Coordination Meeting
Olomouc | April 2020

Methods of care of frailty patients discharged from hospitals

niCE-life | PP3 | Zdenek Gütter, Michal Stybnar

WP T.2.6
METHODS OF CARE OF FRAILTY PATIENTS DISCHARGED FROM HOSPITALS

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Methods of care of frailty patients discharged from hospitals

The developed methods of care of frailty patients discharged (main focus on hospitals in CZ and SK) enhanced on the basis of successfully operated good practice in Europe (Italian e-Care practice is primary candidate for scaling up). Organizational, economic, technical and medical conditions for new practice will be developed taking into account local context. The tool will enable to better coordinate health care of frailty and chronically ill patients, to monitor and communicate with them.

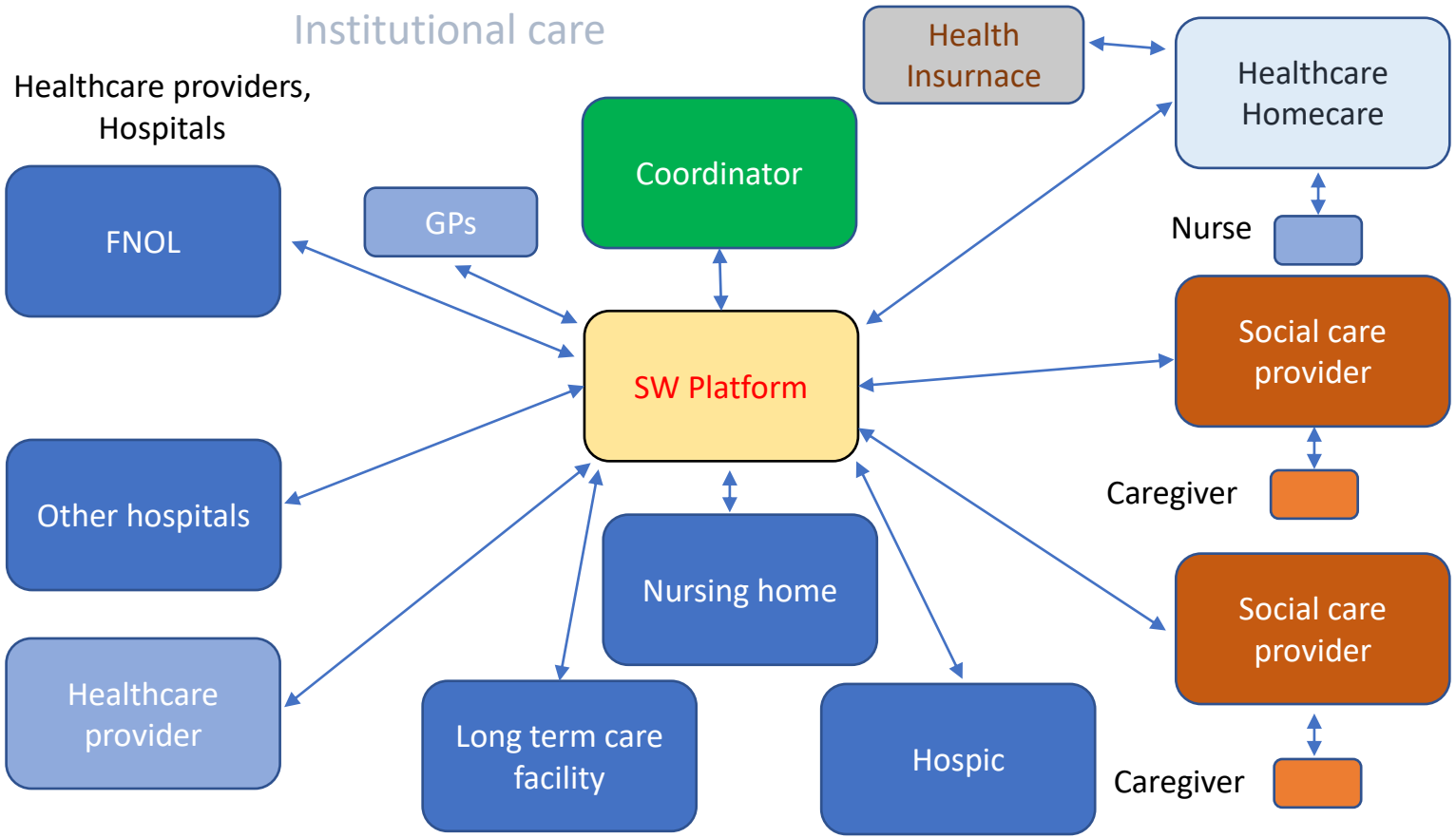
PROBLEM TO BE SOLVED AND PROPOSED SOLUTION

