Improving the implementation of a package of essential noncommunicable (PEN) disease interventions in Kyrgyzstan:

mixed methods service evaluation
of pilot health centres

By: Dylan Collins, Jill Farrington,
Anna Kontsevaya and Alina Altymysheva

WHO European Office for the
Prevention and Control of
Noncommunicable Diseases

9 Leontyevsky Pereulok
125009 Moscow, Russian Federation
Email: NCDoffice@who.int

Website:
www.euro.who.int/en/NCDoffice

Improving the implementation of a package of essential noncommunicable (PEN) disease interventions in Kyrgyzstan:

mixed methods service evaluation
of pilot health centres

By: Dylan Collins, Jill Farrington, Anna Kontsevaya and Alina Altymysheva

Abstract

WHO has defined a minimum set of essential NCD interventions to be implemented in primary health care (PHC) in low-resource settings in its package of essential noncommunicable (PEN) disease interventions. Kyrgyzstan has been piloting the implementation of PEN protocols since 2014. During late 2016, WHO carried out a quantitative evaluation of their implementation in family medical centres after 12 months. While it was possible to ascertain the costs incurred in implementation, it was not possible to demonstrate effectiveness. WHO followed up with this qualitative evaluation. An analysis of interviews with 30 PHC staff in five PEN pilot clinics revealed 11 exploratory themes indicating, for example, that clinicians were not confident or proficient in using risk prediction charts/scores and were not using risk stratification to inform management. This may be explained by lack of training, lack of time, lack of human resources, lack of supportive technologies and lack of patient materials. These exploratory themes were integrated with the quantitative findings and potential areas for further exploration to improve the implementation of cardiovascular risk assessment and management in Kyrgyzstan. These include: adjustment of the training model; adaptation/redesign of the cardiovascular risk assessment pathway with supportive technologies; a systematic approach to identifying, recruiting and following up the target population; and support for PHC interventions with community and population interventions and communication campaigns to reinforce the message of prevention.

Contents

Acknowledgements

Acronyms and abbreviations

CVD	cardiovascular disease
FMC	family medical centre
GP	general practitioner
NCD	noncommunicable disease
PEN	package of essential noncommunicable disease interventions
PHC	primary health care

Executive summary

In Kyrgyzstan, cardiovascular diseases are responsible for half the number of deaths and are a major theme of the national health reform programme 2012–2016. Achieving global and national targets for reduction in premature mortality from the four main noncommunicable diseases (NCDs) will require action in the prevention and management of these diseases. WHO has defined a minimum set of essential NCD interventions to be implemented in primary health care in low-resource settings in its package of essential noncommunicable (PEN) disease interventions. Kyrgyzstan has been piloting the implementation of PEN protocols since 2014. WHO carried out a quantitative evaluation of their implementation in family medical centres after 12 months. While it was possible to ascertain the costs incurred in implementation, it was not possible to demonstrate effectiveness. This may have reflected the limitations of the evaluation and/or the implementation of the protocols. Consequently, WHO offered to supplement the first evaluation with other methods to gain a better understanding of the model as part of strengthening primary health care (PHC) in a resource-limited setting, and to reflect on any appropriate adjustment to the model that might be needed.

The aim of the evaluation was to identify opportunities to improve the implementation of the PEN in Kyrgyzstan. To achieve this aim, the objectives of the evaluation were to: conduct semi-structured, one-to-one interviews with frontline health staff in PEN pilot clinics; analyse the interviews thematically to identify barriers to implementation; and integrate the qualitative findings with the quantitative findings, thus completing a mixed-methods evaluation of PEN implementation in Kyrgyzstan. Health centres and staff were sampled in order to get a cross-section of clinics at different levels of performance and a mix of doctors, nurses and managers.

Analysis of interviews with 30 PHC staff in PEN pilot clinics revealed 11 exploratory themes. Providers lacked understanding of the risk stratification concept and were unable to use the risk prediction charts as intended. They were hampered by lack of time, and technology that might have made this task easier was not available. Furthermore, they lacked understanding of the indications for drug treatment and they expressed a preference for counselling on risk factors rather than medication. They lacked educational materials for use with patients and noted a lack of information campaigns for the population to reinforce their message and promote prevention. They were concerned that there was insufficient participation by the target population in risk assessment and thought that public perceptions about prevention and difficulty in access (multiple visits and complicated journeys) hindered participation. These exploratory themes were integrated with the quantitative findings.

