

Telemedicine during pandemic. Experience from remote care of Long-COVID patients

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Background: Patients with long-COVID syndrome require complete comprehensive healthcare. COVID-19 is a disease affecting mainly the respiratory system, symptoms reported by patients, such as persistent shortness of breath, fatigue, and weakness may indicate multiorgan dysfunction. Technologies used in telemedicine are useful and cost-effective methods employed to ensure access to high quality health services and health care outcomes.

Material: Telemonitoring (nasal airflow, ECG, heart rate, respiration rate, body position and movement, snoring and coughing, temperature, oxygen saturation) with Medical Device (Aidmed, class IIa) was launched (multicenter study in Poland) since May 2021

Addressing healthcare providers needs in Long COVID



AVOID UNNECESSARY HOSPITALIZATIONS

Personalized remote diagnostics (Sit-to-stand, 6MWT test) and automated supervision provides a tool to detect early indications of vital signs deterioration (low SPO2, high HRV or RR). Thus allowing to manage patients with chronic diseases remotely.



DIAGNOSTICS FOLLOWED BY REHABILITATION

Raise effectiveness of rehabilitation and patient compliance with AI exercise instrumentation, exercise diary and multimedia exercise guidelines. Measurement of patient engagement in exercise (to keep patients motivated and decrease drop-out rates) to develop games with heart rate/saturation and respiration biofeedback included in telerehabilitation program..



PROVIDE REAL TIME CLINICAL DATA, HELPING CLINICIANS TAKE BETTER TREATMENT DECISIONS

Capturing data online with automated features like AI based signal analysis and interpretation allows to take early action and get better outcomes at lower cost.



AI POWERED PATIENTS RISK ASSESSMENT

Collecting data is great, however the real challenge is to use it to treat patient more efficiently. The use of artificial intelligence methods combined with remote observation can help in the personalised assessment of a patient's condition, screening for diseases, etc. With our detectors, the physician/healthcare professional receives pre-described reports and alerts to make clinical decisions. We have been building multiple machine learning detectors for cough, ECG/HRV events, breathing patterns, desaturation events, socio-psychological portraits based on surveys.



USE MOBILE TOOLS TO HELP PATIENTS NAVIGATE THROUGH THE PROCESS

Using tools to remotely collect medical data can be tricky in real life. Our mobile app acts as data collecting hub and guides patients through the process with video tutorials, action plans, surveys and biofeedback games

Goal of study: discuss strengths, opportunities, threats and weaknesses in technological (i.e. usability) and (i.e. inclusiveness) aspects of remote diagnostics of Long-COVID patients in multicenter study in Poland with use of Aidmed system.

Results: Our Preliminary Observations:

- **Mobile phone** owned by a patient could be problematic as regards the tested system. Many patients did not have a telephone with an operating system compatible with Aidmed, which would exclude them from the study. This problem was solved by lending these patients a compatible mobile telephone together with an Aidmed device.
- **Assistance.** some patients needed to be retrained in the use of the device. Hence, all patients at all stages of the study had access to a technical consultant, who could support them in using the Aidmed system correctly. Hence, digitally excluded patients, especially elderly ones, should receive additional assistance.
- **Remote Areas.** We ensured an easy way to give and return the device at the termination of their monitoring, which proved to be extremely convenient, particularly for persons living away from the medical station where the study was performed.

Conclusions: Priority list: 1) having resources for patients assistance (in both e-literacy and health literacy); 2) providing easy to follow technical solution not only for technical geeks (not another life-style app); 3) Reaching out people from remote areas (logistics)

