association; and National Association of Family Group Practices and Midwives. Interviews with development partners included: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); KfW Development Bank; Swiss Agency for Development and Cooperation; the World Bank Group; United Nations Children’s Fund (UNICEF); and United States Agency for International Development.

The findings have also benefited from presentations and discussions of participants during the Den Sooluk Thematic Meeting on Health Services Delivery in December 2017.

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Summary of the findings

This document applies the method of a scoping review to map the key findings and main sources and types of evidence available on health services delivery in Kyrgyzstan. In 2017, in the context of the development of Kyrgyzstan's new national Health Sector Strategy and Development Strategy 2030, an evidence-informed understanding of key challenges in health services delivery and their underlying causes using policy-oriented methods was given priority.

The review applies the approach and definition of services delivery put forward in the WHO European Framework for Action on Integrated Health Services Delivery (145), the guiding health services delivery policy framework for the WHO European Region endorsed by Member States in 2016.

Importantly, this reasoning process begins by first examining pertinent health outcomes to which health services are expected to respond. In Kyrgyzstan, the burden of disease is largely attributed to noncommunicable diseases, especially cardiovascular diseases, stroke and diabetes. Although progress has been made in reducing total noncommunicable disease mortality, Kyrgyzstan has not yet reduced other measures, such as the prevalence of elevated blood pressure, which has been proven possible based on European Region trends. This has been attributed to such factors as tobacco use and salt consumption but also, and importantly, to poor treatment and control of hypertension, especially among men. Trends also signal increasingly the interactions between noncommunicable diseases and maternal and child health and communicable diseases (such as people with tuberculosis (TB) being at greater risk of developing diabetes and indirect causes contributing to maternal deaths such as congenital heart diseases and diabetes). In this context, strengthening the health system towards integrating services delivery that adopts a primary health care approach and ensures the availability of affordable medicines and consumables was underscored.

What are the key issues facing health services delivery in Kyrgyzstan?

Although the review focused on unpacking the nature of health services delivery challenges and their causes, it found several positive and innovative practices. These efforts include introducing health caravans with mobile laboratory equipment, home visiting nurses for child health services and nurse check-ups as well as pilot projects including the Autonomy Project, the implementation of the WHO package of essential noncommunicable disease interventions and the Kyrgyz Health Results-based Financing initiative. Taken together, the numerous innovative practices offer contextualized know-how and hubs of excellence to continue to build off of.

Based on reporting over the past five years, the review finds clear agreement on

the main challenges facing health services delivery. These challenges become increasingly clear when differentiated by their causes: services delivery processes, underpinning system conditions and the wider country context. Critically examining the bottlenecks diagnosed in the documents reviewed made the challenges that can be attributed to services delivery processes come clearer, which include the following.

- **Lack of a people-centred approach to services delivery.** The literature reviewed consistently highlights people-centred challenges, including: low levels of health literacy among the public; persisting misconceptions on diet and lifestyle; poor treatment adherence; high-levels of self-medication; a cultural preference towards hospitalization and injections; and low awareness about standards of care. A paternalistic approach between doctors and patients reportedly prevails and results in patients largely being excluded from decision-making regarding their health.
- **Unclear model of primary health care.** The role of primary health care appears unclear both to the public and health practitioners. Patients bypassing primary health care to directly access specialist care for diagnosis and treatment is a key symptom of this. The system of referral and counter-referral does not function optimally and is challenged by self-referral by patients and excessive reliance by family medicine doctors on specialists for services that could be delivered in primary care. Secondary prevention and acute services fall in the unclear boundaries of the model of primary care. Other symptoms of this challenge include high rates of unnecessary hospitalization and lack of follow-up after discharge from hospital because of unclear information flows.
- **Suboptimal organization of services to ensure regular, timely access to care.** Regular opening areas in primary health care are limited to four appointment hours and two hours of home visits daily. In the absence of a standard scheduling and appointment system, the current organization of services contributes to long waiting lines. Workforce shortages, especially in rural areas, further limit the availability of regular, timely services. The absence of a policy and plan for emergency transport is consistently reported as a barrier to access.
- **Managers are not empowered to improve performance.** Challenges facing the optimal management of services are reported to include issues of transparency in hiring processes, high staff turnover, low level of autonomy for budget management in family medicine centres and a largely vertical data management reporting system, with limited feedback mechanisms. Underlying causes are reported to include a lack of formal management training, lack of incentives for performance improvement and lack of overall accountability of managers.
- **Low motivation and prestige of family medicine contributes to underutilized services and poor quality.** Family medicine practice faces challenges, including a low overall number of family medicine doctors, low status of nurses as health professionals, lack of motivation for family medicine doctors to manage patients, an underdeveloped culture of continuous performance improvement and learning and limited incentives for family medicine doctors to upgrade new skills and engage in continuous professional development.

What are pertinent policy considerations to accelerate the health services delivery agenda?

Based on the review findings and discussions during a weeklong meeting dedicated to health services delivery, the following recommendations were proposed and agreed on.

- 1. Revising the content of the State Guaranteed Benefit Package.** Given the changing burden of disease, the content of the current State Guaranteed Benefit Package needs to be reviewed and new services considered, emphasizing prevention-oriented care (such as screening, statins etc.). In revising the State Guaranteed Benefit Package, the following should be considered: giving priority to prevention services and treatment in primary care; introducing services for self-management; using health technology assessment; applying clinical pathways to specify what services are delivered at which level of care; reducing the total number of exemption categories; and making exemptions target poverty more explicitly.
- 2. Defining principles to guide priority-setting for services.** A clear set of principles should guide the process of setting priorities for what is to be included in the package of services and be fully funded by the public sector. It is recommended, in particular, that the priority-setting for services consider the following: preventable mortality; focusing on the productive age groups; cost-effectiveness; internationally recognized best buys; equity (especially for people in rural areas) and the causes and conditions that lead to catastrophic out-of-pocket payments.
- 3. Revisiting the capacity of family medicine doctors and nurses.** The scope of practice for family medicine doctors should be reviewed in accordance with priority services. Delegating additional functions to nurses and to all mid-level health personnel (midwives and feldshers) is essential to improve the coverage of services and make use of the human resources for health currently available in primary health care. The additional functions should focus on the following three areas of work: managing risk factors; disease prevention services; and authority to dispense medicines. It is essential to ensure that the appropriate conditions are in place for the primary care workforce to fulfil their roles. This includes: normative documentation supporting the definition of roles and scope of practice; revisions to training programmes, both for nurses and family medicine doctors, focusing on managing risk factors and patient counselling; and ensuring the alignment of clinical practice guidelines to clearly reflect the functions of health practitioners.
- 4. Improving the attractiveness of family medicine practice through financial and institutional incentives.** This requires implementing a combination of financial and institutional incentives to attract family doctors to work in the regions to close the current gap in primary health care, including: making service after graduation mandatory; decentralizing postgraduate education; and moving to a bonus system of payment based on remoteness to support rural areas and areas with severe conditions.

- 5. Improving the attractiveness of primary health care for patients, focusing on patient satisfaction with services.** Several options can be explored for making primary health care more attractive to patients. This may include: defining a package of primary health care services provided free of charge through coverage within the State Guaranteed Benefit Package while introducing payments for similar services at the secondary and tertiary levels; assigning specific services that can be received only in primary health care (such as sick-leave certificates); and extending working hours or introducing shifts for family doctors to increase public access. In working to improve patient satisfaction, investigating what patients and providers expect from primary health care may be relevant. Similarly, information campaigns to inform and engage the public and to closely engage local governments should be given priority.
- 6. National plan for optimizing Kyrgyzstan's system of health services delivery.** Optimizing the network of facilities for services is critical for developing a delivery model that effectively and reliably provides the entire population of Kyrgyzstan with quality and cost-effective services that are physically available and affordable, thus addressing the issues of access, equity and quality of services.
- 7. Identify and give priority to key activities of improvement in the current practice of strategic purchasing.** Recognizing early efforts to improve strategic purchasing, the following are proposed to further refine these processes: (1) piloting strategic purchasing in two regions (Jalal-Abad and Talas) according to 2018 plans, to include elaborated contracting, the introduction of grouping of treated cases into 26 diagnostics groups and quarterly monitoring; and (2) revising provider payment methods, based on the experience of results-based financing that includes (a) in primary health care, a capitation rate adjusted by the enrolled population risk and performance indicators to motivate providers to improve the coverage of key disease prevention services and quality of care and (b) in hospitals, refined diagnosis-related groups and incorporating performance indicators.
- 8. Enhancing the use of existing data.** Given the wealth of data available to the health system, mechanisms need to be established that make full use of its potential. The following actions are proposed to optimize the available data and use this information strategically: creating a plan to use data in strategic purchasing; establishing clear responsibilities for using data, especially between the Mandatory Health Insurance Fund and the Ministry of Health; defining feedback mechanisms, including information feedback to providers; and ensuring monitoring and data quality checks.
- 9. Developing a national system of quality governance.** The concept of quality of care should be clearly defined to determine what it means for Kyrgyzstan. This requires developing and adopting a national framework and plan for the quality of care, ensuring high-level commitment and stakeholder alignment. Moreover, in working to improve the quality of care, the potential of clinical practice guidelines should be optimized, with their use for audits for compliance and clear indicators for monitoring. Involving professional associations and patient groups in the process of developing national clinical guidelines and protocols is also recommended.

10. Strengthening managerial autonomy. The role of health facility managers in strengthening managerial autonomy can be improved by introducing specific qualification requirements for appointments; implementing a competitive selection process; and conducting management training (together with Ministry of Health staff). Clear mechanisms are needed on how to grant autonomy to health facilities. Developing standard regulations on autonomy is required for each of the three levels of care and for making decisions on changing the legal status of primary, secondary and tertiary health facilities. The potential role of local governments in strengthening the process of implementing autonomy needs to be defined.

11. Revising medical education in working towards a competent family medicine workforce. The following key measures are recommended to improve the quality of medical education for family medicine doctors and align with the process of expanding the functions of nurses: revising the criteria and developing strict standards for accrediting medical universities and faculties; adopting a national health workforce plan on the number of specialists that are needed; considering reforming nurse education based on good and relevant experience from other countries; and decentralizing postgraduate programmes for family medicine doctors through placements in regions outside Bishkek.

About this document

Context

Optimizing the delivery of health services is integral to improving health outcomes. The 2030 Agenda for Sustainable Development makes explicit the link between services delivery and population health, with health occupying a central place. The case is especially clear in Goal 3, target 3.8 on achieving universal health coverage, where making progress requires access to high-quality, essential health services that are safe and acceptable to all people and communities (146). In the WHO European Region, Member States have signalled their commitment to achieving these targets by giving priority to health systems by adopting such policies as Health 2020 (147), priorities for strengthening people-centred health systems (148) and, most recently, the WHO European Framework for Action on Integrated Health Services Delivery (145).

In Kyrgyzstan, the importance of the link between health services delivery and outcomes is well recognized. This is evident in the priority given to health services delivery in developing Kyrgyzstan's national health sector strategy and development strategy 2030. It is also clear in the volume of activity in recent years to introduce and expand pilot projects striving to continuously improve the delivery of services. The past decade has also seen an intensified effort to study and document the status of services delivery and health system in general. Together, this activity and reporting offer a rich platform of information on health services delivery in Kyrgyzstan.

This work sets out to leverage the knowledge and experience achieved so far in reforming health services delivery in Kyrgyzstan from the available literature. The review paralleled policy discussions to develop a renewed health sector strategy and development plan from now to 2030. By applying a common health services delivery lens to the existing literature, the review attempts to summarize the key challenges noted in the reporting but also the recommendations the literature reviewed puts forward. The findings aim ultimately to inform an understanding of the root cause of policy issues that require immediate attention for moving the agenda for reforming health services delivery forward.

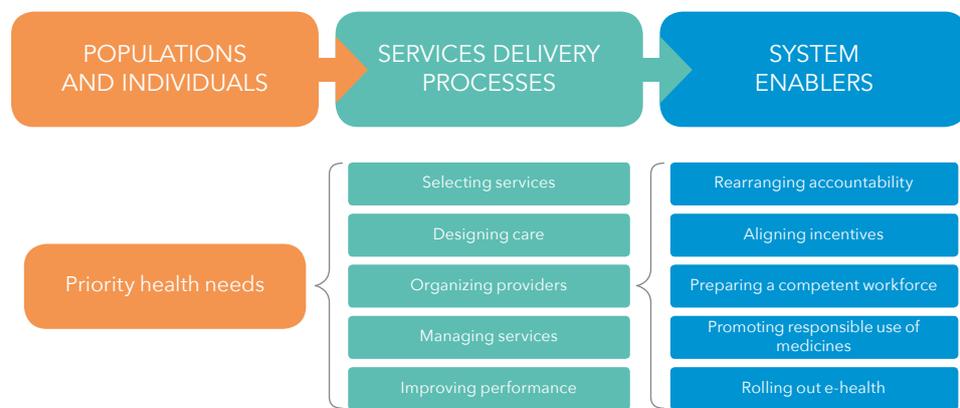
A health services delivery lens for system bottlenecks

The scoping review adopts the perspective of health services delivery. It looks beyond programmatic, disease-specific efforts or a specific level of care in an attempt to gauge the true nature of services delivery and its system dynamics. Thinking about services delivery as a function of the health system and its core processes enables a holistic, systems-based understanding of the services delivery function and underpinning system conditions to be unpacked.