Potential areas to explore in order to improve the implementation of cardiovascular risk assessment and management in Kyrgyzstan include: adjustment of the training model to include more opportunities for practice, refresh training and opportunities for maintenance of skills and quality, and supportive guidance; adaptation/redesign of the cardiovascular risk assessment model and support for it with appropriate technologies to enable it to be carried out within a single consultation and close to home, if necessary; a systematic approach to identifying, recruiting and following up the target population; and support for PHC interventions with community and population interventions and communication campaigns to reinforce the message of prevention.

The preliminary findings were discussed with the Ministry of Health, participating clinics and staff on 20 September 2017.

Introduction

Kyrgyzstan is a lower-middle-income country in central Asia with a population of just over six million people. Cardiovascular diseases (CVDs) are responsible for half the number of deaths and are a major theme of the national health reform programme (*Den Sooluk*) 2012–2016, which has been extended *(1)*. Over a third of adults have three or more cardiovascular risk factors, and the probability of dying from a noncommunicable disease (NCD) between the ages of 30 and 70 years is 28%. The three risk factors that account for the greatest disease burden are dietary risk, high blood pressure and tobacco use. Around half (48.2%) of the men smoke, over two fifths (42.9%) of adults aged 25–64 years have raised blood pressure and a quarter (23.6%) have a raised total cholesterol level. Almost one in five (17.4%) adults were identified in 2013 as being at high cardiovascular risk, that is, the probability of a cardiovascular event or death in the next 10 years was 30% or more *(2)*.

Achieving global and national targets for reductions in premature mortality from the four main NCDs requires action in the prevention and management of these diseases. WHO has defined a minimum set of essential NCD interventions to be implemented in primary health care in low-resource settings in its package of essential noncommunicable (PEN) disease interventions *(3)*. The PEN comprises four clinical practice protocols for early detection of four major NCDs and their diagnosis using inexpensive technologies, pharmacological and non-pharmacological approaches for modification of NCD risk factors and affordable medications. PEN protocol 1 focuses on prevention of heart attacks, strokes and kidney disease through integrated management of diabetes and hypertension, and is supported by protocol 2 on health education and counselling on healthy behaviour. These feature cardiovascular risk assessment using WHO/International Society of Hypertension risk prediction tools *(4)*.

Implementation of the PEN began in Kyrgyzstan in June 2014 with the appointment of a national coordinator and PEN working group and the definition of family medicine centres (FMCs) to be included in the pilot project. Since then, piloting of PEN protocols 1 and 2 has been initiated in Batken, Bishkek city, Chuy and Issy Kul. Of the 22 FMC in Bishkek city, the PEN protocols had been randomly implemented in half *(10)* covering 40.1% of the population (481 213). Training in the use of the PEN protocols included an initial one-day session (delivered twice) at the start of the pilot project (May 2015) for the whole staff of the FMC provided by the PEN implementation group of the Ministry of Health. This was followed up by ad hoc supportive training provided by the members of the PEN implementation group individually to the staff during monitoring visits. In Bishkek, 90% of the doctors and nurses (97 people) working in the 10 PEN pilot FMCs received initial training on PEN protocols in a one-day training session. This was designed to be interactive and include skills practice and case studies, and was followed by separate sessions for doctors and nurses over two to three months.

Clear algorithms of work were introduced for use by nurses and their work was reorganized so that they staffed preventive clinics in the FMCs. Patients were screened opportunistically: each visitor to the FMC was offered a visit to the preventive clinic and a cardiovascular risk assessment according to PEN protocol 1 and WHO/International Society of Hypertension risk prediction charts. Staff were supported by the PEN working group who visited PEN FMCs every two to three weeks to review medical records, consult staff and observe consultations. All patients assessed as being at high risk (that is, assessed as having a more than 30% risk of a cardiovascular event or death within 10 years) are referred to and managed by their family doctor. Patients with no or low cardiovascular risk are managed by nurses and are given lifestyle recommendations and advice to visit the nurse again within three months.

From August to December 2016, WHO carried out a quantitative evaluation of PEN implementation in Bishkek, Kyrgyzstan after 12 months of operation (June 2015 to June 2016); the results were published in March 2017 *(5)*. While it was possible to ascertain the costs incurred in implementation, it was not possible to demonstrate effectiveness. Detection rates for smoking, hypertension and diabetes remained relatively low with no significant improvement over time or in comparison with non-PEN clinics. Similarly, there was no significant improvement in the effects of blood pressure control. This may have reflected the limitations of the evaluation and/or the implementation of the protocols.

