

# **Pilot and implementation plan for e-consultation service in Moldova**

2019

The project was financed by Estonian Ministry of Foreign Affairs from the funds of development cooperation and humanitarian aid.



The project was carried out in cooperation with Association of Family Doctors of Moldova.



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# 1. Implementation plan for e-consultation service in Moldova

## 1.1. E-consultation – a possibility for Moldova

E-consultation (GP-to-specialist asynchronous telemedicine) allows a family doctor to consult with a specialist doctor for more accurate diagnosis and faster treatment. It is a possibility to reduce waiting-times, increase quality and efficiency of health systems. Estonia has been using e-consultation since 2012 and is reimbursing different types of e-consultations, all together in 21 specialties. The process of e-consultation can be described as following (see figure 1).

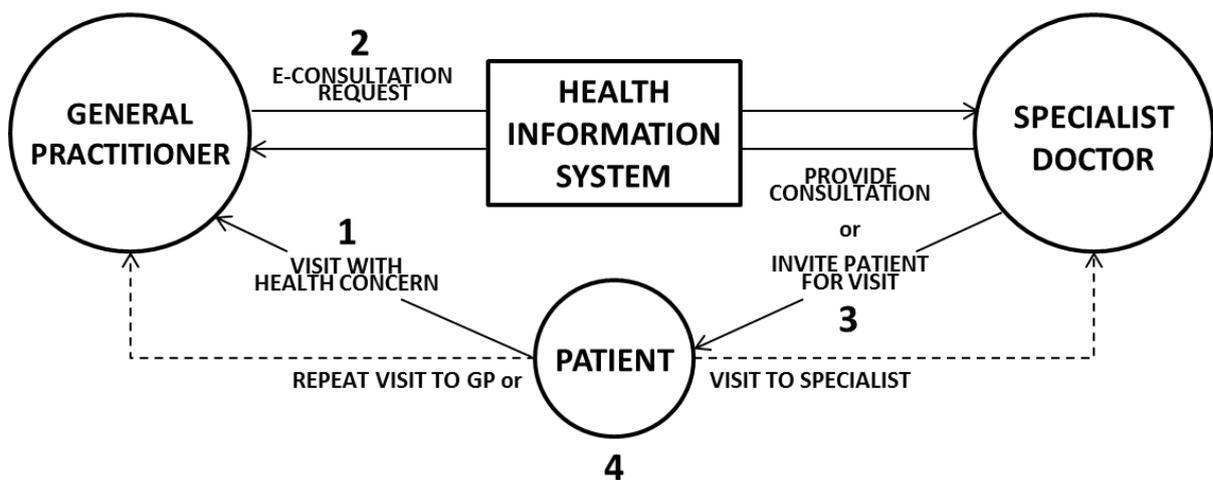


Figure 1. E-consultation process. Source: Praxis 2015

A previous study (see Praxis 2015) on the feasibility of implementing e-consultation in Moldova concluded that a pilot project should be initiated, which could include e-consultation service testing for a specific specialty and preferably involve family practices from rural areas, where the distances from specialty institutions are high and access to specialist low (see figure 2 below on waiting times for specialist doctor in Moldova).