- Better coordination of healthcare (HC) and social care services (SC) for patients who need follow up car after discharge for the hospital
- Two innovations:
  - Organizational – establishment of Regional coordinator (municipality or Region will pay one day)
  - Digitalisation of many existing processes between various HC and SC providers plus several value added functions for better and smoother care, optimal services selection
- Strategic approach – minimum reorganization and intrusion to established processes and institutions that function, rather gradual make use of benefits of central coordination and digital information sharing
- Speed up and optimize location of patients in optimal settings
- Introduction of currently non-existent integrated care nucleus for the patients
- In the course of Ni-Life – design of innovations together with stakeholders in the CR , programming of the platform, verification of the platform fictions by FNOL together with stakeholders.

THE COORDINATION SW PLATFORM

- SW will be designed:
  - to support communication and information flow from ant to various institutions HC and SW in the region, incl. connectors
  - Standards incl. EU, health Network deliverables, national, where available
  - Support to man – coordinator but opting for next automated BI and even AI based support to persons
  - Database to contain available capacities of demanded services, patients and their profiles, destinations and assigned services,
  - Information from various sources will typically come to coordinators in very classic form (e.g. paper) and the coordinator will enter the data in the platform
  - Access to the platform to all institutions included
  - Platform will enable secure and credible management of each case of relevant patients discharged for hospital (frail, comorbidities, injury, older, alone, poor, mental illness) between follow up care providers ether in institions or homes of the patients

CARE COORDINATION PLATFORM
CASE MANAGEMENT INFORMATION FLOW



MANAGEMENT INFORMATION CONTENT

- Participating institutions & care providers profiles
- From hospitals (HC providers): set of needs and conditions of the patient compiled by Health and social specialist when discharging the patient
- Management information of contractual grade – ordering (security, credible)
- Design of care at home: health or social or integrated, cooperation between Coordinator and Healthcare homecare
- Determination of patients location in institutions (HC, SC), name/contact to the responsible person for care there
- Capacities management in institutions (HC, SC)
- Approval procedures, in future interconnected with payers
- Statistics (esp. capacities and patients)
- Information about available care services for authorized users
- Reference information for informal carers and families about location of the patient