Consequently, WHO offered to supplement the first evaluation with other methods to gain a better understanding of the model as part of strengthening primary health care (PHC) in a resource-limited setting, and to reflect on any appropriate adjustment to the model that might be needed.

Aim and objectives of the evaluation

Aim

The aim of the evaluation was to identify opportunities to improve the implementation of PEN in Kyrgyzstan.

Objectives

The objectives of the evaluation were to:

- conduct semi-structured, one-to-one interviews with frontline health staff in PEN pilot clinics;
- analyse the interviews thematically to identify barriers to implementation;
- integrate the qualitative findings with the quantitative findings.

Methods

Participant inclusion criteria

Previous quantitative work allowed for the level of implementation of the PEN protocols to be estimated among the 10 FMCs piloting the PEN in Bishkek. Although the changes were not statistically significant, the apparent trends were used to categorize the implementation of PEN as low (no positive dynamics of the indicators), medium (positive dynamics of some indicators) and high (positive dynamics of most indicators). Two FMCs with the lowest level of implementation, two FMCs with the highest and one FMC from the medium group were then chosen.

Frontline health workers (both nurses and doctors) who worked in these five FMCs were included as participants for interviews, in addition to managerial or administrative staff who could discuss the organization and performance of clinical care.

Data collection

Two authors visited each health centre and sampled interview participants. They conducted semi-structured interviews using an interview guide developed from previous studies *(6,7)*. This approach allowed for direct discussion of the anticipated explanatory themes, while allowing for new themes to emerge and be explored.

At each health centre, the first interview was conducted together by the two interviewers. Subsequent interviews were conducted one-to-one. One interviewer was known by the participants through the PEN project, the other was not. Interviews were conducted in Russian, of which both interviewers were native speakers. Interviews were audio recorded, transcribed verbatim in Russian and translated to English as required.

Data analysis

The transcribed interviews were analysed using a framework analysis approach which was largely descriptive. The initial framework was adapted from previous studies in other settings *(6,7),* with additional themes added to the framework as they emerged. Two authors collaboratively coded the interviews, identified and summarized the main themes and identified illustrative quotations. At all stages of the analysis, including during data collection, the findings were discussed with the entire evaluation team. Interviews were anonymized and all participants were given a generic name based on their role at the clinic (for example, nurse 1, doctor 3).

Approval

As a service evaluation, ethical approval was not required according to WHO guidance. Approval to carry out the evaluation was sought and obtained from the Ministry of Health before starting. In each centre, the interviewers first met the head

of the health care facility, showed him/her the official letter of support from the Ministry of Health and explained that interviews would be anonymous, face-to-face and recorded. Before each interview, the main goal and objectives of the study were explained and written informed consent was obtained from every participant.

Results

Thirty participants (15 doctors and 15 nurses) were interviewed from five PEN pilot clinics. Seven of the doctors were also FMC managers or heads of family doctors groups (doctors who coordinate the work of several general practitioners). The doctors and nurses were mixed in the extent to which they had received postgraduate training in family medicine. They also varied in how they had been trained to use PEN protocols.

The results of the thematic analysis are summarized below, giving the main themes identified in the qualitative evaluation together with supporting quotations. Eleven themes were identified which are categorized as provider-centred and patient-centred. The relationship of these themes to each other and to the main outcomes of the quantitative evaluation is mapped in the section below on integration with quantitative findings.

Thematic analysis

Provider-centred themes

1. Mainstreaming of PEN protocols

In all the pilot clinics studied, all participants stated that they were familiar with the PEN protocols and clinicians claimed to be using them in daily practice, although to a variable extent. All participants were aware that the protocols were implemented in their PEN centres and that they had to use them. The PEN protocols appeared to have become part of everyday practice of all the medical staff in the five FMCs studied, albeit to varying degrees.

3

> We used not to know so much about risks. Now we know how to work with different risk level patients.
> *Doctor A*

Compliance varied between the facilities visited: for example, some nurses thought that they were using the CVD risk prediction chart, while in fact they were predominantly using the body mass index scale. In other cases, doctors estimated risk score levels approximately without a risk prediction chart, saying that they now had broad experience and did not need to see the chart each time they assessed risk.