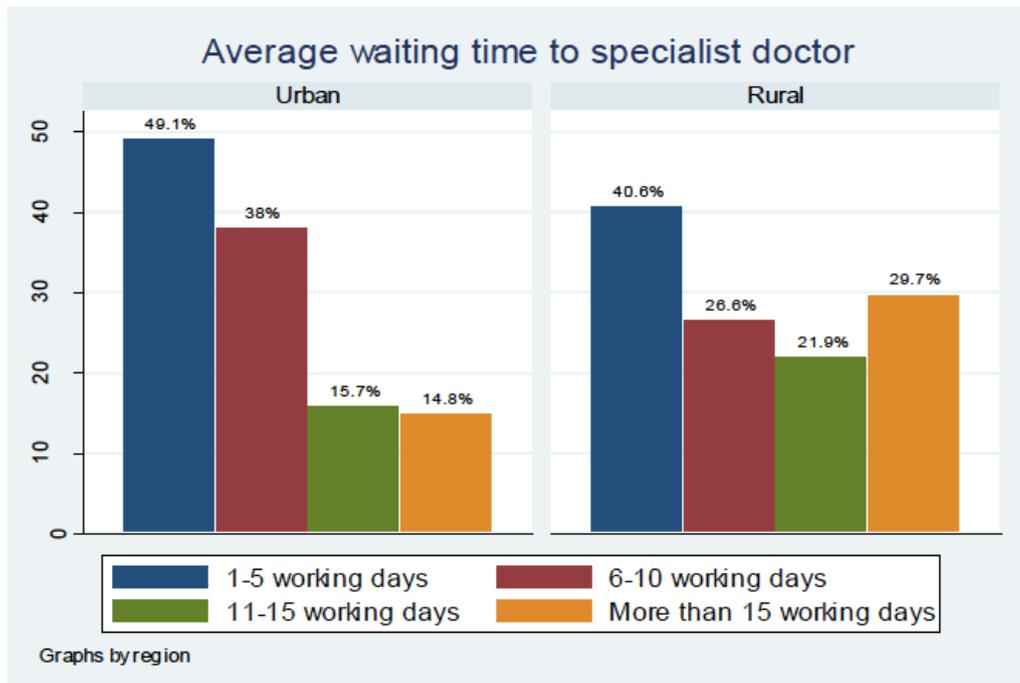


Figure 2. Average waiting time to specialist doctor. Source: Praxis 2015 (questionnaires).

In [2015](#) the readiness of e-consultation implementation was also demonstrated in a survey. Both GP-s and specialist doctors were open to the idea and found that better communication is needed between GPs and specialist doctors. About 90% of family doctors would use e-consultation service, if it was available and 76% of specialists would welcome e-consultation for consulting family doctors. The previous study provided thorough background statistics of the situation and consultation needs.

## 1.2. Image-based e-consultation use-cases

During the last years the availability for affordable non-radiology imaging equipment has increased rapidly, providing use-cases for smart-phones and smart-phone-integrated medical tools in care context. Doctors even use messaging apps for communication with regard to clinical duties and a [2015 study](#) showed that for 46% of doctors in UK used WhatsApp for image messaging and 71,6% of doctors wanted a secure means of sending clinical information to colleagues. A similar study among dermatologists has [shown](#) that 46% are using smartphone cameras and 69,1% are messaging or e-mailing the photos. Thus the possibilities for image-based e-consultation have increased, as relevant equipment is easily available, while some tools can be integrated with existing care processes. The relevance of images in clinical care has been observed in dermatology, endocrinology, ophthalmology, orthopedics, surgery, emergency care, dental care and others.

A common type of image-based e-consultation is teledermoscopy (figure 3) – a model, which brings dermatology specialist expertise to GPs from a distance and increases access to dermatologist opinion to suspicious skin lesions.

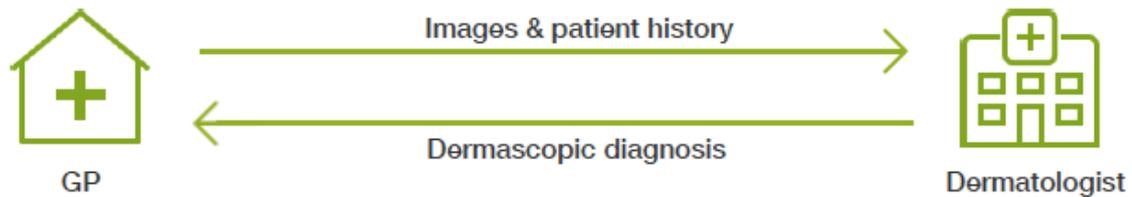


Figure 3. Teledermoscopy. Source: Dermtest 2017

### 1.3. Dermatology e-consultation – teledermoscopy for fighting melanoma

Teledermoscopy (a type of e-consultation in dermatology) has been operational in Estonia since 2013 and a specialized software solution Dermtest has been used to evaluate more than 11,000 skin lesions/nevuses from Estonian rural and urban areas. This model has enabled to detect more than 100 melanomas by GPs and save up to 15 million euros of late stage treatment costs<sup>1</sup>. It has increased access, reduced waiting-times and empowered primary care to take a more active role in treatment (figure 4).

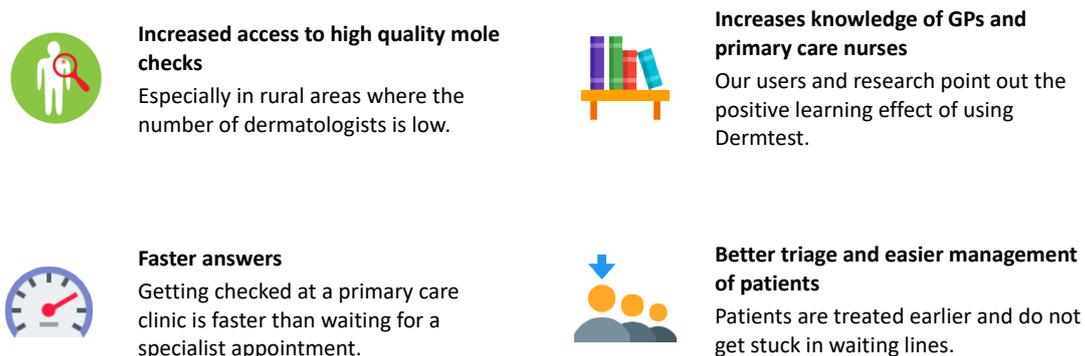


Figure 4. Benefits of teledermoscopy. Source: Dermtest 2019

The process of teledermoscopy e-consultation can be described as follows:

1. Patient with suspicious nevus (mole) comes to GP office.
2. GP makes images with a special smartphone app and dermatoscope attachment.
3. GP uploads the images with the anamnesis to the specialized software and an e-referral is generated.
4. GP sends the e-referral (e-consultation request) to a dermatologist.

<sup>1</sup> The recent study by Neevits et al (2018) entailed the Estonian health insurance database costs for 5830 melanoma patients from the past 16 years and showed that a 10% increase of early detection (melanoma detected at an early stage) means 3,5 million euros of saved on treatment costs for the Estonian Health Insurance Fund. The study entailed only treatment costs and NO pharmaceutical costs, sick-leave costs nor indirect costs (loss of tax income etc).

5. Dermatologist evaluates the images and sends back an e-consultation with suggested follow-up activities.
6. Nurse or GP notifies the patient of the result and plans next step of treatment (if needed).

## 1.4. Melanoma in Moldova

Moldova is the top 37 country in terms of registered cancer incidence in the world with the age standardized rate of 254,3 per 100,000 population. Registered mortality of melanoma in 2018 was 93 cases, while statistics is scarce with regard to stage of disease and age of on-set. In many countries, melanoma is the top cancer in terms of mortality among younger people and thus puts a heavy burden on health systems, especially those dependent on working-age people. Based on interviews, in Moldova mostly III/IV stage melanomas are detected and similarly to other Eastern European countries there is possible underreporting. The costs of melanoma treatment in later stages are high, thus early detection is relevant, as with many other cancer types.<sup>2</sup>

## 1.5. Pilot project for building experience

The current project implemented image based e-consultation teledermoscopy as a pilot in Moldova with the aim to have a focused example of e-consultation benefits, process and explore scaling possibilities for wider e-consultation adoption. For the pilot project the teledermoscopy software was localized to local context, including medical terminology, standards and language. The Moldovan Family Doctor Society provided the trainings to GPs and University Hospital dermatologists (USMF) provided the dermatological expertise and answers.

The teledermoscopy service pilot was initiated in 5 cities (although 3 cities actually started to use the service) and a total of 134 cases/nevuses (from 82 patients) were evaluated during a period of 20 months. Trainings were conducted for 19 health personnel and a total of 8 clinicians (on average 16,75 cases/nevuses per clinician) from 3 cities used the service to consult 2 specialist dermatologists. As shown on figure 6, the main further action evaluation was the need for re-evaluating the nevus in 6 months, surgery and excision was suggested in 22 cases and 17 nevuses did not need further action.

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<sup>2</sup> There is ample research on the cost of melanoma treatment in international literature. For example, Alexandrescu ["Melanoma costs: A dynamic model comparing estimated overall costs of various clinical stages," *Dermatology Online Journal*, vol. 15, no. 11, p. 1, 2009.] evaluated the cost of first 5 years of melanoma treatment in patients with different stages of melanoma. It was concluded that the overall cost of treatment significantly differs per tumour stage – being \$4648 for in situ melanoma and increasing to \$159808 for stage IV melanoma. Styperek et al. [A. Styperek and A. Kimball, "Malignant Melanoma: The Implications of Cost for Stakeholder Innovation," *The American Journal of Pharmacy Benefits*, vol. 4, no. 2, pp. 66-76, 2012.] estimated the costs of different melanoma clinical stages based on 2008 national average Medicare reimbursements. The outcome indicated that the overall cost of care for stage 0 was \$72 million and \$199 million for stage IV. When it was a recurrent stage IV, the total costs increased to \$694 million. The costs per patient per year since diagnosis that costs were highest for the first year of diagnosis, stage IV being 40 times more expensive than stage 0 melanoma in the first treatment year. Moreover Alexandrescu showed that a comparison with other cancers, such as breast and colorectal cancer, indicated that melanoma is one of the most expensive cancers to diagnose, treat, and follow-up.

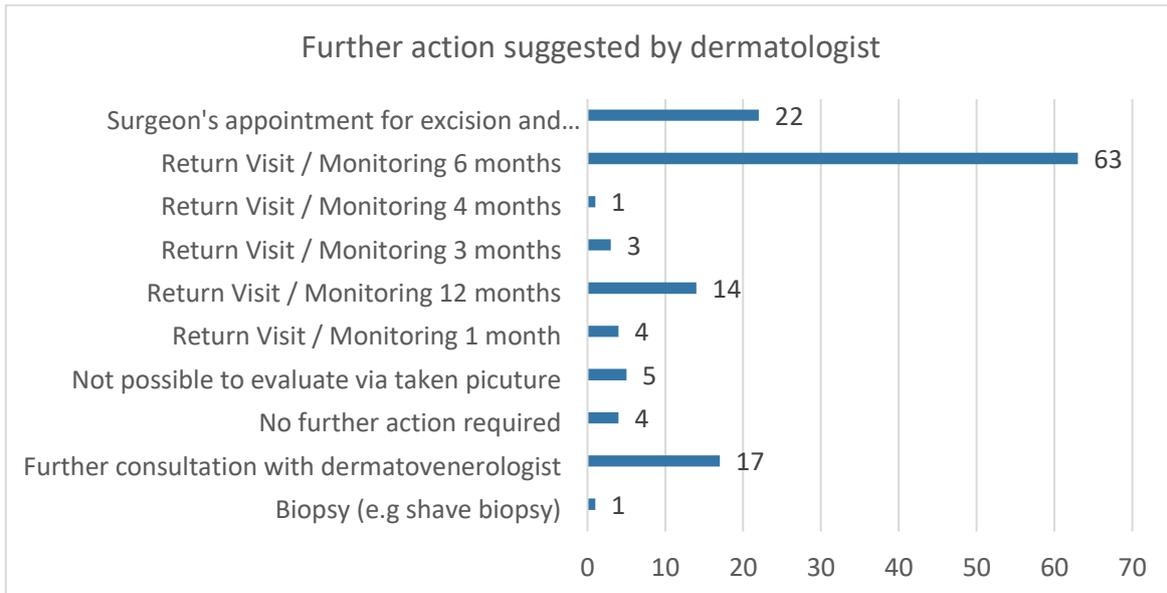


Figure 6. Distribution of suggested evaluations from dermatologist

In terms of medical history, 5 patients stated that they or their family members had previous history of melanoma and 1 patients stated they had pervious history of non-melanoma skin-cancer. Most of the nevuses imaged were on the person's body, but also on head and neck (see figure 7).

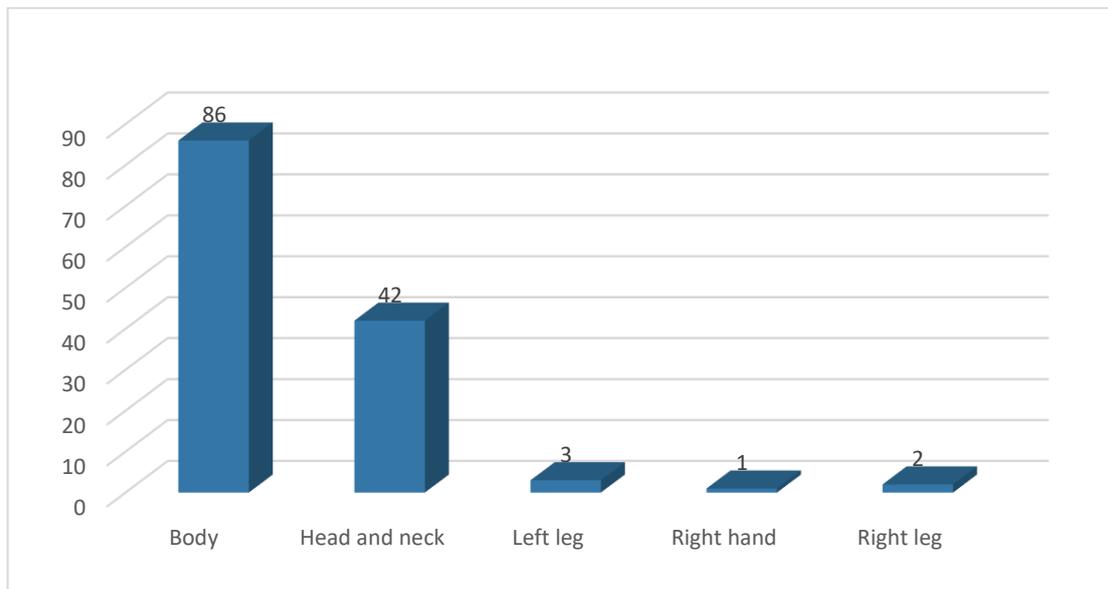


Figure 7 Specification of body area where nevuses were imaged

The average time to receive a diagnosis was 20,8 hours (time from referral sent by GP to diagnosis provided by dermatologist).

Some small problems were detected during the launch, e.g. technical aspects like need for a password reset and problems with starting with the project in case of 2 clinics. One of the most critical clinical issue was waiting time for histology, which is long > 3 months long. This hampers the possibility for getting a result and possible treatment. Usually excisions are done in oncology, but there no focus on

dermatologic surgery (costs less than late stage treatment). A patient mindset of “cancer = oncology” was observed, although skin cancer is different, as there is a big role for dermatologists, GPs and patients themselves, who contribute to early detection and on-time treatment.

In general the pilot lasted for 20 months and there was a steady flow of cases, showing that the operational model of teledermatological e-consultation is applicable to Moldovan context. The main learning points in terms of sustainability of the pilot were the following:

- 1) There is readiness and need of providing teledermoscopy in Moldova.
- 2) For scaling there is a need to find a reimbursement model, which incentivizes GPs and dermatologists.
- 3) There is a need for integration of excision results (pathology) with initial dermatoscopic diagnosis to provide feedback.
- 4) There is low access to pathologists, who could evaluate the cases excised.
- 5) There is low capacity / incentives for performing ambulatory surgery for suspicious nevi by dermatologists.
- 6) Finding a country-wide implementation model with sufficient support, training and improvement capabilities needs central decision.

## 1.6. Next steps for wider implementation

One possibility for increasing the positive effect and sustainability of the piloted model, is scaling the experience to other image-based e-consultation services. Based on the experience from the pilot and longer experience of implementing e-consultation and tele-dermatology in Estonia, one can suggest e-consultation implementation for chronic ulcer referrals, dermatological diseases, ophthalmological diseases, cardiology and other specialties, where images/image-based data can be easily made with existing hardware (incl smart-phones) at the primary care level and there are specialists, who can provide distance-consultations based on the images. This type of scaling would make the use of e-consultation more common and would enable a learning effect in- and across medical specialties. A country-wide small image management software can be implemented with easy image-link integration. This should be ideally managed by a central health system governing authority (e.g CNAM) and should provide sufficient support and training capabilities to GPs (e.g Association of Family Doctors of Moldova).