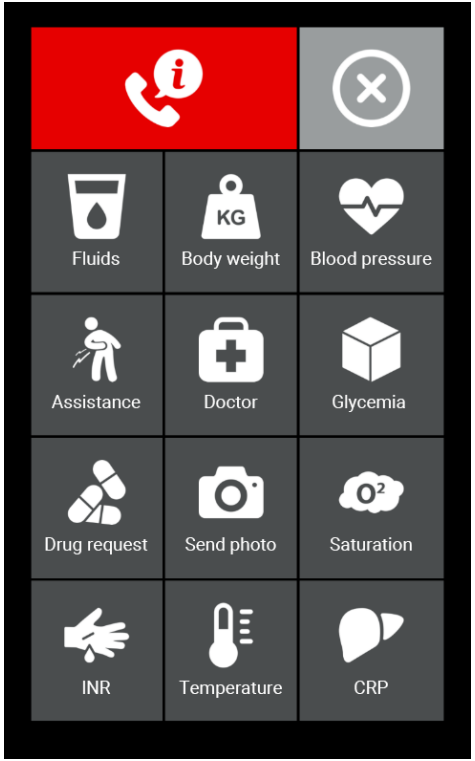
ROLES OF THE COORDINATOR

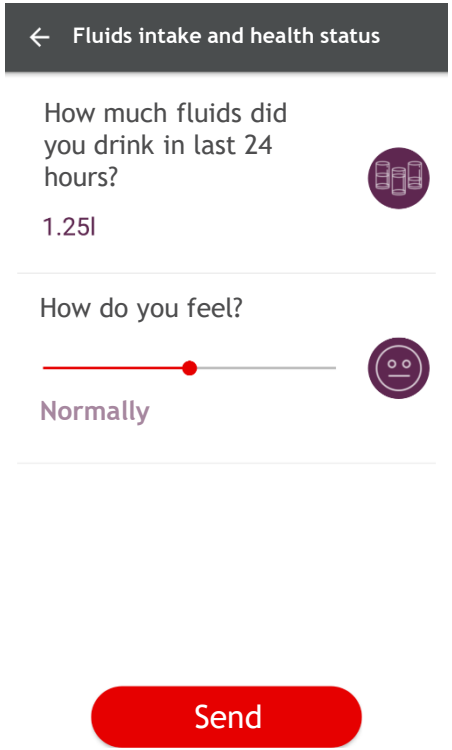
- Manned , but in future many tasks can be algorithmized (even with AI)
- Review of the request for care (HC, SC), pre-processing and forwarding to suitable available facility or service (taken into account profiles and geographical requirement, and patient conditions)
- Processing of feedback from facilities and services after the patient is located
- Supervision and support smooth information flow – checking smooth flow/time, feedbacks, arranging backup solutions in case of bottlenecks
- Management of comprehensive care services profiles – offers of institutions and service providers and those used by each patient (for inquiries by authorized persons)
- Statistics related inquiries, support to regional planning of related services
- Processing complaints