One of the factors contributing to wide implementation appeared to be good compliance by the heads of the FMCs who supported it. Where the leader of the FMC was supportive implementation appeared to have been better coordinated, more risk scores were recorded in the clinical information sheets and training for newcomers was provided.

2. Use of lifestyle interventions

Most of the participants, both doctors and nurses, focused more on risk factor counselling than other parts of the protocol. Doctors tended to favour lifestyle interventions over drug interventions, even in patients where drug interventions were indicated. The sheet of lifestyles advice was the most frequently used part of the PEN protocol because participants found it simple, user-friendly and clearly structured. When asked what they would do if they discovered that a patient had high cardiovascular risk, some participants particularly emphasized the lifestyle interventions.

> This fundamentally changes the tactics of treatment. First, we recommend limiting the intake of salt, liquid, animal fats and further recommend a healthy lifestyle excluding smoking and alcohol. We tell them that walking from 30 minutes to one hour every day is very useful. We also prescribe relevant medication. In case of the initial manifestations of hypertensive disease, we prescribe one drug. *Doctor B*

> [We advise] a proper diet for those who have obesity and high blood pressure, to limit fats and salt (5g/day) and to have fewer fried, smoked and salted meals. *Nurse D*

3. Training for PEN protocols

Not all health workers in the pilot sites had completed the initial training on how to use the PEN protocols. The lack of systematic training for new staff who miss the initial training session was mentioned by all groups of participants (doctors, nurses, managers) as an issue. None of the participants who were newcomers had received the one-day introductory training. How they had learned to use the PEN protocols varied: for example, they had received some training during the monitoring visits of the PEN team or their peers had trained them in an ad hoc manner. In one case, a new nurse working in a prevention clinic visited the neighbouring FMC to study how her colleague worked in the same position. The degree of supportive training also differed by FMC: some staff said they had received it several times a year, others said that they had received virtually none.

> The doctor taught me and colleagues but I have not attended the general training. The head of the GPs' group participated in the training. *Nurse F*

> Actually, there was no special training provided. I was just listening to her during the working day and trying to remember everything. Of course, it would be good to have training. *Nurse D*

> There is a need to conduct periodic training seminars. Refresher training is useful as some doctors may forget information from the previous seminar. *Manager A (Head of general practitioners' (GPs) group)*

4. Understanding and use of cardiovascular risk charts

Only a few doctors and a couple of the nurses were able to define CVD risk precisely. Other doctors gave definitions of the risk as a combination of risk factors (without outcomes), including those risk factors that are not used in the risk charts. Nurses predominantly used body mass index charts and sometimes did not differentiate these charts from the CVD risk chart. While doctors (GPs) mainly used the charts correctly, there was some confusion about when to use them. Risk scores could not be calculated in the first consultation because cholesterol information was not available without laboratory testing.

There was no unified way of using risk prediction in the clinics. Sometimes risk was estimated by the nurses working in the prevention clinics. In some cases the nurse managed the risk only if it was 10% or less, otherwise the risk estimation was done by the doctor. In other cases, the nurse working in the prevention clinic would measure and record the risk factor levels and the risk was estimated by the doctor.

> Nomogram? We estimate the risk factor, physical activity and body mass index and calculate the percentage. Over 25% excess weight, 30% adiposity, and then obesity. I put all this data in the registry document. The doctor, basically, should identify the risk factor. *Nurse B*

> We do not have enough time: too many patients. It happens that I do not understand how to use it. *Doctor Q*

> According to the table, I'm not very proficient in it. It is more for the doctor to use. *Nurse C*

> I do not know CVD risk. I consult more about proper nutrition and a healthy lifestyle. Nurses are more involved in awareness-raising. *Nurse F*

5. Use of drug treatment

Doctors rarely used the risk chart for treatment decision-making. Only three of the 15 doctors (two of them heads of GPs' groups) were able to describe the treatment algorithm based on total risk, treatment steps and medication to be prescribed, including combination therapy and use of statins. Treatment plans were not always in line with the level of cardiovascular risk identified. Doctors did not prescribe statins to all patients over 40 years with diabetes mellitus.

4

Doctors mainly use the clinical protocols approved by the Ministry of Health. Since the PEN protocol was a pilot, it had not yet been approved as a national protocol so its status was ambiguous.