Fig. 1 illustrates the perspective of health services delivery applied. As shown, health services delivery is seen at the interface between the individuals and populations it aims to serve and other health system functions.

Health services delivery can be defined according to five unique processes: selecting services, designing care, organizing providers and settings, managing services and improving the delivery of care (149). This review has specifically focused on these processes. As Fig. 1 illustrates, the other health system functions of governing, financing and resourcing are closely linked to services delivery and directly influence its processes. Although the influence of other sectors and the broader country context are important, these factors are ultimately outside the boundaries of a health system's direct influence and not considered in the scope of the review.

Fig. 1. Applying a health services delivery perspective



Source: WHO Regional Office for Europe.

Guiding questions

From the perspective of health services delivery, this scoping review aimed to critically examine relevant reporting during the past five years to consider the following.

- What are the key issues facing health services delivery in Kyrgyzstan?
- What are pertinent policy considerations to accelerate the health services delivery agenda?

Objectives of the review

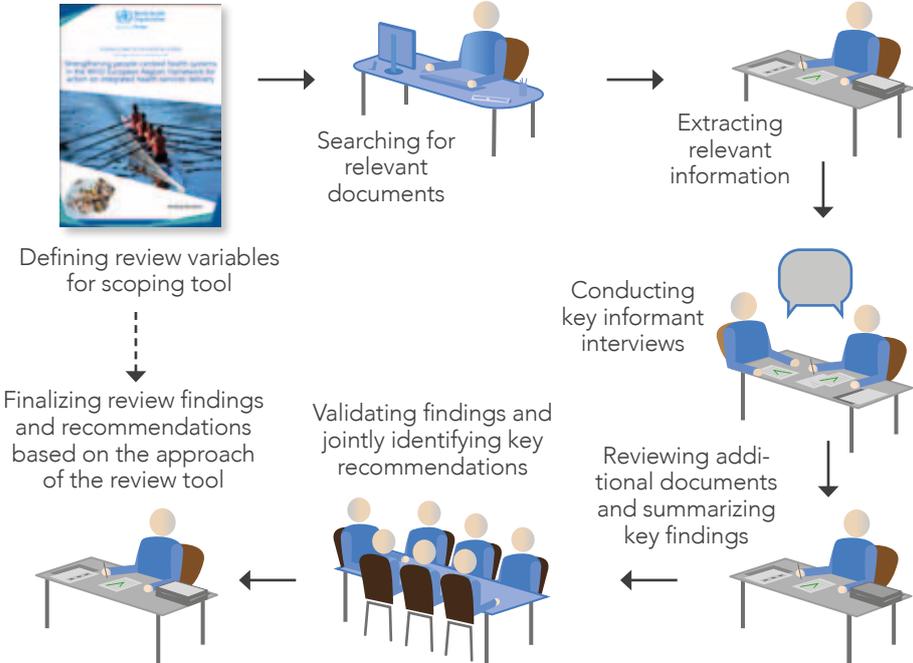
The review set out with the following objectives:

- to consolidate relevant literature for an overview of messages and activity on health services delivery in Kyrgyzstan;
- to build consensus on the findings and issues related to services delivery policy identified; and
- to identify priority areas for accelerating the transformation of health services through joint discussions with national representatives, key stakeholders and development partners based on the review findings.

Review process and sources of information

This applied policy research has adopted a mixed-method approach. Fig. 2 illustrates the process of the review. These processes can be summarized in six key steps: (1) defining the variables and criteria of the review in a scoping tool; (2) searching for documents that meet the inclusion criteria; (3) extracting relevant information from documents; (4) conducting face-to-face interviews with key stakeholders and development partners to explore themes and collect additional documents; (4) reviewing additional documents identified and summarizing key findings; (5) presenting review findings at a multistakeholder workshop, Den Sooluk Thematic Meeting on Health Services Delivery, to validate the results and identify key recommendations; and (6) finalizing the review based on material presented at the thematic meeting and agreed recommendations. Key elements of the review process are further elaborated to follow.

Fig. 2. Overview of the scoping review process



Source: WHO Regional Office for Europe.

Scoping review tool

The review variables, key words and relevant considerations were drawn from the WHO European Framework for Action on Integrated Health Services Delivery and its core domains and areas for action (145). Table 1 summarizes the review tool variables, which are outlined in full in Annex 1. For each document reviewed, key challenges and recommendations according to the variables of the tool were also considered.

Table 1. Services delivery variables used in the literature review

Health services delivery process	Variables
Selecting services	<ul style="list-style-type: none">· Population focus for setting priorities for services· Clearly defined package of services across the full continuum of care· Patient engagement and behavioural change
Designing care	<ul style="list-style-type: none">· Design of care pathways, including transitions, referrals and follow-up care· Ability to tailor patient care
Organizing providers and settings	<ul style="list-style-type: none">· Accessibility of facilities· Regular access to care· Clear division of tasks across providers (scope of practice)· Practice modalities
Managing services	<ul style="list-style-type: none">· Autonomy to allocate and manage resources· Upkeep of infrastructure, maintenance and facility resources· Adopting a results-oriented approach
Improving performance	<ul style="list-style-type: none">· Strengthening clinical governance· Creating a system of lifelong learning

The review also considered two additional themes. First, on priority health needs, the current burden of disease and priority risk factors signalled in the literature were considered. Key messages on future health trends have also been noted when these were found in the literature (see Annex 2). Second, on health system enablers, key challenges and recommendations related to the health system functions of governing, financing and resourcing, especially the health workforce, were considered relevant themes. These system functions have been signalled as underlying causes of services delivery challenges. More detailed examination of each system function was considered outside the scope of the review.

Document search

In an effort to include all material available, the documents considered in this review range considerably in terms of type (legislation, strategies, assessments and reviews, reports, presentations and peer-reviewed articles), language (English, Russian and Kyrgyz) and status of publication (published, draft and internal document). A key exclusion criteria applied is publication date. Only documents published or drafted in the past five years (between 2012 and 2017) are considered to ensure that the most up-to-date and relevant messages are captured. Few exceptions were made when documents were not followed by a more recent version and/or the information was considered to still be relevant.

Table 2 summarizes the documents collected by type. Documents were collected by manually searching the websites of relevant organizations, through request via direct correspondence with known stakeholders and development partners and following up with key informants interviewed bilaterally. The reference lists of the documents included in the review were also consulted. All presentations from the Den Sooluk Thematic Meeting on Health Services Delivery in December 2017 were also incorporated into the review in the final stage of revision.

Table 2. Types and number of documents reviewed

Type of document	Number
Legislation	39
Legislation	25
Presentations	41
Assessments and reviews	38
Reports	24
Peer-reviewed articles	24

Key informant interviews

Interviews with key informants included Kyrgyz nationals and development partners working intensively on the topic of health services delivery and with key insights on its changing context. About 15 semistructured interviews were conducted in September 2017. The key questions during these meetings asked informants to consider the following: (1) What do you see as the

most pressing health improvement area at present in Kyrgyzstan? (2) In your opinion, what are the key obstacles to accelerating reforms of health services delivery to address this? (3) Does your organization have any relevant documents on services delivery published in the past five years that can be shared for review?

Document review

More than 150 documents were reviewed. Of these, most findings and recommendations were taken from assessments and reviews, reports, academic articles and presentations. Legislation, strategies and presentations from the thematic week were referred to primarily as a secondary source for cross-checking facts.

The initial literature review took place over a four-month period and attempted to be as comprehensive as possible given the time constraints and the nature of the literature available. A team of four reviewers completed the process of reviewing and extracting relevant information. All review findings were stored in a data collection tool summarizing relevant information by report according to the scoping review tool variables.

Validating the findings and recommendations

In December 2017, the Ministry of Health of Kyrgyzstan organized a week long multistakeholder meeting jointly with the World Bank Group and WHO in the tradition of annual thematic meetings on priority areas of the current health strategy Den Sooluk. In 2017, the Den Sooluk Thematic Meeting was dedicated to health services delivery. A draft of the scoping review findings was made available to all meeting participants in English and Russian.

The event began with a summary presentation of the review findings and key messages. During the week, topic-specific sessions explored key themes in depth. Each session concluded with a series of recommendations drawn from the discussion. The last day of the thematic week was dedicated to a final review of discussion points and recommendations. All comments, presentations and recommendations from the week's discussions were incorporated into the review.

Limitations

By its design, this review attempted to summarize what has been published elsewhere. The findings therefore do not reflect original research, except for key informant interviews and discussions of the thematic week meeting used for triangulating and identifying priorities for key messages and recommendations. This means that the findings therefore depend on what has previously been studied and reported. This has contributed to some missed topics that were part of the review tool but not widely discussed in the literature. For example, in general most reporting focuses on primary health care, and recent reports on services for noncommunicable diseases and the quality of care offer relevant and current insights. Less frequently reported topics include hospital care and specialist services and specifics on organizing providers at different levels of care. There was insufficient information to formulate consistent messages on palliative care and mental health, and these topics are therefore described to a lesser extent in the report and relied primarily on key informant interviews. Additional documents relevant to this review may have been missed. This was minimized by taking up additional reported references in presentations and discussions during the thematic week sessions.

Structure of this document

The sections of the document are organized by services delivery process. The sections follow a consistent structure. At the outset, for each variable reviewed, the numerous positive and innovative practices are highlighted to illustrate the continuous progress and changes to the delivery of services.

The ultimate focus is summarizing the key services delivery challenges extracted from the review. These are clustered to signal the most consistent themes. Underlying causes refer to the cross-cutting bottlenecks, often beyond the services delivery function, that reflect system challenges impeding the capacity and performance of services delivery. Finally, specific recommendations consistently raised in the literature reviewed are captured.

In addition to the documents included in the review, the reference list includes all current strategies influencing services delivery as well as relevant laws and orders. When material was reviewed in draft form, this is noted.

Selecting services

The review of selecting services considered the following:

- the focus on the population for setting priorities for services;
- a clearly defined package of services across the full continuum of care; and
- patient engagement and behavioural change.

Population focus for setting priorities for services

Progress has been made towards developing a robust understanding of mortality, risk factors and their prevalence in Kyrgyzstan. Recent population-based health surveys include the WHO STEPwise approach to surveillance survey (2013) and the Demographic and Health Survey (2012) and, earlier, a national epidemiological study of tobacco use prevalence (2005) and the countrywide

integrated noncommunicable diseases intervention monitor (2002). The global youth tobacco survey has also been conducted on three occasions (2004, 2008, 2014) (7). Plans for 2018 include a next iteration of the WHO STEPwise approach to surveillance survey and a WHO childhood obesity surveillance initiative study (7). These studies are in addition to the regular reporting of the Department of State Sanitary-Epidemiological Surveillance on infectious disease surveillance, the National Statistics Committee and the Republican Medical Information Centre annual reporting on the health of the population in Kyrgyzstan and household surveys and patient surveys at regular intervals (30).

Despite advances in generating population-based health information that can inform the selection of services, challenges to the optimal use of health data include the level of data disaggregation and the underlying challenge of clear feedback mechanisms to apply information for targeting services according to the population's needs.

Box 1

Definition: selecting services

To monitor Selecting services is defined as setting priorities for health services for a clearly defined population to equitably promote, preserve and restore health throughout the life-course, ensuring that a broad continuum of care can be provided according to an individual's needs (149).

Limitations of measures and data disaggregation. A key challenge in applying routine health data is limitations in the data disaggregation. This is reported to include inconsistent age disaggregation: for example, the age categories for adolescents in the national health information system include 10–14, 13–17, 15–17 and 15–19 years old (21). The main indicators for noncommunicable diseases can reportedly be disaggregated by sex but not by level of income or nationality (3). Several documents highlighted the need for disaggregating data by these variables, together with age and disabilities, to address the critical differences in the risks of morbidity and mortality, especially from noncommunicable diseases, for women and men in Kyrgyzstan (3,17). Data are also reported to be lacking on important indicators that are the focus of the Den Sooluk programme, such as the proportion of people with hypertension who received the basic package of services (91).

Underlying causes

Unclear data feedback mechanisms and responsibility for their use. Opportunities to increase the use of available data have been promoted (3,7). The challenge of doing this has been highlighted as an underlying symptom of suboptimal governance arrangements as a result of unclear feedback lines for data. Moreover, subnational accountability for the population's health that enables services to be targeted based on identified needs and risks is reportedly unclear. Related challenges include a lack of motivation and capacity to use the information system to its full capacity (7).

