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Telemedicine meeting and visit to an emergency hospital in Uzbekistan

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Summary
In 2022, a team from the Norwegian Centre for E-health Research were invited to participate and present our research at a regional telemedicine conference in Uzbekistan, Central Asia, and to visit an emergency hospital in Tashkent to observe international collaboration in a telemedical intensive care unit. Four members from our centre travelled to Uzbekistan in December 2022. The invitation came from the German Robert Koch Institute (RKI) and Charité University Hospital. The report highlights some key findings and reflections.

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1 Background

There is a massive, worldwide acceleration of service delivery using telehealth technologies going on. Numerous initiatives across the globe show that telehealth can increase access to necessary care in areas with shortages, improve the patient experience, and improve health outcomes (Saigí-Rubió et al., 2022). In addition, telehealth services are also capable of substantially improving preparedness. Developing and implementing telemedicine depends on the matters of governance, infrastructure and technology specific to telemedicine in remote settings, language barriers, regulatory issues, providers competences, and more (Dyb et al., 2021; Greenhalgh et al., 2017; Gullslett et al., 2021).

The increasing use and expansion of telemedicine is likely to persist beyond the Covid-19 pandemic; therefore, building equitable telehealth systems should be central to our preparedness and public health response for the future, especially in the advent of a future pandemic. This has underlined the importance of international collaboration during a global health emergency. Governments, health professionals and academics from different countries need to support digital health transformation everywhere (Kluge et al., 2022).

The background for this report is the implementation of a telemedical intensive care unit (tele-ICU) in a hospital in the Republic of Uzbekistan during the Covid-19 pandemic. This has been a collaboration between the Robert Koch Institute (RKI), Charité University Hospital, Ministry of Health of Uzbekistan, and Republican Research Centre for Emergency Medicine (RRCEM) in Tashkent. The initial goal of the project was to strengthen the clinical management of Covid-19 patients using telemedicine and web-based learning in Uzbekistan (Shadmanov et al., 2021).

The 1st Central Asian Regional Meeting on Telemedicine was arranged in Tashkent in December 2022, as part of this project. The Norwegian Centre for E-health Research attended this regional meeting, to review the telemedical initiatives in Uzbekistan, assess the needs and to estimate the opportunities for implementing telehealth. The conference was organized by the Ministry of Health of the Republic of Uzbekistan in collaboration with the German Robert Koch Institute and Charité University Hospital, the German Society for International Cooperation (GIZ), the Department of Management of Advanced Medical Technologies in Uzbekistan, and the WHO Regional Office for Europe.

2 The Central Asian Regional Meeting on Telemedicine

“A regional telemedicine network – a place to share”.

Objectives for the meeting:

- Make use of the available technology and know-how for telemedicine in the region
- Share and exchange experiences and lessons learned in implementation of telemedicine in the region
- Need for training and capacity building

- Need for legal and regulatory frameworks for national and cross-border telemedicine
- Funding
- Technology – its procurement and maintenance
- Integration and interoperability of systems

The conference focused on positive changes related to the adoption of modern high-tech methods of quality medical care, diagnosis, and treatment of the population in healthcare institutions in the region. The objective of the workshop was to develop regional collaboration in telemedicine and exchange experiences and knowledge. About 100 specialists from Central Asia and other countries attended.

The participants got acquainted with the telemedicine work in Central Asia. They discussed barriers to implementation and how one can overcome difficulties in introducing new technologies. They also looked at reforms carried out and if these were effective in supporting the digitalization of the healthcare sector. Themes discussed were areas of telemedicine, including clinical practice, regulation, legal and technical aspects. Lectures on telemedicine in clinical settings, the transformation of the public healthcare system, examples from telemedicine practice, and the sustainability of the telemedicine initiatives were presented.

Discussions in groups

One of the objectives for the organizers of the conference in Tashkent was to suggest concrete proposals for the development of a telemedical network across healthcare facilities in the region. They divided the participants into four working groups on day two, for this purpose. Guidelines had been created by the organizers to assist the selected group facilitators. The working groups were asked to propose concrete actions.

First, all groups were asked to answer the following questions:

- What would be the tasks and the mission of a telemedical network? Is it needed, and what gaps would it address?
- How would it contribute to pandemic preparedness?
- How can we form a common network that is sustainable?
- Which existing network structure or centres of expertise can we identify?
- How can existing regional entities, networks, and initiatives contribute (e.g., GIZ, RKI, Charité, KFW, WHO, UN)?

In the second part of the session, the groups were given thematic tasks.

Group 1: Workforce development and training

Question: What type of support can the group identify to achieve progress on the education, training, retention, and financing of telemedical workforce in Central Asian countries (on a national and/or regional level)? Can the group suggest a framework for up-to-date training curricula in digital health and enhance the global network of peers and alumni?

(Facilitator: Georgi Chaltikyan)

Group 2: Technical solutions

Question: What technical infrastructure is necessary for a regional network? Are there specific software or hardware needs at the beginning or later on in the project? How can data exchange be standardized?

(Facilitator: Tilek Nurdin Uulu)

Group 3: Governance and administration

Question: What governance model is needed? How should administrative support be delivered?

(Facilitator: Stein Olav Skrøvseth)

Group 4: Legal framework

Question: What are the challenges and solutions with regard to legal and data protection requirements?

(Facilitator: Leila Ishabaeva)

2.1 Topics in group discussions

Each group discussed their topics and then prepared slides which were presented in the plenary. Several commented that the development of telemedicine in the region is in an early phase. Hence, the countries may embark on a step-by-step approach.

There are some promising initiatives in the countries, also including international collaboration. For the Central Asian countries, it could be good to form a solid network of telemedicine resource persons nationally first. Then it will be natural to form a cross-border telemedicine network, to develop new solutions that can benefit the healthcare services in all countries. It will also be beneficial to connect with partners and countries in Europe and other parts of Asia, as well as in other regions.

It was also discussed that one goal can be to create common governance and operational procedures. Some use-cases can be examples. From there, more guidelines can be developed. The importance of creating general principles and guidelines was stressed. If this is not done, the countries could go in different directions, and it would possibly not be so beneficial.

Other aspects of organizational and technical maturity were addressed. In Uzbekistan, one international telehealth initiative involves doctor-to-doctor consultations. This can be a good starting point for collaboration with the other countries. As the various and necessary parameters become more mature, the countries should explore how they can create telemedicine solutions and digital communication between the doctor and the patient.

Interesting perspectives include looking at solutions for synchronous and asynchronous communication between healthcare personnel, or between the doctor and the patient. Solutions for remote care of patients should also be explored. Because of the Covid-19 pandemic, healthcare workers in many countries started to connect remotely with their patients living with chronic illnesses. Therefore, familiarity with remote monitoring devices has increased. In general, advances in mobile and internet technologies have facilitated a growth in e-consultations and other electronic communication (Zanaboni & Fagerlund, 2020), between patients and doctors. It was noted that many patients have comorbidities and chronic diseases. Comprehensive care and follow-up are therefore necessary.

Developing digital skills and literacy among the health workforce was also mentioned as something important. In healthcare institutions, whether it is a regional hospital or a local health centre, there must be dedicated personnel who can take care of the telemedicine solutions. It was underlined by group participants that most health entities do not have dedicated personnel for this work and implementation. Research shows that an identified barrier to the use of telemedicine interventions is a lack of technology-related knowledge and skill.

It was discussed that, when it comes to digital health competence, training is necessary for the entire population: The health ICT specialists – those directly engaged and responsible for designing, developing, and maintaining the digital health solutions. All other health professionals like doctors, nurses, community health workers and administrators. And finally, the citizens – the patients, families and informal care givers. Training of Trainers-programs and online courses for staff are viable solutions, that are already used in some places.

The groups also discussed technical infrastructure and the need for data exchange. Data registries are useful for systematic, evidence-based quality assurance. Monitoring of the patient-reported health outcomes are also key for telemedicine solutions. To improve health outcomes, a telemedicine service can be offered for consultation and treatment, but also as a follow-up service after a treatment. Some participants said it was important to investigate benefits from establishing public-private partnerships. Linking government telehealth services with private stakeholders could be a motor for innovation. Interoperability should be discussed on the regional level and should be part of national laws.

Regarding the topic of governance and administration, it was suggested that a common basic framework should be designed for all five countries. A coordinating entity with a steering group would be useful. By prioritizing, it will be possible to determine which parts of the health services should use telemedicine. Some group members suggested that each country should have a coordinating centre to this prioritization. A digital platform should be created. There is a need for a common system for all relevant health aspects based on international standards for all the countries – e.g. for referrals, radiologist, prescriptions.

3 Visit to the Republican Research Centre for Emergency Medicine (RRCEM), Tashkent

Experiences from the hospital visit 7 December 2022:

In Uzbekistan, the hospital we visited, RRCEM, was using telemedical equipment in the emergency units. This is so far only a doctor-to-doctor solution: The medical specialist in Uzbekistan can see and talk to the doctor at Charité – Universitätsmedizin Berlin. With the video camera, the doctor in Berlin can see the patient, and can assess the condition and recommend treatment and medication, in consultation with the specialist in Uzbekistan (Boklage et al., 2023).

The partners usually carry out three regular meetings per week. At RRCEM, only two to three medical doctors can participate in the online clinical meetings. At Charité, five doctors participate in this project. The clinical meetings take place regularly: Monday, Wednesday, and Friday at 8 a.m. German time, which is 12 p.m. Uzbekistan time. The doctors have a joint review of 2 to 6 patients at each meeting, using a telemedicine device from Teladoc Health

(https://business.teladochealth.com/devices/). The patient's condition is assessed based on the use of video and the information provided by the doctors in charge.

Sharing written patient information is a central issue. An online portal is set up so that the physicians in Germany and Uzbekistan can share patient information. This system is separate from the patient health record system used locally at the hospital in Tashkent. Privacy is maintained as the patient is only identified with a number in the online portal. Treatment of each patient is assessed jointly with advice from German doctors, from the video images and information via the portal. Not all clinical information is digitalized at RRCEM. For example, the area of radiology is not digitalized. There is widespread use of pen and paper in the hospital. The medical doctors at RRCEM are highly competent and knowledgeable in the medical emergency field. The major obstacle to adopt and implement collaboration by using telemedicine, is access to technology and infrastructure in addition to language barriers.

4 Way forward

On the last day of the workshop in Tashkent, a declaration was written for the collaboration between the countries and the key players.

Tashkent Declaration of the 1st Central Asian Regional Meeting on Telemedicine

(6 December 2022)

We, the participating country delegates and international partners (Robert Koch Institute, Charité - Universitätsmedizin, and Norwegian Centre for E-health Research) of the 1st Central Asian Regional Meeting on Telemedicine recognize that the five Central Asian countries have similar preconditions, needs and challenges related to the promotion of digital health.

Based on our exchange and discussions, we herewith adopt this declaration, and invite all stakeholders, including public authorities, the private sector, civil society and financial institutions, to further join our statements:

1. We acknowledge the increasing importance of digital health as an integral part of the national and regional healthcare strategy in whole-person care.
2. We express strong interest in regional partnership to establish and support national and regional, cross-border telemedical initiatives for the benefit of our populations.

For this purpose, we endorse:

- to build up a regional network for digital health with reference to existing networks such as WHO European Digital Health Network, accompanied by an appropriate regional governance structure;
- to conduct annual regional meetings;
- to support regional training curricula;
- to foster interoperability and compatibility of existing and future digital health systems.

3. We underline that digital health solutions shall likewise strengthen national and regional preparedness for and response to epidemics and pandemics, and other health crises.
4. We recognize that digital health initiatives shall support equitable and universal healthcare access. They shall enhance the efficiency and sustainability of health systems in delivering quality care for all.

This declaration will serve as a basis for planning further steps to strengthen cooperation in Central Asia to achieve the above goals in support of the WHO Global strategy on digital health 2020-2025, and the Regional Digital Health action plan for the WHO European region 2023-2030.

4.1 Plan for further work

The countries in Central Asia are at the beginning of their exploration and mapping of the potential of telemedicine solutions. Common to all is high political and administrative involvement at the ministry level. The regional telemedicine network that is being developed is important. It will be key to build knowledge among the stakeholders. Offering international meeting places - such as the

conference in Tashkent - for professionals, decision-makers, technology companies and researchers will be important in the future. The organizers should consider some measures to avoid possible language barriers at this type of conference, so that everyone can communicate well. Several different languages make it difficult for the participants to keep up. It may be possible to set up for several smaller meetings.

A goal is to evaluate use of telemedicine in Uzbekistan before the tentative second annual meeting on telemedicine in Central Asia in 2023 (Astana, Kazakhstan).

When preparing for the next steps, it is of high importance to map the knowledge gaps and identify what is needed to bring in useful insights that can be utilized in a local and regional context. Topics to investigate further:

- Investigate the role of governance structures during and after the implementation process
- Develop scenarios on how telemedicine services will evolve in post-pandemic times
- Barriers to telemedicine uptake/implementation
- Journal systems
- Use of telemedicine in clinical situation
- Use of video consultations between providers
- Telemedicine in building resilient healthcare systems
- Broader implications of telemedicine on society
- Role of artificial intelligence in telemedicine
- Ethical issues in telemedicine
- Legal and regulatory issues in telemedicine

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