> There are three medicines in case of a high risk and only one medicine in case of a low risk. *Doctor C*

6. Lack of human resources

Medical staff were perceived to be overworked and in short supply. In some cases, one doctor was said to be doing the work of two to three GPs. Paperwork and reporting contributed greatly to the workload of the doctors. A lot of time was needed for home visits: in some cases, homes were several kilometres from the FMC. As a result, there was a lack of time to counsel patients. It was recognized that a potential solution to improve counselling lay in greater involvement of nurses, increasing their responsibility beyond being the doctor's assistant, but this was likely to face difficulties. Some commented that nurses are not paid or financially incentivized for this role, are already overworked and can appear to lack motivation.

> The difficulties are that there are not enough doctors; one doctor works two to three sites. Therefore, we understand that it is impossible to cover everyone and provide 100% detection rates ... The therapists have a heavy workload. *Manager A (Head of the FMC)*

> Probably there should be more time, we only work until 14:00. Working hours should be longer, until the end of the working day (17:00). The salary should be increased accordingly. *Nurse A*

> The district nurses do not perform this task as well as [the nurses doing] the pre-doctor [assessments]. We need more time to deal with the patient. As mentioned we need more doctors. There are not enough doctors. We have to write a lot. It is very time-consuming. *Doctor P*

> It is necessary to get nurses involved as well. I do not know how but it is necessary to make nurses responsible for a certain area or block of tasks on CVD. *Doctor J*

> Nurses are not paid. Only doctors get a special coefficient for primarily identified cases. It would be good to add nurses to this programme as well. They have a lot of work and need to be encouraged. *Nurse L*

7. Lack of educational materials for patients

In general, clinicians felt that they did not have enough educational materials for patients, including visual materials, posters on CVD risk factors and leaflets. Two of the five FMCs had made good connections with the Republican Centre of Prevention and they had several types of educational material for patients (on hypertension and some other topics). The other three FMCs complained that they did not have these materials. In one of the FMCs, there were a number of posters on NCDs and the risk of CVD, tobacco control and materials not only for patients but also for population activities.

> It would be good to explain, to have more visual aids, videos to show. *Nurse A*

> Patients already understand well how to monitor their health. It is necessary to remind them of the information all the time/refresh their knowledge. *Nurse L*

> More information is needed for patients to read, for example brochures on CVD, sugar and cholesterol. *Doctor O*

> Handouts, materials, for example a diary of self-control, brochures about nutrition, we distributed such diaries for photocopying. At first, patients did not pay attention, but as the blood pressure rises, they start running and filling in [the diary]. *Manager B*

8. Population health promotion campaigns

Participants requested population activities to raise awareness about health problems and attract people to FMCs through television or mass media campaigns. Most of the participants suggested a media campaign on at least the risk factors for and infographics on NCDs, since most of the population, especially in rural areas, see television and listen to the radio.

> The media should be active in information campaigns against smoking, alcohol and so on, and promote a healthy lifestyle including the benefits of fruit and vegetables and proper nutrition. *Nurse R*

> [There should be] joint efforts by the general public and mass media. Doctors alone are not effective enough. We must improve the situation together with society. *Manager A*

> More information [is needed] about PEN: advertising among the population via radio, videos. *Manager C*

9. Modern technologies

Participants frequently requested the introduction of modern technologies in risk assessment and preventive counselling such as personal computers, gadgets and mobile apps (for CVD risk charts, for example). They thought that a personal computer for every doctor would help to have charts and recommendations in electronic format, and that apps for calculating risk would shorten consultation time. Apps for mobile telephones would be another easy way to help medical workers. They suggested that mobile telephones could also be used for different media campaigns such as providing short motivating messages.

> I think, maybe some other devices for sugar measurement and so on tests in the pre-doctor [nurse assessments] are necessary. It would be good to have this information entered into a computer database. Information about blood pressure should be entered as well (for monitoring). *Nurse A*

> It will be great to have the mobile app with the risk score. *Doctor D*

Patient-themed factors

10. Patient demographics

The participants observed that the main users of FMCs are older people (aged over 70 years) with a lot of comorbidities or younger women with small children. Working age males almost never visit FMC: they do not appear to have the motivation. So the key target groups (adults aged over 40 years, especially men) for CV risk assessment and management and prevention do not visit FMCs and cannot be provided with any sort of prevention.