Policy pointers and suggestions from the literature

- Standardize data disaggregation for target age groups, sex and relevant determinants such as income and nationality in developing future indicators for monitoring the health of the population.
- Revisit the accountability arrangements for population-based health, specifically the role of national health data authorities: the Department of State Sanitary-Epidemiological Surveillance, the National Statistics Committee and the Republican Medical Information Centre, but also their branches subnationally, together with rayon-level local administrations and health facilities.

Clearly defined package of services across the full continuum of care

The legal basis of entitlements for individuals to access primary health care services is well established with the enactment of the State Guaranteed Benefit Package (Resolution No. 790, 2015) and Additional Drug Package (Resolution No. 790, 2015), Service Package for Emergency Care (Decree No. 648, 2012) and Standard Package for Perinatal Care (Decree No. 647, 2012). Through the State Guaranteed Benefit Package, all individuals are able to access primary health care services free of charge, regardless of their insurance status and enrolment with primary care providers

¹ Primary health care practitioners include: paramedics; feldsher-obstetric units; family doctors and groups of family doctors; specialists of family medicine centres; and centres of general medical practice.

(30). The services provided by primary health care practitioners¹ include: health promotion; disease prevention services (immunization, infection control and patient education); diagnosis (consultation and basic laboratory and diagnostic tests); and treatment (emergency medical care, immobilization, prescriptions and injections) (107).

Despite the legislative basis for the basic package of services, the documents reviewed consistently advocate revisiting the package of services, citing the need to further align services to correspond with pertinent health needs. Although the burden of noncommunicable diseases is increasing, the package of services has not yet been fully adapted to respond to this. Persisting informal payments and a lack of clarity on the services to be delivered in primary health care are related factors challenging the full implementation of the package of services.

Underlying causes

Persisting costs to patients. The literature clearly emphasizes that some services included in the State Guaranteed Benefit Package still require co-payments or informal payments (23,31,40,72-73,129,131) and as a result, out-of-pocket payments remain high (5,17,24,40,49,62,73). Most of the public health budget is reportedly being spent on fixed costs such as salaries for personnel, cutting expenditure for medicines (24,30,34,100). Inefficiency in the large number of exemption categories that also do not benefit people with low incomes is also reported to place additional strain on the limited resources available (23,34,88,100,106). Funding gaps are reportedly filled in part by informal payments, especially those to health personnel (31). Reports also note that patients are unaware of the additional drug package that covers the price of drugs or subsidizes a portion of the price (7,30).

Lack of clarity on the role of primary health care. Anecdotally, there is ambiguity regarding the package of services to be delivered in primary health care (106,107). The cause of this, however, appears to be related to the unclear scope of practice of family medicine doctors. It is reported that patients visit family doctors only for issuing requests for laboratory tests and accessing subsidized medicines. Narrow specialists are preferred for treating and managing diseases (39).

Policy pointers and suggestions from the literature

- What is the vision of services delivery? Addressing this is highlighted as a pertinent topic to set clear expectations for what services delivery should achieve.
- Review the basic package of services with clear links to define the package of services that corresponds to the needs of the population and setting priorities for health outcomes to be improved on.

Population-based interventions

There is a clear shift towards a model of services provision that focuses on disease prevention, with good examples of efforts that aim to raise awareness and promote healthy lifestyles. In 2014, a Public Health Coordination Council was created to manage population-based disease prevention measures (Decree No. 352, 2014). Interventions such as Health Walk Day and media

campaigns such as Know Your Blood Pressure!, Week of Hypertension by village health committees and blood pressure assessments at the workplace are being conducted nationwide (3,5,7,9,19,30,42,125). Repeatedly, village health committees are cited as a successful initiative achieving nationwide coverage working to raise the public's awareness of such topics as infant care, danger signs during pregnancy, brucellosis, healthy lifestyles, cardiovascular diseases, especially in remote areas, and fostering citizen empowerment (5,7,9,17,19,22,29,42,44).

Challenges in optimizing population-based interventions highlight persisting misconceptions among the public regarding healthy lifestyles, the ineffective implementation of interventions and an overall lack of priority-setting for population-based interventions and underpinning issues of governance.

Persisting health misconceptions. Despite the volume and diversity of population-based interventions, there is reportedly a persisting lack of awareness nationwide about healthy lifestyles, especially healthy diet and physical activity (3,7,11,17,30,82,91,120,134). According to the WHO STEPwise approach to surveillance survey (2013), only 26% of respondents consume the recommended amount of fruit and vegetables, even though they are widely available and accessible, especially in rural areas. Awareness of family planning and use of contraception is still a point of concern (9,10,21,35,40,77,80,86,91), partly because of religious and traditional influence (21,40). Similarly, preventive measures such as vaccinations cover a majority of the population in a timely manner (9,76,96,140), but recent propaganda against vaccination for religious reasons and such causes as high internal migration are noted (3,5,83,94,96,103,110,130).

Ensuring effective implementation. Despite progress made to introduce new legislation and interventions (120), implementation needs to be improved. For example, a hotline providing support for quitting smoking was created and changes to legislation on tobacco and alcohol were established, such as regulations on selling and advertisements, pictorial warnings and taxes. Nevertheless, certain challenges persist such as ineffective tax increases (33,99), which could also bring additional revenue to the government (19,33,99,100). In addition, although the penalties are defined, compliance is not monitored and fines for violations are not being imposed, signalling a need to strengthen the enforcement of policies (3,7,9,17,19,62,91,99).

Underlying causes

Lack of priority given to population-based interventions. Both government funding and donor support continues to give priority to individual interventions over population-based interventions (3). There is no funding stimulating priority programmes on cardiovascular diseases and other noncommunicable diseases, except for the Community Action for Health Project funded by the Swiss Agency for Development and Cooperation (3,58). There are programmes to tackle the issue of stroke, including infrastructure and technological improvements, but coordination between them is reportedly lacking (6). The coverage of population-based interventions is also reportedly limited, such as annual screening for women for breast and cervical cancer being limited to working women (85).

Rayon-level governance of population-based health services. The causes of suboptimal regulation and challenges in fully optimizing the effectiveness of interventions appear to be rooted in issues of local-level governance for disease prevention and health promotion services. At the rayon level, the responsibilities of the Department of State Sanitary-Epidemiological Surveillance focus on surveillance (such as infections, iron deficiency and iodine levels) and less clearly the responsibility for population-based health interventions, including addressing risk factors for noncommunicable diseases. As an effect, the coordination of interventions, such as the alignment of public health campaigns and cooperation between village health committees and primary health care facilities, are noted as being areas needing improvement (9,120) that would benefit from a clear vision for delivering public health services.

Policy pointers and suggestions from the literature

- Introducing innovative campaign platforms and approaches may improve effectiveness. There is potential for using e-health in rayons to enhance a focus on risk factor management. Public awareness campaigns, which have been proven to be cost-effective, could be further targeted (especially for working men) (37,100,128) through the media.
- Improve the coordination of population-based interventions with a focus on accountability at the rayon-level. Doing so should focus on ensuring the continuity of care for people at higher risk identified during campaigns and optimizing the potential role of village health committees with clearer links to primary health care facilities.

Individual risk assessment

Assessment of individual risk for cardiovascular diseases has been introduced as part of piloting the WHO Package of Essential Noncommunicable disease interventions (PEN) (11,16). Implementation began in June 2014 and, since then, PEN protocols 1 and 2 have been introduced in Batken, Bishkek city, Chuy and Issyk Kul in 10 family medicine centres, covering 40% of the population.

However, in general, detection rates for risk factors remain low for reasons including limited use of risk stratification calculations but also underlying issues of workforce training and overall access to primary health care that deter initial use (such as multiple visits and long waiting time).

Low level of risk stratification in practice. Although cardiovascular disease risk stratification has been introduced in PEN pilot sites, early reports suggest that the health practitioners have not yet fully adopted the technique and hence not yet optimally implemented it (16,24,113). Quantitative reviews have shown that the detection rates did not change after implementing PEN, and the PEN pilot sites did not differ significantly from non-PEN family medicine centres (11,113). The causes for this early outcome are noted as the limited training and motivation among primary health care practitioners to assess risk (16,24).

Underlying causes

Low utilization of preventive services. Reporting suggests that early detection rates remain low (5,11) because many people, especially men, do not regularly visit primary health care facilities (3,16,72). This is frequently reported as complications

in the care pathway requiring multiple visits and long waiting time. Overall, it is suggested that screening and early detection services are opportunistic: patients are offered to undergo assessment when they visit primary health care facilities. The problem of undetected cases remains, since many people do not visit facilities in the first place (3,16,72).

There are also issues cited related to preventing and counselling on cardiovascular diseases, especially at low risk levels, since doctors are reported to give more priority on lifestyle counselling than preventive medication therapy such as statins (3,7,16,19,82,91,100).

Follow-up services for people with hypertension after initial counselling are reportedly limited (3,110). People's adherence to prescribed medicines is also not consistently followed up. This is similarly noted for the secondary prevention after acute myocardial infarction and stroke (3,39,51,78,82). The primary reasons suggested are lack of coordination between providers (3,7,39) and the high cost of medicines (3,78,110,120).

Policy pointers and suggestions from the literature

- There is agreement on the need to mainstream comprehensive risk stratification for the controlling cardiovascular diseases and diabetes. Further implementation of individual risk assessment however, should adapt the model applied and support it with appropriate technologies to enable diagnosis to be confirmed in a single consultation and close to home. Supportive services to complement risk stratification suggested in the literature reviewed include counselling for low-risk people and services focusing on learning and patient engagement.
- Ensure that the scope of practice for health practitioners clearly defines counselling services and other services geared to improve health literacy to effectively involve nurses, also in pre-examination, for a balanced and well managed workload among primary health care practitioners (see the section on organizing providers and settings).

Treating and managing disease

Treating and managing disease remains a domain of the specialists, even for people at low risk. Although shifting to ambulatory care has led to improvements, such as for people with tuberculosis (TB), unnecessary hospitalization still takes place. Treatment adherence is poorly followed up, and this is subsequently the case for secondary prevention.

Limited treatment capacity in primary health care. Treatment and secondary prevention in primary health care remains limited. Family doctors have limited capacity for treating people with cardiovascular diseases and diabetes. People are referred to specialists, since these diseases are considered to be their domain. Recommended therapy with statins for people with cardiovascular diseases is not prescribed (3,16,82). There is also a lack of follow-up on the adherence of patients with recommended treatment (9,14,19,37,40,41). Treatment of TB and HIV at the ambulatory level has improved, yet low-risk people with TB are unnecessarily hospitalized, and toxic regimens are still prescribed to people with drug-resistant TB (14,25,136,141).

Family doctors are often not involved in managing disease. People, even those at low risk, are referred to specialists such as cardiologists, endocrinologists and neuropathologists (3,5,39,40). Mismanagement of risk factors and lack of follow-up are cited as key shortcomings for secondary prevention (11,17,19,82).

Underlying causes

Mismanagement of prescriptions. Pharmaceutical companies play a key role in prescribing medicines, creating an incentive to prescribe more than necessary. A Medicine Transparency Association has reportedly taken action to strengthen transparency and inform the public about the danger of unsafe medicine use (70). Nevertheless, certain brands continue to be aggressively promoted without external evaluation (3) and, as a result, prescriptions are not reliably evidence informed and are excessive (24).

Policy pointers and suggestions from the literature

- Ensure that the alignment of the State Drug Package corresponds to priority health improvement areas and services for preventing, detecting and managing diseases early, including access to medicines that are free of charge or subsidized.

Patient engagement and behavioural change

Kyrgyzstan has a long tradition of empowering the public in health and has worked through successful initiatives such as the village health committees to improve the overall engagement of people in their care. Village health committees actively work to contribute to raising awareness of healthy lifestyles (20,29,30,44,80). The Mandatory Health Insurance Fund conducts regular meetings with the public, the health workforce and nongovernmental organizations (1807 meetings in 2016). Mechanisms for appeals to the Mandatory Health Insurance Fund can be submitted orally, on paper and electronically and through online website chats and visits to the public reception office (8).

Low levels of overall health literacy. Despite a number of initiatives to inform and educate the public, low awareness of health and health services is reported among the population. People reportedly visit health facilities only when their condition affects daily life (3,7). There is also a cultural avoidance of such topics as alcohol use, mental health and sexual education (21). People with TB and HIV are stigmatized (21,48).

Paternalistic relationship. A paternalistic approach between doctors and patients towards health services prevails and results in patients being excluded from decision-making regarding their health. There is reportedly a persistent notion that patients are responsible for their own problems and managing their specific needs (37). Although patients generally have low awareness about standards of care (3), people doubt that family doctors have a satisfactory level of training, contributing to high levels of self-medication or alternative, non-medical modes of treatment (79).

Lack of people-centredness. There is a common perception that people avoid services as far as possible because they are “inconvenient”. For example, a comprehensive study of the health-seeking patterns of men with hypertension

found that long waiting times, high costs of tests and long distance from rural areas pose barriers to accessing health services and deter them from visiting a doctor (37). It is also suggested that people are more likely to have informal consultations (37).

