Estonian e-health solutions for the COVID-19 crisis
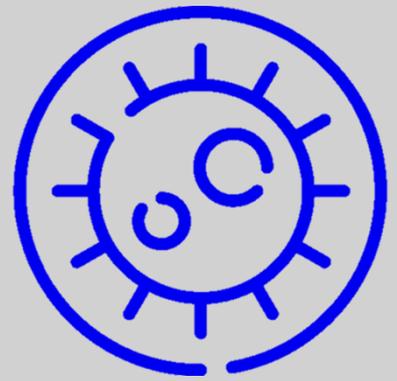
COVID-19 is challenging the health systems of almost all the countries around the world. The virus spreads fast and it seems to be smart in finding new victims. To win this fight against the pandemic, the humanity must be smarter. One of the main questions is how to provide medical help by reducing the face-to-face contact without losing in the high quality of the services.

E-health infrastructure

Estonian advanced e-health infrastructure has proven especially useful during crisis. As 99% prescriptions issued in Estonia are digital, the need to show up at the doctor's office is brought to minimum. Patient can use these digital prescriptions in any pharmacy in Estonia, just by providing their national ID card to the pharmacist. If a face-to-face meeting is still needed, then multiple telemedicine solutions are available.

As with COVID-19 spreading, many people need to take sick leave from work. However, going to doctor's office for this reason could spread the virus in hospitals even more and put medical workers in unnecessary risk. That is why central e-health agency launched a new service that allows people to initiate sick/care leave online themselves through the national patient portal.

These solutions are possible, because everyone's health records in Estonia are kept digitally in the national patient portal, where citizens can view the information entered by their doctors. Citizens can see their insurance status, medical history, health scans and lab reports. This information will be visible to their family doctor and if a patient needs to change the doctor this data will become accessible to the new doctor as well, without the need to carry any paperwork around. All of this information is backed by the X-road which allows secure data exchange between databases in Estonia.

Estonia is ready to help any government in building up a digitalised health system infrastructure. This will, however, require time and cooperation with which it is a good to start rather sooner than later. For quick help against the fight for corona virus we have gathered e-health solutions which can be implemented fast and from distance.

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Fast implementation e-health solutions

Guidance for nurses by Cognuse

Product:

Solution by Cognuse offers step-by-step guidance through the nursing procedures which helps nurses to provide better quality of care with mitigated risk of infection. CoNurse is giving nurses the opportunity to quickly familiarise themselves with the subject. It helps seamlessly integrate nursing-related instructions and procedural protocols into the workflow. Nurses have access to more than 300 procedural protocols, guidelines and checklists every time they undertake a procedure to help them remember their responsibilities.

The solution is coupled with a Bluetooth headset for hands-free operation to mitigate the risk of infection and comply with the hospital's quality goals.

Relevance in crisis:

The current coronavirus crisis has caused great need for additional medical workers, which means that their experience and skillset might be still lacking. CoNurse suits best for the learning process and offers valuable support primarily to nurses who have less experience. At the same time, CoNurse is useful for experienced healthcare professionals who perform certain procedures rarely.

Contact: andres.mellik@cognuse.com

Telemedicine solution by Viveo

Product:

Telemedicine start-up Viveo Health enables doctors to provide medical help, have flexible working hours while working very efficiently via video bridge. It also acts as a form of 'social distancing'. The platform will let doctors, even the ones who are retired, to start working again and do it securely while staying physically away from their patients.

Relevance in crisis:

During the pandemic, Viveo has decided to help governments around the world and invites all doctors to use their platform for free. The service helps to control the spread of the coronavirus in the waiting rooms of healthcare institutions.

Contact: annika.ljash@viveohealth.com

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Health game for children by Triumf

Product:

Triumf health game has been created to support the behavioural health of pediatric patients (7-14 yr) and currently features pathways for cancer, diabetes, asthma, surgery and weight problems. Through continuous personalised screening and support, the health app aims to identify, prevent and/or lessen the potential psychological problems that can occur during chronic illness with the underlying aim to induce positive behavioural change.

In response to the COVID-19, children health game Triumf has developed an extension to the platform to support all kids, irrespective of their current health situation. Triumf's environment can be used to deliver information related to COVID-19, including how to protect oneself, consequences (i.e. isolation), how to self-manage during the outbreak and address concerns that may develop due to the novel situation. The aim is to provide a safe environment through which to deliver up-to-date information related to COVID-19 and relieve anxiety amongst children.

Relevance in crisis:

Although children are not specifically in the risk group, they are still affected by the crisis. For kids with underlying illness, the access to care is likely to be disrupted and heightened safety measures may need to be employed to ensure their already compromised health won't suffer from further setbacks. Beyond the changes that can occur in disease management, all children are universally vulnerable to the mental burden of isolation, confusion, and worry about themselves or their close ones getting infected.

Contact: kadri@triumf.health

Support to medical device companies by SoftComply

Product:

SoftComply software is aimed at developers of ventilators or test kits who are already using Atlassian tools. SoftComply products on Atlassian stack fast-track medical device regulatory compliance to get innovative devices to market faster.

Relevance in crisis:

With the lack of medical equipment in light of the rapid spread of COVID-19 and the hospitalization of infected people, SoftComply offers their support especially to medical device companies by providing free apps for regulatory compliance on Atlassian Jira and Confluence.

Contact: marion@softcomply.com

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Data visualisation tool by VizKey™

Product:

VizKey™ depicts large amounts of information in a graphic form and represents data by objects and their relationships. Together with the functionality of data analysis, it helps to understand what is happening, to find and identify key figures and events. A function of VizKey is queries to external databases, in current crisis situation these could be databases and sources such as travel lists, people identified and/ or infected with their families and companies, medical data of infected, isolations of infected people, isolation control (queries to banks, etc), and information on communication (telecoms). These databases are to be used for needed queries into VizKey graphs and import into VizKey database. The results could be seen on a map and used for managing the crisis.
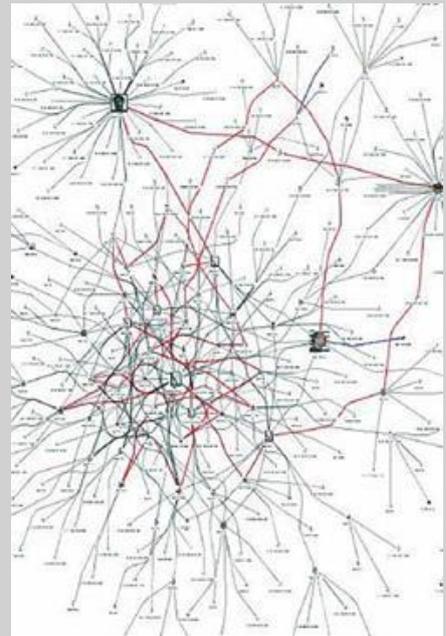
Relevance in crisis:

Live system would present information on virus-related objects and relations between them, quite similar to antiterrorism tracking.

Contact: tiitvapper@vizcase.com

Secure software tool for managing medical shortages by Guardtime

Product:

Guardtime has a product that generates advance alerts on supply levels, impending shortages of critical goods without requiring wholesalers, distributors to share their specific stock information into centralised database. Supply chain visibility can give a region, country or multiple countries confidence in overall stock levels without resorting to hoarding or export restrictions. This has been developed specifically for medicines/pharma supply chain, but can also work for other essential goods (e.g. protective equipment, ventilators, food, and fuel) in cooperation with leading global pharmaceutical data analytics company IQVIA.

Relevance in crisis

The world is seeing shortages of medicines, masks and ventilators, and more shortages and supply chain issues are likely to follow. Guardtime helps to have better control of supply levels with data and predictive analytics.

Contact: tarmo.luumann@guardtime.com

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High quality dermatological care during isolation by Dermtest

Product:

Image management tool supporting phone-based telehealth consultations during isolation. Health systems are rapidly moving towards telehealth. Most systems are opting for phone-call based teleconsultations initially, because going to video-visits needs a lot of adjustments from care providers. Also, patients and doctors are more

comfortable with phones as a communication tool and there is no need for high bandwidth internet in case of phones. But phone-call communication lacks sufficient visual capacity, which is needed for dermatological care, wound care, trauma, allergies, surgery follow-ups, rheumatology, ophthalmology, oncology side-effects and many other areas. High quality images are needed to prescribe the right care, but good quality images are not easy to provide.

Dermtest telehealth support-tool was built for such cases together with the largest ambulatory hospital in Estonia. It is part of an integrated image management toolkit for health systems, insurances and care networks. Dermtest telehealth+ enables to make distance-care high quality for phone-call based telehealth, but also for video-conferencing solutions, as they don't focus on image quality that much. Furthermore, everything can be launched on-line and the solution is very easy to start - it does not need any training of doctors. Also images are available for follow-up visits. Dermtest is an Estonian digital health company, which started initially with early skin-cancer detection, but expanded to be a comprehensive digital toolkit for skin and wound care. Dermtest is operational in 6 languages in 4 countries (including a pilot in Moldova) and has covered 100% of Estonian regions and 14% of GPs in Estonia. Two of the top3 largest hospitals use Dermtest tools. More than 80,000 cases have been managed on the platform by now.

Relevance in crisis:

With the Covid-19 crisis, face-to-face visits to the doctor must be brought to minimum. Dermtest enables the patient to get high quality care by supporting phone-based telehealth consultations. This is especially relevant to dermatological care, wound care, trauma, allergies, surgery follow-ups, rheumatology, ophthalmology, oncology.

Contact: priit@dermtest.com

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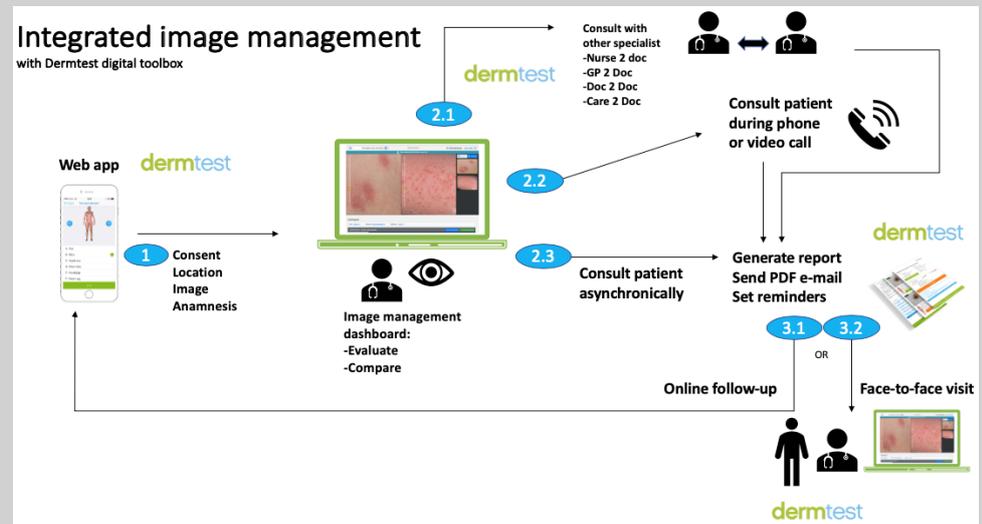
Non-digital health care products

Rapid Deployment field-hospitals for infection by Semetron

Product: Semetron Golden Hour MMH is a new generation rapid deployment mobile modular field-hospital which consist of 2in1 and 3in1 container modules transportable via air, sea or land as standard 20ft containers.
All modules have 20 min deployment and repack time, all-included solution, 72h independent capability in +50C to -40C. Every module is self-deployable without crane or other support. It needs only normal 20ft container capability truck. Every module has all-inn solution, it means that all necessary technology and equipment is inside container and ready-to-use within 20 min. New-generation field-hospital MMH has developed in cooperation with Estonian Defence Industry and Estonian Defence Forces. It has experienced NATO annual military exercises Vigorous Warrior 2017 in Berlin and Vigorous Warrior 2019 in Romania. Modules can be used independently or as a part of modular hospital for disaster or infection management.
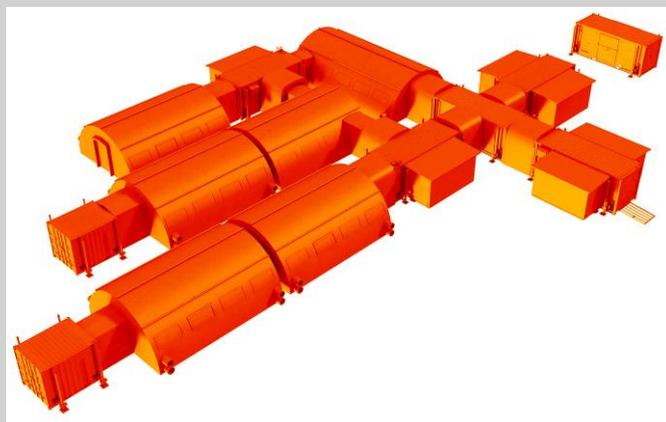
Relevance in crisis: COVID-19 crisis has explored weak-points in medical system to offer rapid deployable medical treatment on infection level, specially developing and disaster areas, which has no infrastructure.
Contact: margus.tsahkna@gmail.com

Disposable thermometer covers by Equa

Product:

Disposable SoftTemp® thermometer covers are meant for hospital use and help to prevent cross infection. The covers are effective and can be widely used due to the fact that digital thermometers still cannot be disinfected by any automated equipment. Manual disinfection of thermometers, however, may be forgotten or performed insufficiently, causing the risk of cross infection.

Relevance in crisis:

Thermometer covers could help hospitals during the pandemic to avoid spread of infection among patients and medical staff.

Contact: tanel@equa.ee

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