> Young people do not think about their health and future. Prevention is very important. *Doctor A*

11. Access to risk estimation

There are some practical barriers to accessing estimation of cardiovascular risk. Patients need to undertake multiple visits to the FMC for the assessment to take place and receive the results. Generally three visits may be required: one for initial assessment and measurements, one for blood tests, and one to receive the results and initial counselling. This inconvenience may be compounded by the length and potential difficulty of the journey to the FMC.

> Our group of family doctors covers the most remote areas, and it's far enough for reaching us. Not everyone wants to come here by several minibuses with changing them [no direct transport]. This is also one of the factors why patients do not come – the long distance, about 5 km [in radius]. *Doctor D*

> When a patient with high blood pressure comes to us, the doctor sees him, the nurse writes out the appointments (cholesterol, prothrombin test) ... he passes the tests the next day. The laboratory works every day. Test results are ready in a day. We invite the patient. If he cannot walk, the doctor visits him at home. We inform the relatives that the patient should keep a diary writing the time, date and other relevant information about medicines, etc. Everything is recorded. *Manager B*

Integration with quantitative findings

Fig. 1 maps the possible relationships between the qualitative and quantitative findings, highlighting opportunities to improve implementation.

Discussion

Summary of findings

The implementation of PEN protocols in Kyrgyzstan was evaluated through mixed methods. First, a quantitative evaluation *(5)* was done to analyse performance/quality and effectiveness indicators following 12 months of PEN implementation in FMCs in Bishkek. This found that detection rates for smoking, hypertension and diabetes remained relatively low, with no significant improvement over time or in comparison with non-PEN clinics, and that blood pressure control effects were not significantly improved either. Individual interviews were then carried out with doctors, nurses and managers in a cross-section of PEN pilot clinics in Bishkek. Qualitative analysis found 11 themes which seemed to help explain the quantitative findings.

Overall, it seemed that clinicians were not confident or proficient in using risk prediction charts/scores and were not using risk stratification to inform management. This may be explained by lack of training, lack of time, lack of human resources (and task-shifting), lack of supportive technologies and lack of patient materials. Lifestyles counselling was favoured over medication even when the latter was particularly warranted. Some specific gaps were identified, such as training for newcomers.

There seem to be a number of practical barriers to patients accessing risk assessment and management, such as distance, complicated journeys, the requirement for multiple visits given the risk assessment workflow and the need for laboratory analysis of blood tests. At present, patients need to be highly motivated to overcome these barriers, and both push and pull factors are needed such as campaigns to encourage (push) them to visit their FMC and redesign of services (pull) to make it easier for them to do so. Interviewees reckoned that patients who needed to be seen and assessed were not being reached. In the case of men, there was a tendency to blame a lack of motivation on their part rather than to review factors such as accessibility.

Participants had suggestions for how issues and barriers might be addressed. There were also good examples among the clinics and clinicians of dealing with them, such as accessing health education materials.

In terms of mitigating factors, a success seems to be that the PEN protocols have become mainstreamed into daily practice, with protocol 2 on lifestyles counselling being particularly useful. Well-informed and supportive managers seemed to make a difference.

Findings in the context of existing research

This is not the first study to find that the implementation of clinical guidelines and achievement of better clinical outcomes can be complex, and its findings are not dissimilar from those of others. Successful implementation of clinical guidelines requires a multifaceted approach. An important factor in improving adherence to guidelines is education for health care providers *(8)*.

This is one of only a few studies to evaluate the implementation of PEN protocols in real life conditions. A study in Bhutan *(9)* also employed opportunistic screening of FMC attendees and similarly found it hard to reach the target population (only 10% of attendees were aged over 40 years during the three months studied, and the majority were women). The findings of this study also share some elements with those of a mixed methods study in Jordan, in particular confusion among providers over how and when to use risk charts and the favouring of lifestyle interventions over drug treatment *(7)*.