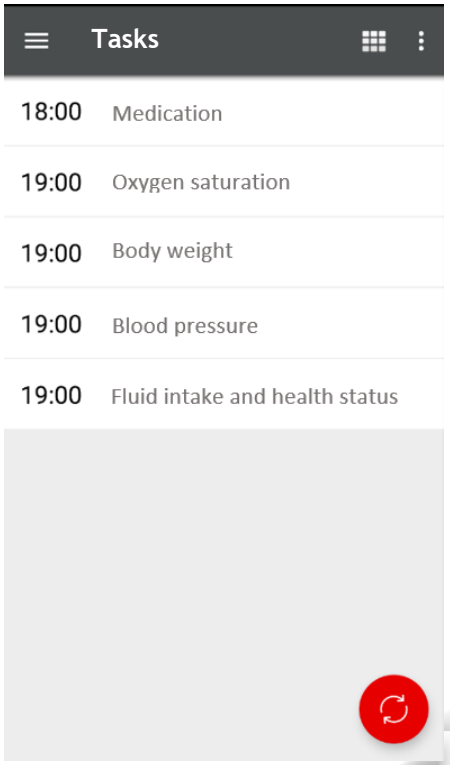
FURTHER INFORMATION ABOUT THE PLATFORM

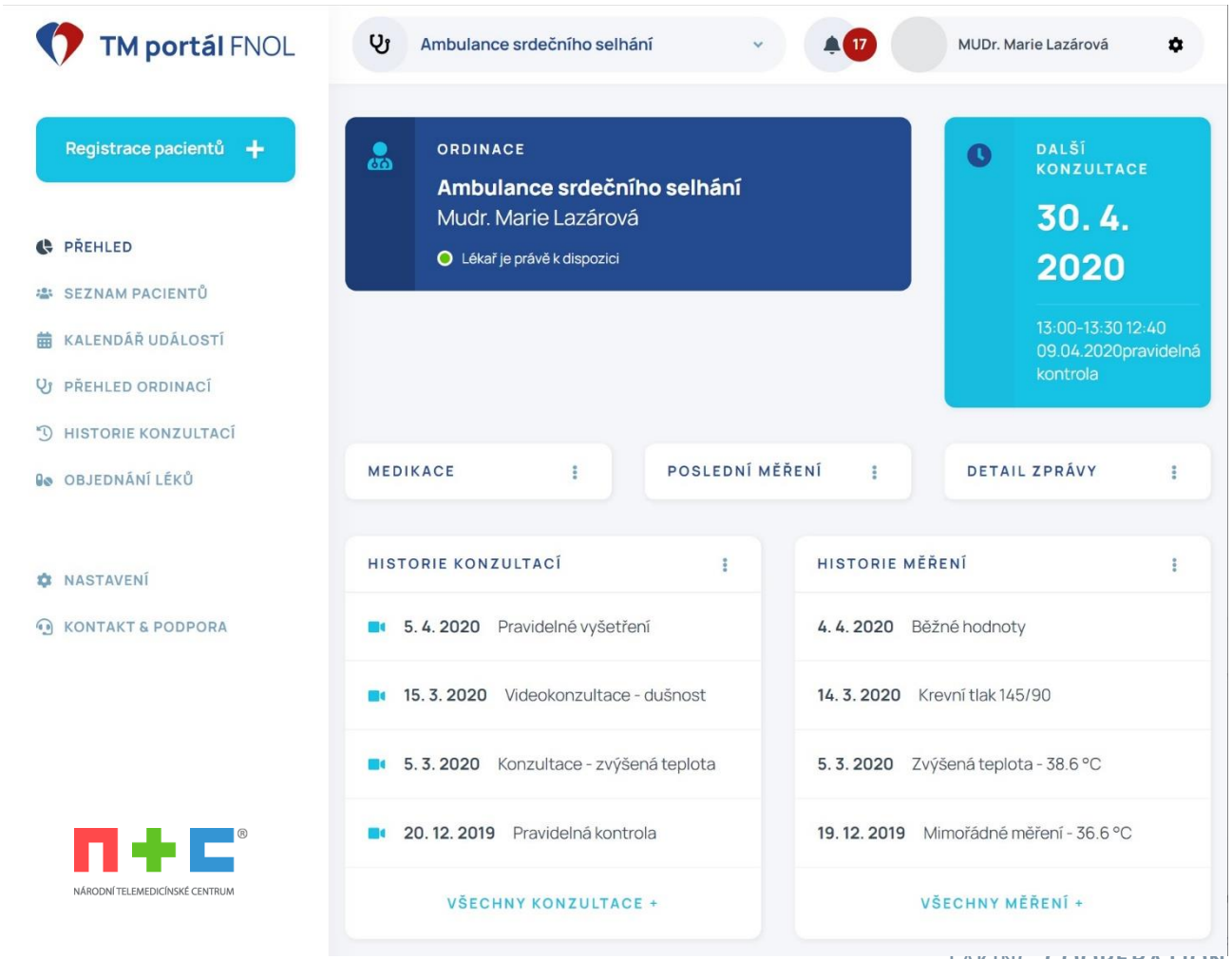
- Record of selected data of all patients processed (administrative registration of the coordinators – GDPR)
- No health data is exchanged in the initial phase, but link to the body where the data is kept is marked in the record. Later Layoff report and other health related data (patients summary, chronic care record) can be made available to HC providers as appropriate. Sharing selected health data wit SC if left for further study.
- No transport of patients is coordinated (by default it is matter of individual care institutions)
- Patients normally do not interact with the platform/coordinator, as it acts as **support of the processes and workflow**

MOBILE APP


Fluids
KG
Body weight
Blood pressure
Assistance
Doctor
Glycemia
Drug request
Send photo
Saturation
INR
Temperature
CRP


Fluids intake and health status
How much fluids did you drink in last 24 hours?
1.25l
How do you feel?
Normally
Send


Tasks
18:00 Medication
19:00 Oxygen saturation
19:00 Body weight
19:00 Blood pressure
19:00 Fluid intake and health status



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MOBILE APP

- Native application
- Supported platforms:
  -  Android 4.4 +
  - iOS Apple iOS
- Mobile phones and tablets version
- health devices with bluetooth module supported
- Mobileiron (MDM)
  - Push application installation
  - Remote wipe
  - Device provisioning
  - Application gateway – only devices meeting policies can acces back-end servers

Telehealth portal

- Based ona microsoft technologies - .NET, SQL server
- Azure ready (cloud)
- Multitenant
- Data encryption

Security

- oAuth 2 protocol for authorization
- Encrypted communication between server and device
- Encrypted data storage on device
- Ready for TeskaLabs SeaCat – another security layer (secured storage, user/device provisioning, communication with server)

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Thank you for your attention

Zdenek Gutter, Michal Stybnar

COORDITATION MEETING

Deliverable D.T2.6.1

Version 1
04 2020

niCE-Life Coordination meeting WP T2.6

Telco 21.04.2020 – 11:00, D.T2.6.1

Attendants:

Boris Morvay (Petržalka, LP), Radim Burget (BUT, PP2), Michal Štýbnar (UHO, PP3), Ing. Antonín Hlavinka (UHO,PP3), Tereza Norbertová (UHO,PP3), Ing.Zdeněk Gütter (UHO,PP3), Ladislav Stanke (UHO,PP3), Teresa Gallelli (LEPIDA, PP4), Annalisa Reggiani (LEPIDA, PP4), Sabrina Raspanti (LEPIDA, PP4), Olivera Stanojevic (NIJZ, PP10), Tatjana Krajnc-Nikolic (NIJZ, PP10)

Agenda:

- Presentation – introduction of the digital tool
- Introduction to open-source tools from FNOL
- Current status description
- Discussion

Presentation – introductiono of the digital tool:

- General info about digital tool:

The developed methods of care of frailty patients discharged (focus on hospitals in CZ and SK) enhanced based on successfully operated good practice in Europe (Italian e-Care practice is primary candidate for scaling up). Organizational, economic, technical and medical conditions for new practice will be developed considering local context. The tool will enable to better coordinate health care of frailty and chronically ill patients, to monitor and communicate with them.

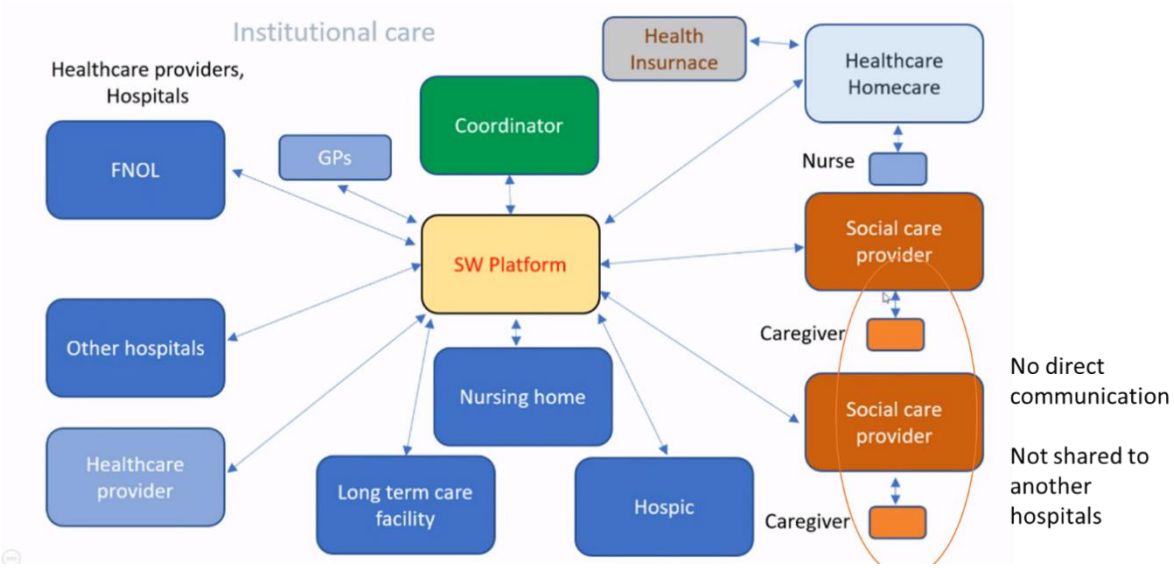
The goal of this digital tool is to create the software for patient discharged from hospital because in CZ and SK to support communication and information flow from ant to various institutions HC and SW in the region, incl. connectors. The reason is because information from various sources are typically come to coordinators in very classic form (e.g. paper) and the coordinator are entering the data in the platform and tehere is a lack of communication also with GP´s. There is also need to access to the platform to all institutions included in healthcare process. Platform will enable secure and credible management of each case of relevant patients discharged for hospital (frail, comorbidities, injury, older, alone, poor, mental illness) between follow up care providers ether in institions or homes of the patients

For example patients with CHF can be discharged from the hospital and more regular information about their vital sings in available to the medical staffs that care. If a decision is to be made the patients is called to come to the hospital as the practice introduces only informative elements and therefore medical protocols are not compromised. The practice enables to reduce routine status checks for which the patients

must have stayed in or frequently to come to the hospital. Patients stay in the services for period of time as necessary (e.g. 1 month) and then the equipment can be transferred to another patient.

> Status of Intelligent monitoring tool development WP T2.6:

- Solving problem with coordination of healthcare and social services
  - organization of processes,
  - sharing documentation (digitalization)
- Currently, no digital communication is used in CZ, SK.
- Record of selected data of all patients processed (administrative registration of the coordinators – GDPR)
- No health data is exchanged in the initial phase, but link to the body where the data is kept is marked in the record. Later Layoff report and other health related data (patients summary, chronic care record) can be made available to HC providers as appropriate. Sharing selected health data wit SC if left for further study.
- No transport of patients is coordinated (by default it is matter of individual care institutions)
- Patients normally do not interact with the platform/coordinator, as it acts as support of the processes and workflow
- Care coordinating platform:

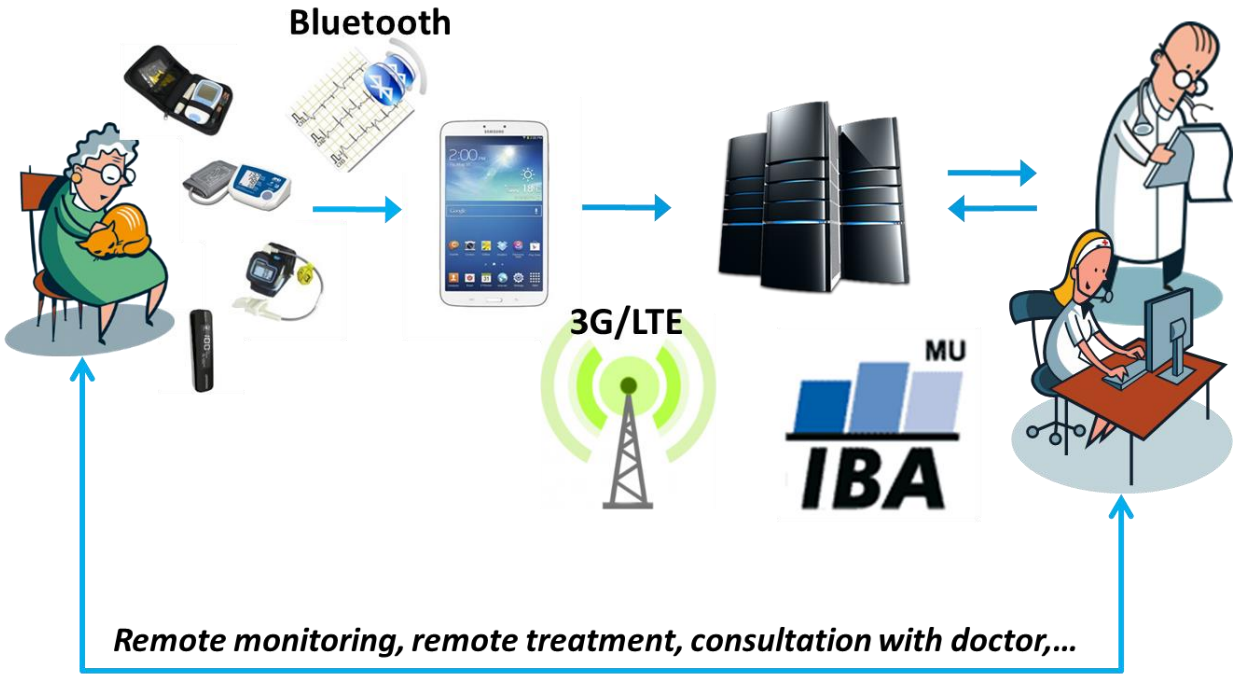


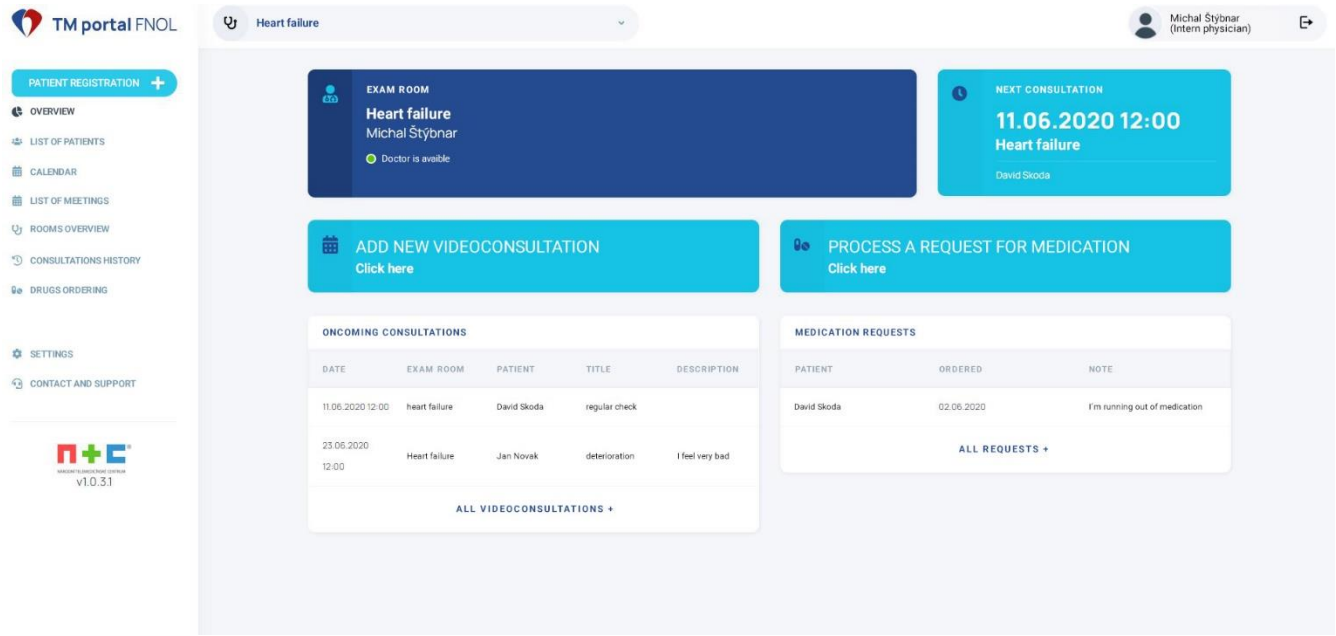
Michal Stybnar Introduced mobile application for chronic patients – FNOL is owner including source code

- The ICT system used for the practice has also several features that enable bidirectional communication between the medical personnel and patient; including distant ordering of medicaments, which party fills the gap of non-existent e-prescription service in the country. Other features increase technical reliability of distant communication between patient´s smartphone (gateway) and healthcare personnel (nurse, cardiologist with access to telehealth portal).
- Patients are provided with a smartphone or tablet, blood pressure meter, pulse oximeter and weight scales and are given training to use software application called Medimonitor on the

smartphone. The smartphone or tablet acts as a gateway to upload the vital signs readings daily to the telemonitoring centre located in the hospital's Cardiology Clinic. Doctors, specialist nurses and biomedical engineers can access the telehealth portal with collected data via internet using a web browser with secure login. The Medimonitor system generates alerts in case of danger.

- Introduced platform to communicate with providers (open-source technologies) – can be shared with Petrzalka Municipality





Discussion

Teresa Gallelli: How do you evaluate this service?

Michal Stybnar: no methodology to evaluate new care – no feedback about effectiveness in Czech system, there is such interest. What kind of tool do you use for setting up of frailty index? We would like to use and transfer it to the pilot.

Teresa Gallelli: We have some materials about that, so we can share our knowledge with you.

Boris Morvay: In SK the evaluation is set by law, promised to check more details

Teresa: ask details how communication works in Czech (Michal Stybnar)

Boris Morvay: social care centre (branch including several centres dedicated)

Michal: beneficial to share the data

Radim: Mobile app data with AI can be used to predict possible early markers of future problems

Olivera: Who is the owner of the collected data (personal data)?

Michal: The data are collected at Hospital – can be shared , in CZ all the data belongs to GP.

How many patients can we manage in unit of time?

Cardiovascular + Diabetes 2: 40 patients in time

Conclusion

During the meeting, FNOL introduced digital tool, its planned features and potential impact on social care and health care for elderly people. These features were presented to involved partners, who were part of the presentation. During the discussion there appeared some potential national law specifics (Slovakia regulations), ownership of data in Czech, GDPR issues etc.

Overall feedback was positive and the involved partners suppoted development of the tool. Positive feedback was also on possible integration with other digital tools developed at FNOL and open-source approach.