The previous e-consultation project concluded that there is also a need for a coordinating institution for bringing together relevant specialties in order to decide on the clinical guidelines and service standards regarding communication through the service. Thus a special meeting format should be established, which enables primary care society and specialized doctor societies to cooperate for deciding the next e-consultation use-cases to be evaluated, piloted, software needs mapped, reimbursement model created, decision made and implemented.

The co-operation model should enable doctors to discuss the relevant use-cases together with the health insurance fund, which holds the power to pose incentives for adoption and implementation. There are 3 possibilities for initiating such a meeting format for launching new e-consultation use-cases:

- a) Family doctor association suggests next use-cases and initiates meetings with specialist societies;

b) specialist society sees the need for e-consultation (better or less referrals from GPs) and initiates discussions with family doctor association;

c) Health Insurance Fund sees a need for reducing waiting times, improving quality and documentation in a specific specialty and initiates discussions between the specialist and family doctor association.

Thus there are two possible scaling scenarios for e-consultation in Moldova:

- 1) Further scaling of teledermoscopy disease-specific use-case, which would provide a commonly available model for managing skin cancer risk in Moldova and increasing early detection of skin cancer, reducing mortality and reducing the costs of skin cancer late-stage treatment. The precondition of this scenario is finding a suitable financing and reimbursement model, which incentivizes all stakeholders. This would also mean the need for development of follow-up activities after teledermoscopy – ambulatory surgery and pathohistology availability.
- 2) Scaling by adding new specialties to the e-consultation model and building an organizational capacity for adding e-consultation specialties. Starting with image-based e-consultation and building on the experience of teledermoscopy model to initiate e-consultations for example in general dermatology, cardiology, endocrinology, wound management, ophthalmology and other specialties.

## Conclusions

The current and previous projects have indicated that e-consultation could be a valuable tool for supporting Moldovan health system goals. There is increasing evidence of positive impact of e-consultation and using images in clinical practice. Image based e-consultation model pilot in Moldova showed operational feasibility and benefits of a complex e-consultation model in Moldova. It provided a new understanding of doctor-to-doctor consultation possibilities for different stakeholders, including the technical and organizational aspects.

The e-consultation model can be further scaled. Two scenarios for scaling were developed and discussed:

- 1) Increasing the provision of teledermoscopy e-consultation from pilot clinics to across the country, while also developing the follow-up capacity (ambulatory surgery and pathohistology).
- 2) Adding new specialties/diseases as image-based and other types of e-consultation service and developing a systematic organizational model for implementing e-consultation on a wider scale.

## References

Dermtest. <https://www.dermtest.com/mo>

Global cancer data by country. <https://www.wcrf.org/dietandcancer/cancer-trends/data-cancer-frequency-country>

Kruus, P., Aaviksoo, A., Ross, P., Curocichin, G., Ermel, R., Paat-Ahi, G. 2015. E-consultation service supporting Moldovan family doctors. Praxis - Center for Policy Studies.

Mohammad H Mobasheri, Dominic King, Maximilian Johnston, Sanjay Gautama<sup>3</sup>, Sanjay Purkayastha, Ara Darzi<sup>2</sup>The ownership and clinical use of smartphones by doctors and nurses in the UK: a multicentre survey study. [https://innovations.bmj.com/content/1/4/174?ijkey=3195b8d69b498f16fcd4f8840828b1b76c25a20c&keytype=tf\\_ipsecsha](https://innovations.bmj.com/content/1/4/174?ijkey=3195b8d69b498f16fcd4f8840828b1b76c25a20c&keytype=tf_ipsecsha)

Milam EC, Leger MC. Use of medical photography among dermatologists: a nationwide online survey study. <https://www.ncbi.nlm.nih.gov/pubmed/29405432>

Republic of Moldova. Globocan 2018. <https://gco.iarc.fr/today/data/factsheets/populations/498-republic-of-moldova-fact-sheets.pdf>.