Fig. 1. Map integrating qualitative and quantitative findings, illustrating the relationship between and within them
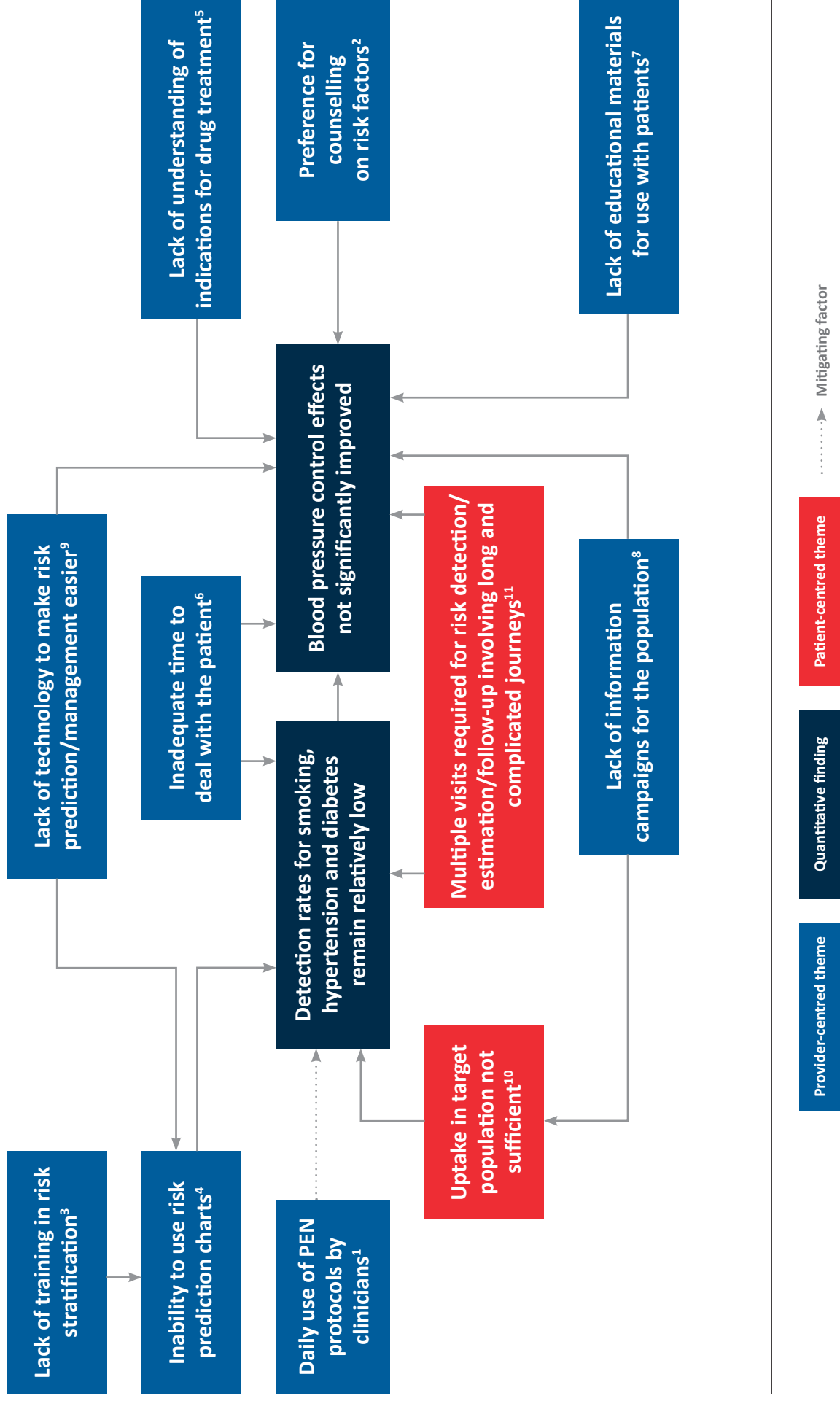
Themes: [1]mainstreaming of PEN protocols; [2]use of lifestyle interventions; [3]training for PEN protocols; [4]understanding and use of cardiovascular risk charts; [5]use of drug treatment; [6]lack of human resources; [7]lack of educational materials for patients; [8]population health promotion campaigns; [9]modern technologies; [10]patient demographics; [11]access to risk estimation.

In terms of limitations, this was a service evaluation rather than a research project, carried out on a relatively low budget and short time-scale and with no opportunity to interview patients. The study did not explore the contribution of access to medication to the quantitative findings, in particular that of the effects of blood pressure control, but other studies in Kyrgyzstan have shown that the cost of medicines can be high and a barrier to health care-seeking behaviour *(10,11)*.

Recommendations

The integration of the quantitative findings from the previous study with the qualitative findings from this study identified a number of potential areas to explore to improve the implementation of cardiovascular risk assessment and management in Kyrgyzstan. These include:

- adjustment of the training model to include more opportunities for practice, refreshment of training and opportunities for maintenance of skills and quality, as well as supportive guidance;

- adaptation/redesign of the cardiovascular risk assessment model and support for it with appropriate technologies to enable it to be carried out in a single consultation and close to home (if necessary);

- a systematic approach to identifying, recruiting and following up the target population;

- support for PHC interventions through community and population interventions and communication campaigns to reinforce the message of prevention.