Policy pointers and suggestions from the literature

- What services are available or needed to inform the public and engage patients (such as addressing poor treatment adherence, tackling issues of trust and countering misinformation)? How can the proven effectiveness of involving village health committees and local municipalities inform possible solutions?
- Target segments of the population that are marginalized and disadvantaged to foster empowerment in making health services decisions.
- Align incentives for health practitioners to encourage the use of prevention services to promote early detection and follow-up measures.

Designing care

Designing care has considered the following:

- design of care pathways, including transitions, referrals and counterreferrals, to map out optimal routes for patients and follow-up care; and
- ability to tailor patient care.

Design of care pathways, including transitions, referrals and follow-up care

The network of primary care facilities in Kyrgyzstan currently includes 64 family medicine centres and 28 general practitioners' centres (that include inpatient beds) (8) When a formal referral by family doctor to a specialist is needed, several specialists are often present at the primary care level such as ophthalmologists, otorhinolaryngologists and neurologists. In some cases, there are also oncologists, psychiatrists and TB specialists. As such, referral to a specialist can take place internally, within the same facility. Another option is referral to a specialist at a higher level of care. The same scheme applies for counterreferral.

However, the referral and counterreferral system does not function optimally in practice, with a tendency for patients to often self-refer directly to specialists, bypassing family medicine doctors (3,39). One of the most common examples is people with diabetes, who reportedly tend to directly consult endocrinologists in diabetes dispensaries at the oblast level or in the capital city, Bishkek. This results in a lack of control of access to specialist care by family medicine doctors. For people with cardiovascular diseases, family medicine doctors can refer to cardiologists, but they are often not available in family medicine group practices, whereas access in higher-level health centres is also limited because of long waiting lines. At the same time, specialists (such as cardiologists and endocrinologists) are almost always available in Bishkek and less available in the cities of Karakol and Osh. In addition, specialists tend to refer patients for hospitalization even though it may not be necessary (39).

In general, the criteria for hospitalization are reportedly unclear, in the absence of mandatory protocols for family medicine doctors detailing clear referral

Box 2

Definition: designing care

Designing care is defined as the development of service paths that standardize a course for services according to the best-available evidence, mapping transitions between types and levels of care, while also accounting for the personalization of pathways to match an individual's unique needs (149).

criteria. There is progress in establishing an optimal pathway for people with cardiovascular disease and diabetes introduced in select facilities implementing PEN, but it still remains at the scale and status of a pilot. In addition, there are no formalized links and information exchange between primary health care doctors and specialists – the former do not control referral to specialists and the latter do not consistently communicate with primary health care doctors (52). Information exchange about discharges and admissions is lacking.

Because of high rates of unnecessary hospitalization (79), primary care has inefficient patient flow (110,112,131). For example, people with noncommunicable diseases tend to avoid standard nurse check-ins and often go straight to specialists (110). Cardiovascular diseases remain a domain of cardiologists even at low risk levels. Discharge summaries after hospital care are handwritten, often incomplete or not delivered to primary care facilities in a timely manner (3,5,20). Patient transfer from one hospital level to the next (such as rayon to oblast and oblast to tertiary) is often poorly coordinated (131). Screening services for hypertension by village health committees and primary care providers require patients to follow up with their usual health practitioner, but no mechanism is in place to re-engage patients who do not do so (3,9).

In maternal and child health care, despite major criteria for perinatal and postnatal checkups being in place, criteria for referrals and onward referral for sick children to a higher level of care are lacking (9). The referral system is not well targeted to account for pregnant women with fetal complications (24). A full continuum of care has not yet been established (24). The existing patronage system is very weak. For instance, for maternal and child care, only 25% of newborns are visited at home within two days of delivery (20). The reasons cited are low motivation of nurses and poor skills of family medicine doctors in dealing with children. A similar situation is described for antenatal care in primary health care.

There is also a weak referral system for people with TB and HIV. Paediatric health workers' collaboration with TB services is neither systematic nor comprehensive, likewise between TB services and antenatal care (14,78). There is reportedly a high incidence of unnecessary hospitalization of people with TB (105,108,138), for example, according to the literature reviewed, 14% of the people hospitalized for TB did not have a confirmed TB diagnosis, and 46% of these people had mild cases of TB that could have been treated in primary care. The same study found that the majority of children were hospitalized for 94–126 days, whereas international standards recommend that children receive care predominantly on an outpatient basis in ambulatory care (25).

The HIV services delivery model appears less tailored to the current disease burden and reports describe fragmented processes rather than a comprehensive approach to HIV prevention, diagnosis, treatment and management. Interventions are described as reactive, triggered by referrals, which lead to missed opportunities for early diagnosis that could substantively improve outcomes (13). There is also a persisting social stigma around drug use and HIV (69), reportedly compromising the optimal effectiveness of needle and syringe programmes and the reach of such programmes for HIV prevention among people who inject drugs (68).

Follow-up care, especially for people with chronic conditions, is repeatedly cited as a key design challenge for services delivery in Kyrgyzstan. The greatest progress has reportedly been made in family medicine centres implementing PEN, in which it is obligatory for all visiting patients to have their blood pressure

and smoking status checked by a nurse. Patients also receive lifestyle advice, and follow-up appointments are scheduled on a three-month cycle (11). This practice of regular follow-up, however, is unique to the pilots, whereas patients in large part are solely responsible for seeking follow-up care. The lack of coordination between providers is reported as a key cause for the lack of follow-up after screening with specialists, making further care seeking efforts the patients' responsibility (3). Since family medicine doctors mostly refer people with cardiovascular diseases to specialists, follow-up care and management of disease is generally assumed to be the responsibility of specialists (39,44).

Similarly, despite recent efforts to introduce population-based health campaigns, such as the Know Your Blood Pressure! campaign carried out by village health committees, data are limited on follow-up of people with hypertension because of lack of coordination between village health committees and primary health care (7). Similarly, follow-up care is problematic after people are discharged from hospital. This reportedly results from the high cost of adherence to medicines for treatment (78).

People with smear-positive TB and those in high-risk groups (such as comorbidities and drug and alcohol dependence) are hospitalized, at least until smear conversion. Despite the high burden of TB among people living with HIV, the referral system is not adequate and HIV services do not get information back on TB testing. There is a lack of recording and followup on antiretroviral therapy (14). This is often self-administered by patients as well as referrals to other health facilities.

Ability to tailor patient care

Reports consistently signal a low capacity to tailor care and develop personalized care plans for patients, especially for patients with multiple conditions. The current design and approach to services delivery is not constructed to manage an individual's multidimensional needs. For instance, TB and diabetes services are not being offered in the same facility. As a result, people with both diseases, who typically have lower socioeconomic status, face undue organizational challenges (73). Men also have been cited to face unique challenges in accessing services, including lack of motivation, and systematic approaches appear to be needed to engage and target specific population groups (11,37).

Limitations for patients to exercise choice. The legal basis is in place for patients to exercise choice and receive services from contracted facilities. However, key informants and reports describe a strategy applied by patients of "multiple tries" to exercise their choice from a number of visited doctors (72). Patients are reportedly most likely to make decisions on their primary health care doctors based on connections and acquaintances and advice and recommendations from other doctors.

Underlying causes

The most commonly cited challenges, such as patients bypassing primary health care to directly consult specialist care and lack of control for referrals by family doctors, reportedly result from several reasons, closely linked to constraints facing the current health workforce as well as causes lying outside the health sector.

Financial factors. Family medicine doctors have limited financial and non-financial incentives to attract and keep patients (30). This results not only from well known

factors such as low salaries and low professional motivation but also largely from the per capita system of payment, poor local autonomy for budget control, a widespread culture of informal payments combined with low average income of the population (58,62,72). The salaries of family medicine doctors are not yet based on the defined package of services, and doctors do not have a formally assigned population to manage. Low motivation of nurses (such as in the case of follow-up visits for postnatal care) is another consequence of the lack of financial incentives, contributing to reported attempts to save on transport costs and evade visits to patients at home.

Capacity of primary health care to deliver services. One cited reason for high levels of self-referral by patients to specialists, bypassing primary health care, is the low capacity and skills of family medicine doctors. This is also exacerbated simply by the lack of family medicine doctors in parts of the country, combined with poor infrastructure and services in primary health care. In addition, as noted, family medicine doctors have no mandatory, evidence-informed referral protocols or standards to follow for formalizing the care pathway.

Culture of giving priority to specialized inpatient services. The population's mentality towards health services is oriented towards trusting specialists rather than family medicine doctors, and this lack of trust is key to the frequent bypassing of primary health care. Further, both patients and doctors clearly prefer inpatient treatment. Most consultations and hospitalization are based on informal payments by patients, hence, there is a preference to pay directly to specialists rather than to family medicine doctors.

Policy pointers and suggestions from the literature

- The decentralization of health authority to empower local authorities, including more autonomy on budget, and being able to support family doctors may contribute to harmonizing patients' pathways by ensuring higher motivation and the sustainability of the family doctor institution.
- The alignment of financial incentives for family medicine doctors should be given priority alongside remuneration based on the newly defined package of services for primary health care.
- Reducing unnecessarily high rates of hospitalization for conditions that can be handled in primary care would contribute not only to better patient care but better use of resources.
- Strengthening the capacity and motivation of nurses through training and financial incentives in conjunction with family medicine doctors is recommended to improve follow-up care for noncommunicable diseases, antenatal and postnatal care and services at home, including for those in need of social protection (such as the UNICEF home-visiting programme).
- Introducing self-care and self-management programmes for people with chronic conditions, where applicable, through family medicine centres in collaboration with local communities and village health committees (such as diabetes schools, etc.).
- Introducing mobile clinics to improve access, especially in remote rural areas.
- Scaling up the direct observed treatment short programme for TB treatment within diabetes care facilities.

Organizing providers and settings

Reviewing organizing providers and settings has considered the following:

- design network of facilities, such as primary health care centres, hospitals and laboratories;
- regular access to care, such as regular hours, after-hours and acute care;
- division of tasks among health practitioners; and
- practice modalities, such as primary care teams, coordination and information exchange, ability to tailor patient care.

Network of facilities

According to the law on medical insurance in Kyrgyzstan (Law No. 112, 2009), insured people have the right to freely choose a health provider in facilities contracted by the Mandatory Health Insurance Fund based on their residence (24). The network of facilities in primary care comprise a range of settings of care, including family medicine centres, family group practices, feldsher-ambulatory units and general practice centres (30). Rural areas are primarily covered by feldsher-ambulatory units staffed by at least one feldsher or nurse and midwife in larger villages. Family group practices are either included in the family medicine centres in cities or serve villages with more than 2000 people. General practice centres are established by merging primary health care facilities and territorial hospitals and provide services in remote and hard-to-reach areas (30).

The secondary care network is represented primarily by territorial hospitals, rural district hospitals, city hospitals and oblast hospitals merged with maternity houses, some of which have specialized outpatient care. Tertiary care is provided by republican health facilities, specialized dispensaries and hospitals at the regional level, most located in Bishkek (30).

Box 3

Definition: organizing providers and settings of care

Organizing providers and settings of care is defined as aligning the health workforce to match selected services and their design with the distribution of professional roles and scopes of practice and the arrangement in which the health workforce works according to settings of care and practice modalities for providing services as envisaged (149).

Despite the diversification of settings for primary health care to improve access, the availability of health practitioners in rural areas is consistently reported as insufficient, resulting in challenges of distance to services. The underlying causes are cited as being poor incentives to work locally, including professional development and, most predominately, issues of local amenities (such as housing and schools). Diagnostic services also face issues of access, with resources primarily available in Bishkek and large regional centres without a clear network or transport system for samples. Despite the need to focus on primary health care, new contracts for facilities are being signed at the tertiary level.

Challenges of rural access to primary health care. Not only is there an acute lack of human resources for family medicine doctors (9,40,56,58), the situation is consistently cited as especially dire in rural areas of the country (1,5,7,22,24,30,58,59,61,120). This is paralleled by the high number of specialists (40,59). In accordance with Ministerial Order No. 31 (2015) on the norms of staff units in health organizations, there should be one family medicine doctor for every 2000 population, two family nurses for each position of family medicine doctor and one feldsher per 1000 population. However, key informants repeatedly say that the number of available family medicine doctors is critically low, especially in rural areas (110,113). For example, reports note that family medicine group practices in some parts of the country cover a population of 6000 to 18 000 (56,61,63). Barriers such as the overall distance to primary health care services are also reported (16,22,56). The key causes are cited as the overall limited number of primary health care practitioners (110) and lack of incentives to work remotely and the limited role of local authorities to mobilize these incentives to attract and retain health practitioners.

Challenges in optimizing the ambulance network. Ambulance services have benefited from the support of development partners to procure equipment for ambulances (such as modern operational microscopes, anaesthetic and respiratory devices, cardio monitors, functional beds and medical tools) (30,144). Nevertheless, ambulance services face a persistent lack of major emergency care equipment (1,3,5,6,30,51,144). In the context of maternal and child health care, for example, reports find that children are primarily transported to hospitals by private transport or by foot (22). Severe limitations to the current emergency transport system, low ambulance-to-population ratio (6,105) and lack of policies on the regionalization of care present challenges in transporting patients to regional facilities in a timely manner (3,120,125,110).

The misalignment of the laboratory network with care pathways. There are some improvements in addressing the challenge of accessible laboratory testing through initiatives such as health caravans with mobile laboratory equipment (5,7,14) and TB sputum testing laboratories project (5,135), and the reorganization of laboratory services under the Swiss Autonomy Project has worked to optimize the network of laboratories. Nevertheless, it is repeatedly highlighted that the laboratory network faces organizational challenges (3,9,135), and means for communication with facilities are limited (14,135). Laboratory transport is available on a weekly basis only in some oblasts (14). The availability of equipment for tests is irregular, and for the most part, they are available only in Bishkek and regional centres (41,113).

Underlying causes

Lack of incentives for rural family medicine practice. Interventions to address the imbalance of the health workforce in rural areas have been introduced, such as a rural coefficient of 40% (Government Position No. 411, 2006). Nevertheless, accommodation for health practitioners and their families is highlighted as being among the greatest challenges. According to the Law on Protection of Citizens' Health in the Kyrgyz Republic, medical workers and their family members in remote areas and high mountainous regions are provided with housing in case of its absence (Law No. 6, 2016). However, resource constraints, the inconsistent availability of accommodations and the passive roles of local governments in providing housing are cited as persisting challenges to secure health professionals in rural areas (123,128,129,137,141).

Resource constraints. Underlying challenges to optimize the network of primary health care centres that extends to rural areas include additional transport needs for fuel for cars and equipment needs for communication, especially in remote areas and highly mountainous regions, which lack mobile and other phone communication equipment and Internet coverage (1,22). Although there is a need to focus on primary health care infrastructure to support the network of facilities, new contracts for facility renovations are being signed at the tertiary care level rather than ambulatory care.

Policy pointers and suggestions from the literature

- Enhancing databases of patients that are developed from the bottom-up and owned by the facility is cited as a recommendation for improving a sense of responsibility and commitment for primary health care centres to their practice population (50).
- Tackling the lack of accommodation repeatedly raised as being a barrier to young people moving to rural areas should be addressed with local authorities (67). Addressing the lack of doctors in rural areas could also benefit from investing in nurses and focusing on the primary health care team to enhance practices.
- Revisiting the network of facilities, reports highlight considerations, including the potential for primary health care centres with beds to serve as a satellite unit to other facilities (40), the need to revisit the role and scope of hospitals and focus on interconnections between hospitals and primary care facilities through facility management (9,25).
- Improving first response time and quality after suspected acute myocardial infarction and stroke should place focus on strengthening the capacity of ambulance services with electrocardiography, defibrillators, pulse oximeters and glucometers.

Regular access to care

Under Ministerial Order No. 229 (2006), family medicine doctors and nurses at family medicine centres have a working day of seven hours over a five-day workweek (20). This schedule includes three hours of receiving patients, three hours of home visits and a weekend shift (20). In health care for children, there is a practice of home visits, conducted by the family medicine doctor or nurse. According to an analysis

of child care home visits (20), a family doctor sees the child once at home three days after discharge from the maternity ward, and further visits are conducted by the nurse (17 times during the first year of life and nine times between one and seven years) (20).

Reports consistently cite opening hours in primary health care as being extremely restrictive. Informants describe most facilities as being open six hours on average, with two hours of home visits, resulting in four hours daily for patient consultations. An appointment system or formalized lines are not in place nor is an alternative to hospitals for after-hours care. Underlying issues include a lack of incentives to stimulate access among family medicine doctors.

Limited regular opening hours in primary health care. Limited primary health care opening hours are among the most consistently raised challenges in primary health care. Family medicine doctors are reported to work from 8:00 to 13:00, and statistical analysis has shown that they consult 59 patients per week on average (34). An average of four hours daily of practice working hours results in a limited amount of time to see patients. Key informants suggest underlying causes include the aged workforce, with many primary health care providers near or past retirement age. In the absence of regular health practitioners in the evenings and weekends but also in the late afternoon, there is excessive reliance on hospital inpatient care and ambulance services (20). The time allocated daily to conduct home visits further limits opening hours in primary health care practices. Carrying out home visits reportedly involves an excessive workload, such as additional forms and parents' refusal after frequent visits to the healthy children (20). These visits do not currently optimize the potential support of nurses and fail to focus on families and patients from high-risk groups (20).

Lack of a consistent scheduling system. Family medicine centres reportedly face structural barriers such as long waiting times to see the doctor and obtain test results (13,16). The literature reviewed reports the absence of a formal appointment system or formalized lines for visiting family medicine centres (9). This organizational limitation may be contributing to the excessive reliance on specialists without formal referral from a family medicine doctor (39).

Limited options for after-hours and emergency services. No alternative to hospitals is available for after-hours care. The transport of patients to well equipped regional centres with qualified staff is often problematic because of severe limitations of the emergency transport system (such as funding, equipment and staffing) and no clear policies governing the regionalization of care. Family medicine doctors have reportedly a very limited role in emergencies, citing issues of ambiguity as to the role of family medicine doctors in emergencies and after-hours care.

Underlying causes

Lack of incentives and responsibility for outcomes. Key informants speculate that the underlying cause that limits regular, consistent access to primary health care providers is an overall lack of stimulus or incentives to ensure that primary health care is responsive to needs. In the absence of a clear performance and accountability framework, there appears to be an absence of a systematic approach to engage family medicine doctors in a clear role and with a sense of responsibility to serve their practice population.

Policy pointers and suggestions from the literature

- How can nurses support and be more actively engaged in the function of home visits? Reports are clear in emphasizing the need to increase the reception time of family medicine facilities. Assigning household visits to nurses and in effect allowing family doctors to stay in centres for additional hours is recommended as a possible adjustment to improve regular opening hours (20). There are also suggestions to refine the requirements of home visits to focus on high-risk children and patients and limit and reduce the current number of visits for children to a few core visits. The development of information materials about home visits and what they involve has been recommended (20).
- Introducing a shift system for primary health care is recommended as a means to extend regular working hours. Currently, family doctors have a shorter than average working day (six hours versus the eight-hour national standard). Recognizing salary limitations and resource constraints, key informants have proposed a shift system as a means to extend working hours without significantly changing the demand on family medicine doctors. Gradually, extending the organization of practice hours through a shift system could allow for 12 daily practice hours while maintaining the standard eight-hour workday for providers.
- A comprehensive approach to ambulance services is recommended among literature reviewed to clarify the transfer of patients and integration of primary care, ambulances and inpatient services. For example, in the pilot facilities of the Autonomy Project, ambulances have been transferred under the inpatient treatment level and 24 hour facilities are used to determine whether a patient needs long-term or short-term treatment. Whether this model may apply to other parts of the country should be considered in working to optimize access to regular and emergency services.

Division of tasks (scope of practice)

Family medicine doctors

Progress has been made to detail the legislative basis on the role and scope of practice of family medicine doctors. According to Ministerial Order No. 149, a family medicine doctor should be able to examine, request necessary tests for the most common diseases (TB and type 2 diabetes being included) and interpret results, formulate a diagnosis and master the principles and methods of diagnosis, treatment, prevention and rehabilitation in relation to common diseases. The role of family medicine doctors was last revised in 2009.

Despite the legislative basis, the scope of practice of family medicine doctors appears ambiguous, with a low perception among patients in terms of what services they provide. Frequently cited causes are: limited incentives to manage complex patients, overburdened administrative functions, vertical disease programmes and lack of competencies to manage specific needs. The implications include excessive reliance on specialists.

- **Ambiguous role and core business of family medicine.** The reports reviewed signal that patients perceive the role of family medicine doctors as quite limited. In effect, family medicine doctors are described as dispatchers,

with patients visiting family medicine doctors solely to seek referral to specialists or refill prescriptions (40). Nevertheless, it has been described that in many instances, referral is without clinical need and referrals to specialists are frequently without risk stratification (3). This has been attributed to a lack of capacity or additional training to confirm diagnosis, even at low risk levels (3). This is echoed by perceptions among the public that family medicine doctors do not have the necessary skills and knowledge to be “an expert in everything” (14).

- **Overburdened administrative functions.** The burden of administrative functions is reported as a key challenge to the effective role of family medicine doctors. The number of forms and paperwork to be filled in is described as excessive because of the weak information system, which creates unnecessary paperwork and inefficiency (9,16).

Underlying causes

Aligning competencies with roles. The tendency to divert patients to specialists is most consistently cited as resulting from a lack of training to develop independent, confident and skilled family medicine doctors. An academic paper notes that some family group practitioners are not willing to manage diabetes in case insulin treatment is involved, with only 43% of the interviewed doctors reporting treating people with diabetes (79). Essential non-clinical skills, such as effective communication and teamwork, are also among core competencies that do not appear to be fully cultivated in family medicine doctors.

Clear sense of responsibility. Working on a salary basis, there appears an underlying issue of incentives to treat more or more complex patients. Reports suggest, for example, that because of the high workload, family medicine doctors are satisfied that specialists treat people with cardiovascular disease (39). However, key informants recognize that the incentive system alone cannot solve the passive role of family doctors. Rather, this may be attributed to the underlying ambiguity of the role and responsibility of family medicine doctors to their practice population. Clarifying the expectation of family medicine doctors in first-contact care, care coordination and gatekeeping to specialists appears key to resolving this.

Nurses in primary health care

In 20 pilot facilities, job description for nurses were revised with expanded and clarified responsibilities (5). There are also plans to strengthen the role of nurses to revise the curricula with a focus on noncommunicable diseases. Midwives are also important for providing care to mothers and newborns, but the delegation to them is low (5). Before the PEN project started, the Ministry of Health introduced nurse-led preventive clinics in all Bishkek family medicine centres (Order No. 445), including both PEN and non-PEN clinics (11). These nurses provide all family medicine centre visitors with consultations on cardiovascular disease risk factor levels and lifestyle changes (11). In PEN project facilities, clear algorithms of work were introduced for use by nurses, and their work was reorganized to include preventive measures (16). Patients with no or low cardiovascular disease risk are managed by nurses and given lifestyle recommendations and advice to visit the nurse again within three months (16).

The overall function of nurses in detecting and controlling noncommunicable diseases remains limited, despite the relatively sufficient number of primary care nurses. Weak delegation of tasks to nurses is reported, importantly, as the absence

of a clearly defined scope of practice for primary care nurses, as well as challenges of low status and prestige, low salary and limited lifelong learning opportunities.

No clearly defined scope of practice for nurses in primary care. Despite several documents that regulate the activities of nurses, this legislative framework does not show clear links between qualification requirements, skills, educational specifications and selection criteria, which are too general and are insufficient for managing disease (38). Most of the regulations do not specify the activities of nurses in relation to the patients, being declarative and indicative (38). In effect, nurses have a limited role in prevention services and services for detecting and controlling noncommunicable diseases. For example, nurses play a limited role in detecting cardiovascular diseases, and there is no obligatory nurse check-in before the registration to the specialists or physicians (3). Nevertheless, clinical protocols for nurses and midwives have been approved (9), and nurse pre-assessment rooms have been implemented in some facilities. These experiences are highlighted as good input for exploring the renewal of nurse roles nationwide (3,5,7,9).

Lack of delegation of tasks to nurses. Even though the numbers of nurses, midwives and paramedics are relatively sufficient, the capacity of and delegation of tasks to nurses remain low (5,9). In diabetes management, for example, nurses are regarded as assistants to doctors, and there are no standards on nursing for diabetes (38,79). Regulations do not provide any information about the partnership of family nurses and family medicine doctors, nor do they clarify what doctors can delegate to the nurses (38). Through pilot projects, nurses have received additional training, but the extent to which these new skills are applied in practice and followed up on appears limited. Nevertheless, there are good practices in working to delegate new roles to nurses, such as the initiative of nurse-led home visits, including pre-examination, risk assessment and home visits to infants (20).

Underlying causes

Low status and prestige among peers for nursing. Lifelong learning for nurses appears to be limited because of a lack of trainers of family medicine (3). As described, nurses are considered as subordinate to the doctor, lacking autonomy and decision-making capacity (18,24). In effect, nursing services are described as task-based rather than patient-centred (18). The nurses' training process is carried out by physicians, rather than nurses, and their education is predominately disease- and procedure-oriented rather than promoting critical thinking (18). The low salary of nurses is a repeatedly cited challenge. Nurses are reported to be likely to work 17-hour shifts, having secondary employment to supplement their low salaries (18). Moreover, nurses are noted to frequently be the target of organized recruitment for the private sector or international migration.

Narrow specialists

Challenges to reduce duplication and give priority to specialized cases. The ambiguous roles between family doctors and specialists are described to contribute to duplication in tasks (105). Moreover, because of the lack of risk stratification for patients and routine referral of low-risk patients by family medicine doctors, specialists are reportedly overstretched (3,39). The roles of specialists are reportedly not clearly defined (5), nor is the expectation of how specialists should coordinate with family doctors. In effect, cardiologists are treating people with cardiovascular diseases, neuropathologists stroke and its complications and endocrinologists type 2 diabetes.

Village health committees

There are 1700 village health committees functioning in 85% of the villages across the country (44). This accounts for 3.3 million citizens. They contribute to improving health awareness and healthy lifestyles, changing perceptions about public health-related issues and influencing their health and health care-seeking behaviour over time (44,80). They work without remuneration and rather for the gratification of the recognition from their community, gratitude of those they serve and satisfaction of meeting new people (80).

Optimizing the role of village health committees as members of the primary health care teams. Village health committees are unique additional resources to primary health care. However, they are not yet used to their full potential (44). Reports and key informants describe the collaboration between health-care personnel and village health committees as a particular area for improvement. Health-care personnel tend to assert their superiority in the health-care sector and in effect effectively limit communication (44).

Policy pointers and suggestions from the literature

- Exploring options to share the workload of primary health care should look to diversify the primary health care team. Both the literature reviewed and key informants highlight the importance of investing in nurses and midwives. Recommendations for expanding the role of nurses and feldshers consider services including carrying out and documenting comprehensive cardiometabolic risk assessment and counselling risk factors as well as other aspects of patient education (such as compliance with medication regime).
- There is a clear role for village health committees to be an active partner in tackling noncommunicable diseases. Village health committees can enhance the link between patients and primary health care and also the continuity of services. Described as “the power for prevention”, a model of services delivery that sees village health committees as an integral component, especially in rural areas, could be explored.

Practice modalities: primary care teams, coordination and information exchange

A shift towards a more coordinated approach to primary health care led by family medicine doctors appears most visible in the regions (3). Care coordinators for diabetes care in family medicine have been cited as the main health system factor that has led to improvements in diabetes care (79). Initiatives to adopt a multidisciplinary approach to services delivery have also been piloted. For example, an initiative to coordinate HIV services in primary health care has worked to introduce teams consisting of physicians, nurses and peer-to-peer consultants (9). The role and importance of information for coordination are also clearly recognized, with pilot projects working to introduce e-health and an electronic database (5,67).

Although a shift to make patient information electronic is in progress, coordination of care within and across practices faces persisting challenges in coordinating the exchange of information. Underlying causes are cited as a lack of appreciation for teamwork among health practitioners in primary health care.

Lack of consistent mechanisms for information exchange. The coordination of care appears better within facilities in which both specialists and family medicine doctors are located in the same building and use the same patient records (3). Patient records are the primary means of communication between specialists and family medicine doctors, since face-to-face meetings are infrequent or not practised (39). Between facilities the communication and coordination is weak, since there is no Internet and no system in place for coordination (1). The situation varies between the regions: in Bishkek, family doctors receive recommendations and patient records after a patient is discharged from the hospital, whereas in the cities of Osh and Issyk-Kul this type of coordination is weak (39).

Underlying causes

Limited notion of teamwork. Key informants say that family medicine centres have yet to be united in the role of different health practitioners working to support their practice population. Currently, providers coordinate only on an individual basis, and often family doctors are characterized as “Cinderella” to the centre. The collaboration between health-care personnel and village health committees can also be improved: health workers assert their superiority in the health care sector, which hinders communication (44). Although there are various donor initiatives for multidisciplinary teams in managing HIV, these approaches are not yet uniform (4,13).

Limited access to essential patient information. Since work to make the clinical information system electronic is in progress, health practitioners face the challenge of obtaining regular access to patient treatment and referral information. At present, patients remain responsible for delivering the information to specialists if they are referred (3). Similarly, when mothers are discharged from maternity wards, they are given printed versions of basic data from the electronic newborn register, and the mother is responsible for delivering this information to the primary health care facility (20). In the absence of an automated information and communication system, there is duplication in reporting and processes cited (24). Concerns over staff motivation and skills to fully implement a computerized system are noted (1,7).

Policy pointers and suggestions from the literature

- To improve coordination between family medicine and specialists, how might a rotation system apply or the co-location of services?
- Define feedback mechanisms, including information feedback to providers.
- Ensure monitoring and follow-up on data to increase accuracy and completeness of reporting.

Managing services

Reviewing managing services has considered the following:

- autonomy to allocate and manage facility resources (such as staffing and budget);
- upkeep of infrastructure, maintenance and facility resources; and
- adopting a results-oriented approach.

Autonomy to allocate and manage facility resources

There is a legislative basis detailing the responsibilities of facility managers (Position No. 177, 2013), and such pilot projects as the Health Facilities Autonomy Project and Health Results-based Financing initiative have worked to instil an understanding of the processes of planning and managing services in facilities. Since 2008, health facility managers have been hired on a contractual basis (3). According to Position No. 177 (2013), the heads of health facilities are responsible for analysing the activities of the facility and overseeing improvements to the methods of work, such as improving the organizational structure and planning of activities. Since 2013, the Health Facilities Autonomy Project has been in place in the districts of Ton, Zheti-Oguz and Tyup of Issyk-Kul oblast (Order No. 65, 2012). The project aims to increase the autonomy of health facility managers and thereby improve the efficiency and quality of the services provided. This project has included efforts such as establishing rayon health councils, decentralizing the management of resources and funding, streamlining the practices of hiring managers and introducing results-based financing for the volume and quality of services.

Despite progress made, challenges facing management practices at the facility level of human resources include a persisting lack of incentives and benefits to attract and retain health personnel, high turnover of personnel and low professional motivation. Although these challenges are outside the scope of facility managers, they ultimately compromise the availability of human resources at the local level. Underlying challenges are frequently cited to include an overall lack of managerial capacity, issues of transparency for filling

Box 4

Definition: managing services

Managing services is defined as the process of planning and budgeting, aligning resources and overseeing the implementation and monitoring of results to maintain a degree of consistency and order in the delivery of services and act on observed deviations from plans, problem-solving and troubleshooting as needed (149).

positions and facility managers using “ghost positions” for financial benefits.

Lack of managerial competencies. Formal management training as a criterion for appointment was given priority within the scope of the Manas reform programme (1996–2005) (3). In 2007, a long-term health management training course was planned for, but insufficient funding and leadership brought it to a halt (3). Thus, at present, formal management training is not required for managerial posts, and appointments are made based on seven years of working experience in the health sector and three years of experience in managerial positions (Position No. 117, 2013). Key informants were consistent in highlighting the need to invest in skilled managers, with this profile being limited despite being in high demand (119).

Lack of transparency in hiring processes. Heads of hospitals are currently selected by a system of appointment rather than based on merit, despite Position No. 117 (2013), which details the knowledge and skills required for heads of facilities. Some reports suggest that managers lack autonomy in the hiring process (13) and training in hiring practices, especially in documenting selections. Limitations to documents related to hiring processes are cited with regard to the absence of internal regulations and lack of standardized practices for listing duties and qualification requirements, which are often too general and unclear as well as no electronic filing system for record-keeping for the hiring process (26–28). In effect, hiring practices have been described as irrational, lacking transparency and generating excessive workload in the form of additional paperwork for personnel that is not explicitly included in their duties (3,5,16,24).

Issue of high personnel turnover and gaming of vacancies. There is a high turnover of personnel and an overall shortage of health workers, with estimates suggesting that only half the positions are filled and more than 70% of current personnel are nearing retirement age. The challenge of retaining personnel is noted, especially nurses, with instances described in which nurses are hired and yet in the span of a few months move to the private sector or abroad. The high turnover and number of vacancies is high despite the high number of medical universities and training centres in the country. An underlying cause is cited across reports as the overall low salary for the health workforce (5,18,30,58,72).

Low level of autonomy for budget management in family medicine. Although introducing mandatory health insurance and the State Guaranteed Benefit Package has led to more equalization of funds, budget allocation remains a centralized exercise by national government bodies (3,5,7,30,120). Overall budget autonomy in family medicine group practices faces challenges of financial constraints, with limited resources for making health improvements. Key informants report limited money received by facilities through the unified payment system is a key barrier to empowering facility managers. Persisting levels of out-of-pocket payments and informal payments are noted as a further symptom of budget constraints (24,40,49,72,78). This may also contribute to the described gaming of vacancies, noted in reports and anecdotally, in which managers of primary health care facilities keep positions vacant to generate labour payment and continue to receive salaries for positions that are not filled, a process described as “ghost” positions (40,100).

Policy pointers and suggestions from the literature

- The literature reviewed consistently recommends improving the hiring processes of facility managers. Considerations include: a dedicated training

course for facility managers on planning for and hiring health personnel; improved documentation processes for hiring, including developing standard contracts and reviewing qualification requirements; and developing an electronic record-keeping system for employees.

- Consider how the legal status of family medicine centres affects the level of autonomy. For example, if family medicine centres were their own legal entity, would this generate a clearer sense of ownership and accountability? For example, the staff and management of the TB centre in Bishkek are perceived as “owners” of the facility, which has been described to contribute to improved quality.
- Future planning should revisit the terms of contracting and more clearly define the decision-making autonomy and role both of facility managers and local authorities.

Upkeep of infrastructure, maintenance and facility resources

The contributions of international donors have enabled the procurement of resources and the refurbishment of health facilities. However, facility managers have reportedly taken a passive role regarding maintenance of infrastructure. There is also a persisting uneven distribution of resources geographically and by levels of care as well as an underlying lack of clear accountability lines for maintenance.

Uneven distribution and quality of resources. Donor support has supported the procurement of necessary equipment for health facilities and ambulance services, including equipment for managing cardiovascular disease and small grants for infrastructure (44). However, a persisting lack of equipment in the rural parts of the country is cited, especially limitations for effective waste management and sanitation (1,10,22,26–28). The investment in infrastructure is weaker at the ambulatory level than in hospitals (24). Moreover, the equipment procured with the assistance of international donors is subject to quality considerations, but procurement procedures are lacking for equipment obtained directly by health facilities (30,131).

Absence of clear processes for maintenance and resource sustainability. Although it is well recognized that donor support has substantially improved the procurement and availability of resources, issues of maintenance are raised (9,24,92,131). Guidelines and a fund for maintenance, supported by the KfW Development Bank and the World Bank were created in 2012, but challenges include its centrally controlled design and the passive role of facilities in participating through applications for funding (60,131). The position of a maintenance officer in the Ministry of Health has reportedly been established, but this has yet to inform a clear system of accountability for maintaining facilities and equipment, and both the resources for refurbishment and maintenance and the responsibility to do this are not clearly delegated.

Policy pointers and suggestions from the literature

- Considering priority health improvement areas and services, what influence does this have on the necessary resources and their management in primary

care? How can this list be minimized to those essential resources?

- A system for maintenance has yet to be developed. This gap needs to be addressed in planning and acquiring resources to also consider the availability of funds for maintenance. A strong commitment is needed across the levels of the health system that clarifies the responsibility of various actors.
- The literature reviewed recommends investing in training for managers on equipment management, procurement procedures and tendering suppliers.

Adopting a result-oriented approach

A scheme for outcome-based payment has been designed and implemented in Kyrgyzstan. For example, outcome-based payment for oblast TB coordinators based on treatment success and achieving sputum conversion has been introduced in three districts in the Issyk Kul oblast (14). In addition, the Health Results-based Financing initiative has been introduced with the aim of decentralizing decision-making capacity at the facility level, provide incentives for results-based monitoring and increase providers' accountability for the services provided. The initiative started in 2014 and was rolled out in 25 family medicine groups in Ton, Tuyp, Jeti-Oguz rayons of the Issyk-Kul oblast and 42 hospitals (42).

Despite good initiatives to introduce outcome-based payment and indicators for quality control, the salary-based remuneration system for family medicine doctors does not provide incentives for improving performance, and the sustainability concerns related to current initiatives are noted.

Low staff motivation. The implications of the salary-based remuneration system and the challenges of low salaries in primary health care in providing incentives for improving performance are well recognized (3,5,14,30). However, key informants also note that increasing salaries alone will not be sufficient to improve overall motivation. A persisting punitive management style is cited as a key challenge for management to generate momentum for improving performance (3). Underlying causes may include the previously noted the absence among providers of a clear sense of responsibility and accountability to their practice population. Moreover, pre-occupation among managers with administrative matters, rather than overseeing quality improvement and tangible results, may limit motivation, whereby improving performance is seen as an additional rather than primary task (3).

Challenges of the scale and sustainability of initiatives. Despite ongoing initiatives to introduce pay-for-performance principles, the remuneration system in primary health care is not designed to reward performance and as such, managers have limited leverage to lead on improving performance. Thus, although indicators for improving quality exist and are reported on, this remains outside the payment system (7,58). Although there is a plan to add bonuses to the salaries of family medicine doctors that provide incentives to target performance on indicators, including maternal and child health, cardiovascular diseases and primary care-sensitive conditions (30), the process has not yet been systematically implemented and depends largely on donor funding (13). The current funding allocated to ongoing initiatives does not enable the full scaling up of the pay-for-performance scheme (42). The critical

need to link performance measures with the Mandatory Health Insurance Fund has been raised amid concerns about long-term sustainability and how to optimize an overall results-oriented management approach.

Policy pointers and suggestions from the literature

- How can such initiatives as the Autonomy Project, piloting mechanisms to improve facility planning and staffing, be applied to improve the strategic planning of services to ensure that resources are used optimally?
- Reports have made the case for creating the fiscal space for results-based financing as a means to maximize existing resources by improving the quality of services (42).
- As new tasks and scope of practice are considered for doctors and nurses, consideration should be given to ensuring that the incentive scheme is aligned across the levels of care.

Improving performance

Reviewing improving performance has considered the following:

- strengthening clinical governance; and
- creating a system of lifelong learning.

Strengthening clinical governance

The Ministry of Health Order on the improvement of the quality management system in health organizations of the Kyrgyz Republic (Order No. 454, 2015) is one of the main documents aiming to ensure the continuous improvement in the performance and quality of health services in Kyrgyzstan. This document describes a comprehensive structure for quality assurance bodies within facilities, including committees,

departments, technical and working groups on quality management, regulations on clinical audit, medical records, equipment, terms for the quality management and job descriptions of the experts and technicians responsible for the quality management, occupational safety and health, clinical pharmacology and infection control.

Despite this legislative basis, the concept of improving the quality of care and national support mechanisms for the described local systems (such as training, data management and information exchange) remain to be clarified in practice (32).

According to Order No. 454 (2015), an internal quality improvement mechanism has been formally established at the health facility level; quality councils govern executive quality units to coordinate quality technical groups. Quality councils issue an annual work plan, conduct regular reviews and report to facility management and to the Mandatory Health Insurance Fund. At present, however, feedback between facilities on their activities in improving quality is absent (32); quality assessment by the committees is mostly a formality (110). Various health facilities make adjustments and adaptations based on available capacity and the level of personal commitment among managers, adapt mechanisms for internal quality improvement. Although some evidence indicates successful activities and the feasibility of these structures, little evidence shows that it works countrywide.

Box 5 Definition improving performance

Improving performance is defined as the process of establishing feedback loops that enable a learning system for spontaneous testing and adopting adjustments towards a high standard of performance, made possible through cycles of continuous learning and the regular review of clinical processes (149).

The Mandatory Health Insurance Fund is responsible for external quality assessment and budget allocation (8,34,50,53). The Mandatory Health Insurance Fund regularly conducts external quality assessment, including in instances of patient complaints. It examines the observance of patients' rights, compliance with established standards of care, justification for hospitalization, reasons for repeated surgery, post-surgery complications and cases involving death (53).

With regard to the legislative basis and range of government stakeholders, numerous normative government documents focus on the quality of care. The Ministry of Health performs overall supervisory, legislative and normative functions and is responsible for developing clinical guidelines, appointing hospital managers and accrediting health facilities. The leadership role of the Ministry of Health in defining policies, providing health services and taking responsibility for sector funding, however, has been weakened, since the available resources do not enable this large scope of work to be tackled, resulting in what reports describe as insufficient capacity to tackle other aspects such as planning and management (32,91).

At the same time, there are several quality improvement initiatives, funded primarily by development partners (13). For example, results-based financing within the Health Facilities Autonomy Project was initiated, as a result of which contracts between providers and the Mandatory Health Insurance Fund were revised to better link the performance of facilities and funding (63). In the framework of the continuous quality improvement project by the United States Agency for International Development and the Swiss Agency for Development and Cooperation, quality indicators were developed and introduced in the pilot facilities and have contributed to improving services delivery (3,57). Recent and planned initiatives include, for example, a tool for collecting data on the experience of adolescents with health services delivery, which will be rolled out with the support of UNICEF (21).

These are examples of interventions towards developing an efficient national programme on quality management in Kyrgyzstan, but they are fragmented across vertical programmes and pilot locations, and there is no central capacity for coordinated development (32,91,95). The sustainability concerns related to current initiatives are also noted (13,95).

The prevailing legal, executive-style approach to quality rather than self-regulation in health services delivery focuses on administrative matters and reporting rather than efficient management (3,5,9,32). Existing governance mechanisms are largely based on external control and inspections, duplicating internal systems of quality checks and adding burdens on facility management and serving as a barrier to self-regulation (3,32).

Even though health facilities in Kyrgyzstan have access to and are part of the external quality assurance mechanisms, these mechanisms are not uniform and differ for each type of facility. Medical Accreditation Commission authorizes the accreditation of the facilities, required for contracts with the Mandatory Health Insurance Fund, and this is valid for three years (32). The Medical Accreditation Commission is not an independent nongovernmental assessing body but a group founded by the Ministry of Health and permanently chaired by the deputy minister, which poses a challenge for the process as a whole.

Private health facilities and pharmacies are not accredited but licensed permanently and are subject to the regular check-ups. Instead of generating income from relicensing processes, the process of check-ups puts additional strain

on the public budget. Moreover, the resulting discrepancies in the assessment of the state and private health facilities put the protection of public health at risk (32).

Adherence to evidence-informed standards in implementing clinical protocols remains low. Reports consistently highlight that clinical protocols are not always in place and updated (24,56,57,62,120). Training programmes are not aligned with the newly adopted guidelines (24). Other challenges include the degree to which the protocols facilitate the coordination of services: for example, in HIV services, protocols do not appear to consider differences in the vertical network of providers and decentralized network at family medicine centres (13).

The Republican Health Information Centre and National Statistical Committee collect and analyse data (3,5,43,50). In addition, the Sanitary Epidemiological Service and Republican Infectious Disease Centre are also involved in external quality assessment (50). The Drug Regulatory Authority is in charge of controlling the quality of medical equipment and medicines and investigating reports on adverse drug reactions (50).

The data collection pathway is largely in one direction, from health facilities to the Mandatory Health Insurance Fund and Republican Medical Information Centre, and there are no published annual reports identifying quality activities and quantified improvements in the performance of the health-care system. The annual yearbook on the health of the population in Kyrgyzstan published by the Republican Medical Information Centre merely compiles statistical data and does not provide analysis for use by the health-care workers and managers (32). Despite this wide range of stakeholders involved in addressing different aspects of quality, there are mutual challenges of coordinating the activities between them to maximize the impact of interventions.

The Mandatory Health Insurance Fund regularly receives many valuable patient-based data, for example, on complications and comorbidities, but does not use them fully, even though this has great potential for providers in learning across the system (32,34,117). The payment modes do not explicitly target the performance of providers, which thereby does not lead to the improvement of quality (34).

The Mandatory Health Insurance Fund has an information system that includes comprehensive data on patient discharge and the quality assurance of health services. It also collects financial information on health facilities included in the single-payer system (30). Quality assurance systems have been introduced for hypertension and bronchial asthma, including feldsher-ambulatory units (57).

The Mandatory Health Insurance Fund as the main purchaser does not have effective penalties for poor quality and positive incentives for good quality (34,42,91). Poor management, especially of the internal organizational auditing (56), insufficient understanding of the importance of increasing the quality of services (57) and lack of systematic clinical auditing (57) remain key challenges.

Specifically in primary health care, data reporting challenges are aggravated by an inadequate material and technical base (such as infrastructure and laboratory and diagnostic equipment), excessive amount of low-information recording and handwritten reporting forms partly because of the inadequately automated system for recording medical and accounting documentation (5).

At present, little attention is focused on the safety of patients and the health

facility environment, other than for communicable diseases. Because of the fear of punishment, adverse events are often underreported, including drug reactions and complications related to treatment. Aspects related to patient safety, especially environmental and occupational health, have been delegated to quality councils since 2012. Maternal and child health care is a notable exception and a good practice. A total of 148 cases of maternal mortality were audited and near-miss cases in perinatal care were reviewed (9), and an Integrated Management of Childhood Illness data monitoring system was developed (43).

Despite the existing legislative framework on protecting patients' rights on funded care, privacy, information and dignity (2005), issues from patients' perspective and experience are not sufficiently addressed. The Ministry of Health, the Mandatory Health Insurance Fund and facility managers have some good initiatives in collecting, reviewing and reporting on complaints from patients and quality councils, which are recommended to scale up into a nationwide standardized approach (8,32).

Creating a system of lifelong learning

Training on preventing cardiovascular diseases and controlling risk factors and training on maternal and child health care are being conducted for personnel in primary health care. Scientific and practical conferences and postgraduate training at the scientific and educational centre are also in place. Training is engrained in the projects in pilot facilities, such as on implementing PEN protocols and on evidence-informed clinical practice for results-based financing, but have not been implemented nationwide (129). More specific projects such as postgraduate medical education and the ongoing medical education reform are also being realized. Some elements of epidemiology are taught in public health modules and infection control. The Kyrgyz State Medical Academy is now developing a new curriculum to be approved by the Ministry of Education.

The Hospital Association and the Association of Family Doctors and Nurses have been involved in certifying doctors and in setting and evaluating medical care standards on the consistency between specialties and across the country. Medical care specialization to prepare general practitioners was reviewed. Scholarships for the family medicine specialization are being offered, although the number offered is declining (129). The Kyrgyz State Medical Academy is the only medical school in the country officially providing undergraduate training and degrees in family medicine while facing one major challenge on the lack of clinical teaching bases because of competition with five other private medical universities. The problem of limited clinical practice also applies to postgraduate medical education, adding to the fact that programmes are duplicated (129).

The apparent lack of coordination between potential clinical bases (hospitals) and the medical university directly affects the quality of medical training (129). Tele-teaching for family doctors and residents in the regions is developing through a distance learning programme. For instance, despite the training on TB management, family doctors still lack skills in identifying TB in family medicine centres. The same issue is reported in diabetes management, which suggests a lack of training and vertical management of care for patients with comorbidities (78).

The evidence-informed clinical practice and quality improvement are not being included in either undergraduate or continuing medical education curricula (32).

There is a lack of commitment for developing quality improvement and patient safety (32). Lack of opportunities to improve clinical practice contributes to the low level of prestige and status of family medicine among both the public and peers.

Underlying causes

The underlying causes affecting the improvement of performance and quality are largely cross-cutting and characterize the other processes of health service delivery, since they include issues related to the health workforce, especially low motivation, vertical organizational structure with a punitive rather than rewarding system of control and lack of nationwide accepted policies and systematic initiatives because of fragmentation and multiple pilot projects.

Limitations of the mechanism for improving quality at the health facility level. The quality of care is also linked to the lack of autonomy at the level of health facilities. Managers do not take responsibility for improving efficiency and skills, making informed decisions and performing peer review (32). This might be linked to the general issue of a non-merit-based system of appointment (see the section on managing services). Although the mechanism for improving quality (Order No. 454, 2015) for health facilities has the potential to ensure that quality improves by resolving the problems raised and internal monitoring of quality indicators, its effectiveness largely depends on individual leadership skills, personal commitment of managers and the available capacity and enthusiasm of responsible health personnel.

Low motivation for continually improving performance and quality. Lacking transparency in hiring processes, “ghost positions” for financial benefit and lack of incentives to attract young professionals contribute to the consistently reported low adherence to improving quality.

Poor compliance with clinical guidelines and low use of protocols. Lack of financial incentives and time for peer review of updated clinical guidelines, fragmented interventions, pharmaceutical companies lobby resulting in biased clinical evidence and inadequate training explain the poor compliance with updated clinical protocols (32).

Data management issues. A fear of punishment and insufficient technology support are cited as causes contributing to the lack of systematic data use in Kyrgyzstan (9). Another factor explaining doctors’ lack of motivation to complete the necessary forms for analysis is the absence of computers and a harmonized reporting system. Data are often duplicated because of improper database use (26–28).

Cultural factors. The reporting culture in which events designated as being reportable are systematically underreported affects patients’ safety. Reporting is discouraged by a culture of blame and punishment rather than learning and by the willingness to publish reports of zero deaths, infections or complications rather than real numbers.

Policy pointers and suggestions from the literature

- Existing legislation needs to be revised to be integrated in a new comprehensive national plan, which should include existing vertical and horizontal programmes and coordinate with other elements of the health system (32).

The responsibilities and leadership roles should be explicit and divided between central bodies. Further engaging professional associations in efforts to improve quality has also been suggested (32).

- The literature proposes considering increasing the autonomy of the Medical Accreditation Commission so that it can equally assess health facilities, including those privately owned, to assess their compliance with national standards and regulations (32).
- The literature puts forward capacity for quality control and monitoring reporting as a priority that can be strengthened by training management to use database and information technology and by conducting the necessary qualification training for operators and medical record clerks (26–28).
- The literature proposes converting the national multi-profile hospital in Bishkek into a teaching hospital to increase the capacity to teach clinical practice in the Kyrgyz State Medical Academy.

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¹ The reviewed documents can be accessed electronically through a share file at this link:

<https://drive.google.com/open?id=1dipcoAJtHb14cnXdEPBycZfKDI97BDQa>

Please contact the WHO Country Office in Kyrgyzstan for questions or clarification at: eukgz@who.int. Note only published files and presentations are available at the link provided.

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Legislation

The titles of the following documents have been translated into English.

Accreditation of standards – compilation of standards on family medicine centres. Medical Accreditation Commission.

Hospital accreditation standards – section I: governance/management. Medical Accreditation Commission.

Hospital accreditation standards – section II: clinical safety. Medical Accreditation Commission.

Hospital accreditation standards – section III: quality of health care for patients. Medical Accreditation Commission.

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Annex 1. Scoping review tool

Selecting services		
Population-based focus for setting priorities for services	Population stratification	Does the surveillance system for population health inform the selection of services? Does this consider population risk? Vulnerable groups?
Clearly defining the package of services across the full continuum of care	Basic benefits package	Is there a clearly defined and standardized package of services? What are the specifications of this package if any?
	Primary prevention Information, education and counselling and lifestyle services	Are counselling services delivered in primary care, such as for nutrition and diet, physical activity, smoking cessation, alcohol dependence, postnatal counselling, behaviour change and mental health?
	Screening (population-based)	Do generalist medical practitioners manage screening in primary care? Do generalist medical practitioners perform annual check-ups or health examinations? Is medicine dispensed in primary care?
	Individual risk assessment	Do generalist medical practitioners perform cardiovascular risk assessment? Other types of risk assessment?
Diagnosis	Early detection Registration Screening Laboratory tests Imaging services	To what extent do primary care health professionals deliver diagnostic services? By tracer condition?
Treatment	Prescribing medicines Therapeutic appliances Follow-up care Acute care	To what extent are generalist medical practitioners able to prescribe medicines for identified tracer conditions? Prescribe therapeutic devices? Who delivers follow-up care and how? How are acute care episodes responded to?
Managing disease	Multidrug therapy Home care Telemedicine Secondary prevention Pain management Psychological services	For which tracer conditions do primary care providers manage services? Which specialists are involved in managing diseases?
Palliative care	Multidrug therapy Home care Pain management Psychological services Cognitive therapy	Are services for long-term care and palliative care available? Do these include home care? Pain management? Other forms of palliative care services?
Parallel services	Laboratory tests Rehabilitation Physiotherapy Health literacy	How are laboratory tests conducted? Are rehabilitation and physiotherapy services available? Are specific services for improving health literacy in place?
Patient engagement and behavioural change	Self-management Shared decision-making Peer-to-peer support Patient schools Patient incentives	Are services in place to engage patients in their care? Supporting their self-management? Are patients encouraged to participate in decision-making about their care? Are there patient schools for specific conditions? If so, which?

Designing care across the life course

Design of care pathways, including transitions, referrals and counterreferrals to map out optimal routes for patients	Referral system Discharge Hospitalization	Do primary care health professionals control access to specialist care? Social care? Are referral protocols in place, such as a referral letter with relevant information on diagnostics and treatment?
	Follow-up care	How are patients with multiple chronic conditions followed up? Home visits?
	Care pathways Care transitions	Do care pathways between levels of care clearly define the flow of patients? Are there mechanisms for streamlining the transition of patients?
Ability to tailor patient care	Care plans Flexible access	How Are personalized care plans in place for patients with multiple conditions? Are services designed to manage an individual's multi-dimensional needs?

Organizing providers and settings

Accessibility of facilities	Primary care facilities Polyclinics Choice Registration Patient load Caseload	Are patients generally free to choose a primary care practice? Their primary care doctor? Are patients required to register with a generalist medical practitioner? What is the average size of a practice? How many patients does a doctor usually see per day?
	Hospitals District hospitals Specialized hospitals Coordination	What is the organization of the hospital network? How is this organized with referrals from primary care?
	Labs Laboratory network	How is the laboratory network organized? What are the differences between primary care and specialist services, if any?
Regular access to care and acute care services	Opening hours After-hours care Acute care services	Do practices have minimum opening hours? What are the arrangements for patients to receive services when primary care practices are closed?
Practice modalities (primary care teams and a multidisciplinary approach)	Multidisciplinary teams Coordination Cooperation	To what extent is primary care delivered by a team of health professionals? Which types of health professionals are part of the primary care team? To what extent do health professionals from different sectors (such as community health, mental health and social care) coordinate?
Clear division of tasks (scope, breadth and range of services) across providers	Scope of practice – nurses	What is the overall capacity of nurses to manage services in primary care? Including prescribing, ordering laboratory tests, diagnosing patients, making health-care decisions, ordering referrals etc.?
	Scope of practice – generalist medical practitioners	To what extent can generalist medical practitioners diagnose, prescribe and treat priority health improvement areas?
	Scope of practice – specialists	What is the role and scope of tasks for specialists? How do specialists work with other health-care providers?
Information exchange	Shared medical records Care coordinator Telehealth	What mechanisms are in place to streamline the flow of information (such as shared medical records and electronic records)? Are care coordinators in place?

Managing services

Autonomy to allocate and manage resources	Staffing Personnel	Are facility managers able to recruit staff? Are they able to determine the level of remuneration for staff?
	Facility management Facility budgets Facility investments	To what extent are facility managers able to determine the budget of health facilities? Are they able to transfer funds between budget lines? Can they reinvest savings?
	Upkeep of infrastructure Maintenance Facility resources	What is the status of facility infrastructure? Do managers ensure regular upkeep and maintenance? What is the status of the available resources in facilities?
Linking meaningfully across actors	Collaborations Private sector Nongovernmental organizations	What are the links between the different actors that affect the decision-making in the provision of services?
Adopting a result-oriented approach	Performance-based management Patient satisfaction (survey) Patient-reported outcomes Pay for performance Strategic planning	Do annual reviews and planning processes take place at facilities? In districts? And/or provincially? Do regions inform strategic planning processes?

Improving performance

Strengthening clinical governance	Assessing performance Reporting safety incidents Feedback on the quality of care Clinical targets Complaint system Reporting adverse events Inspections	What are the processes for assuring quality of care (e.g. safety incident reports; complaints reporting; performance assessments; inspections etc.)?
Creating a system of lifelong learning	Continuing professional development Continuing medical education Peer-review groups Clinical audits In-service training	What mechanisms are in place for continually improving quality in primary care (such as continuing medical education, continuing professional development, internal reviews, audits and training)? How often do these occur? What mechanisms are in place for specialist services?
	Professional satisfaction Prestige Career development	What is the status of health professionals? Do professional specialties differ in prestige, career satisfaction and professional opportunities? How does this vary geographically?

Annex 2. Health needs

Pertinent health needs

The literature consistently reports that noncommunicable diseases pose the highest population health risk. In 2015, noncommunicable diseases accounted for 80% of all deaths in Kyrgyzstan (6). That same year, the probability of dying from the four main noncommunicable diseases between 30 and 70 years of age was 31.8% for men and 17.0% for women versus the average for the WHO European Region of 23.7%, and 12.3%, respectively. In 2013, the mortality rate from noncommunicable diseases was 2.5 times higher among men than among women (19).

Cardiovascular diseases. Cardiovascular diseases continue to be the leading cause of mortality in Kyrgyzstan, accounting for 50% of all deaths (3,6,19,64,100). Major cardiovascular diseases include acute myocardial infarction, stroke, acute coronary syndrome, ischaemic heart disease and chronic obstructive pulmonary disease. There is, however, a stable reduction in the mortality rate from stroke and acute myocardial infarction (the latter being reduced more among women than men) (6). The mortality rate from ischaemic stroke, in contrast, increased between 2011 and 2014 and accounts for a large share of premature mortality (6,52).

Diabetes. Since the early 1990s, the prevalence of diabetes among men and women in Kyrgyzstan has been steadily increasing, reaching 7.8% for males and 9.3% for females in 2014. The leading risk factor for both males and females is overweight (42.5% and 46.6%, respectively) followed by obesity and physical inactivity (150).

Cancers. The rates of cancer incidence and mortality in Kyrgyzstan are among the highest in central Asia (85). Mortality is high among women, largely because of high rates of breast and cervical cancer (7,52). Among men, stomach cancer causes the greatest cancer-related mortality, followed by lung and liver cancer (85). The rate of mortality from cancer for both sexes in Kyrgyzstan was 99.86 per 100 000 population in 2012 (151).

Maternal and child health. According to the 2016 review of Den Sooluk, major targets in reducing maternal and perinatal mortality were reached: reducing the infant mortality rate by 10% in 2016, reducing the perinatal mortality rate of underweight children by 20% and reducing the maternal mortality rate (9). However, Kyrgyzstan's infant and maternal mortality rates are among the highest in the WHO European Region (24). Kyrgyzstan has the highest maternal mortality rate in the Region at 76 per 100 000 (the regional average is 16 per 100 000) (152). It also has among the highest under-five and neonatal mortality rates: 21.1 (regional average 9.6) and 11.6 (regional average 5.1) per 100 000, respectively. The leading causes of maternal mortality are haemorrhage, excessive bleeding, extragenital disease, hypertension and septicaemia (5,9,24,40,52,90). Infant and child mortality mostly results from diarrhoea, pneumonia, fever, neonatal cases (such as prematurity, low birth weight, neonatal infections and birth asphyxia) (2,40). Anaemia is also present in infants younger than 24 months, and micronutrient deficiency presents among children younger than five years (43).

Tuberculosis. The number of people with TB declined in both the general population and the penitentiary system between 2001 and 2009 (25). The trends stabilized between 2010 and 2014 (25). The incidence of TB decreased from 71.8

per 100 000 population in 2012 to 45.7 per 100 000 population in 2016 (67). The mortality from TB also declined from 27 per 100 000 population in 2001 to 5.8 per 100 000 population in 2016 (48). The present focus is tackling drug-resistant, multidrug-resistant and extensively drug-resistant TB (14). Kyrgyzstan is ranked among the 30 countries globally with the highest estimated incidence of multidrug-resistant TB.

HIV. HIV remains a priority of development programmes such as Den Sooluk. HIV infection is primarily concentrated among people injecting drugs but also poses a danger to the general population (4,100). The rate of mother-to-child transmission of HIV has decreased, and the target of reducing HIV transmission by 3% was reached in 2015 (9,10). However, one third of the people living with HIV were not diagnosed (4). The number of people receiving antiretroviral therapy increased between 2012 and 2016 (10), but only 2% of the people who inject drugs and are living with HIV receive both antiretroviral therapy and opioid substitution therapy (4).

Risk factors

Behavioural risk factors such as dietary risks, alcohol use and tobacco consumption drive deaths and disabilities, hypertension and high body mass index (3,5,7,9,11,17,19,36,81,82). Almost one in five adults were identified as being at high risk of cardiovascular diseases in 2013, and more than one third of adults have three or more cardiovascular risk factors (11). More than two fifths of people 25–64 years old have elevated blood pressure, and one quarter have elevated cholesterol levels (11,36).

In 2013, about half of men smoked and more than 25% of all adults smoke (11,36). Common foods have high salt content and trans-fats (11,15,36). Of 187 countries, Kyrgyzstan had the fourth highest sodium consumption in 2013 (19). That same year, about two fifths of men and one fifth of women were considered current alcohol consumers, and 23% of men reportedly binge drink (19). Alcohol is a key risk factor for diseases including multiple forms of cancer, pancreatitis, epilepsy, diabetes, cirrhosis, ischaemic heart disease, stroke and other cardiovascular and circulatory diseases (19). One third of adults are overweight, 23% are obese and 11% are insufficiently active (19).

The risk factors for infant and child mortality are mostly related to the health condition of the mother and poor environmental conditions (such as outdated methods of heating in villages) (40). Underlying risk factors include poor living conditions, water supply and sanitation (97), social discrimination, urban planning and the availability of goods (19).

Forecasting needs

By 2030, 11.3% of Kyrgyzstan's population is projected to be 60 years or older. This is up from 4.23% older than 65 years in 2015. This trend signals a potential increase in the old-age dependency ratio and current trends across the WHO European Region associated with ageing, including the increasingly large share of the burden of disease attributed to noncommunicable diseases as well as rates of disability among ageing populations.

Premature mortality from noncommunicable diseases declined from 659.5 per 100 000 population in 2010 to 604.1 per 100 000 population in 2013 (7). If this trend continues, this indicator is on track to reach the target set by Health 2020 (2020), global noncommunicable disease targets (2025) and a Sustainable Development Goals target (2030) (7).

Total mortality from cardiovascular diseases declined between 2012 and 2016. However, Kyrgyzstan still has the highest rate of avoidable mortality from cardiovascular diseases in the WHO European Region (3,9,19,29). Complications for people with diabetes and myocardial reinfarction have increased (40). A total of 17% of Kyrgyz adults 40–64 years old have 30% or higher probability of having a fatal or nonfatal cardiovascular disease within 10 years (19). Kyrgyzstan is predicted to have 11 000 people with newly developed cancer per year (34).

Despite progress made, the target of reducing TB prevalence by 50% has not yet been reached, nor has the target on the mortality rate – it is currently twice as high (11 per 100 000 population) (14). Kyrgyzstan is one of 27 countries with the highest indicators for the drug-resistant type of TB (25).

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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