Given existing resource levels, the priority might be to focus on improving training and support, as well as to introduce systematic approaches to engage the target population. Successful approaches for this appear to exist: for example, the pilot implementation of PEN protocols 1 and 2 in Uzbekistan has succeeded in risk assessing over 80% of the target population (men and women aged over 40 years).

If opportunities arise and resources allow, there seem to be a number of ways that CV risk assessment and management could benefit from some specific technologies, such as electronic health records and apps for calculating risk.

Conclusions

Implementation of a total cardiovascular risk approach, in this case through the PEN protocols and risk prediction charts, would benefit from multifaceted and repeated training, maintenance of the quality of intervention, systematic approaches to identifying the target population and achieving coverage, and a simpler workflow. Overall the concept is well-received by providers but its implementation needs fine-tuning and to draw more upon evidence-based approaches to the implementation of clinical guidelines and changing clinical practice. Similarly, the engagement of patients and increasing coverage of the target population is likely to need a combination of supportive push and pull factors.

References

1. Den Sooluk National Health Reform Program 2012–2016. Bishkek: Government of the Kyrgyz Republic; 2011 (http://densooluk.med.kg/en/home-en/2-uncategorised/2-den-sooluk-national-health-reform-program-of-the-kyrgyz-republic.html, accessed 15 September 2017).

2. Kaliev M, Djakipova R, Kydyralieva R, Altymysheva A, Knyazeva V, Ryskulova S. "STEPS" research on episurveillance of risk factors of noncommunicable diseases in the Kyrgyz Republic. Bishkek: Ministry of Health of the Kyrgyz Republic; 2015.

3. Implementation tools. Package of Essential Noncommunicable (PEN) disease interventions for primary health care in low-resources settings. Geneva: World Health Organization; 2013 (https://www.physio-pedia.com/images/b/b0/Implementation_tools_for_NCD_ intervention_in_low_resourced_settings.pdf, accessed 15 September 2017).

4. Cardiovascular risk prediction charts [website]. Geneva: World Health Organization; 2016 (http://www.who.int/cardiovascular_diseases/publications/Chart_ predictions/en/, accessed 15 September 2017).

5. Kontsevaya A, Farrington J. Implementation of a package of essential noncommunicable (PEN) disease interventions in Kyrgyzstan: evaluation of effects and costs after one year. Copenhagen: World Health Organization; 2017 (http://www.euro.who.int/__data/assets/ pdf_file/0007/337498/PEN-report-2017-Kyrgyzstan-FINAL-ENG.pdf, accessed 15 September 2017).

6. Liew S, Blacklock C, Hislop J, Glasziou P, Mant D. Cardiovascular risk scores: qualitative study of how primary care practitioners understand and use them. Br J Gen Practice. 2013;63(611):e401–7. doi:10.3399/bjgp13X668195.

7. Collins D, Jobanputra K, Frost T, Muhammed S, Ward A, Shafei A et al. Cardiovascular disease risk and prevention amongst Syrian refugees: mixed methods study of Médecins Sans Frontières programme in Jordan. Confl Health. 2017;11:14. doi:10.1186/s13031-017-0115-z.

8. Jeffery RA, To MJ, Hayduk-Costa G, Cameron A, Taylor C, Zoost CV. Interventions to improve adherence to cardiovascular disease guidelines: a systematic review. BMC Family Practice. 2015;16:147.

9. Wangchuk D, Virdi NK, Garg R, Mendis S, Nair N, Wangchuk D. Package of essential noncommunicable disease interventions in Bhutan. WHO South-East Asia Journal of Public Health. 2014;3(2):154–60.

10. Pharmaceutical pricing and reimbursement reform in Kyrgyzstan [website]. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/en/publications/ abstracts/pharmaceutical-pricing-and-reimbursement-reform-in-kyrgyzstan-2016, accessed 15 September 2017).

11. Akkazieva B, Jakab M, Temirov A. Long-term trends in the financial burden of health care seeking in Kyrgyzstan [website]. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/en/countries/kyrgyzstan/publications/long-term-trends-in-the-financial-burden-of-health-care-seeking-in-kyrgyzstan,-20002014-2016, accessed 15 September 2017).

10

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.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav
  Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan