Ente Ospedaliero Cantonale

Istituto Oncologico della Svizzera Italiana

# SUNSHINE_eHealth: monitoring of vital signs for early detection and prediction of clinical deterioration in oncological patients

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## Introduction

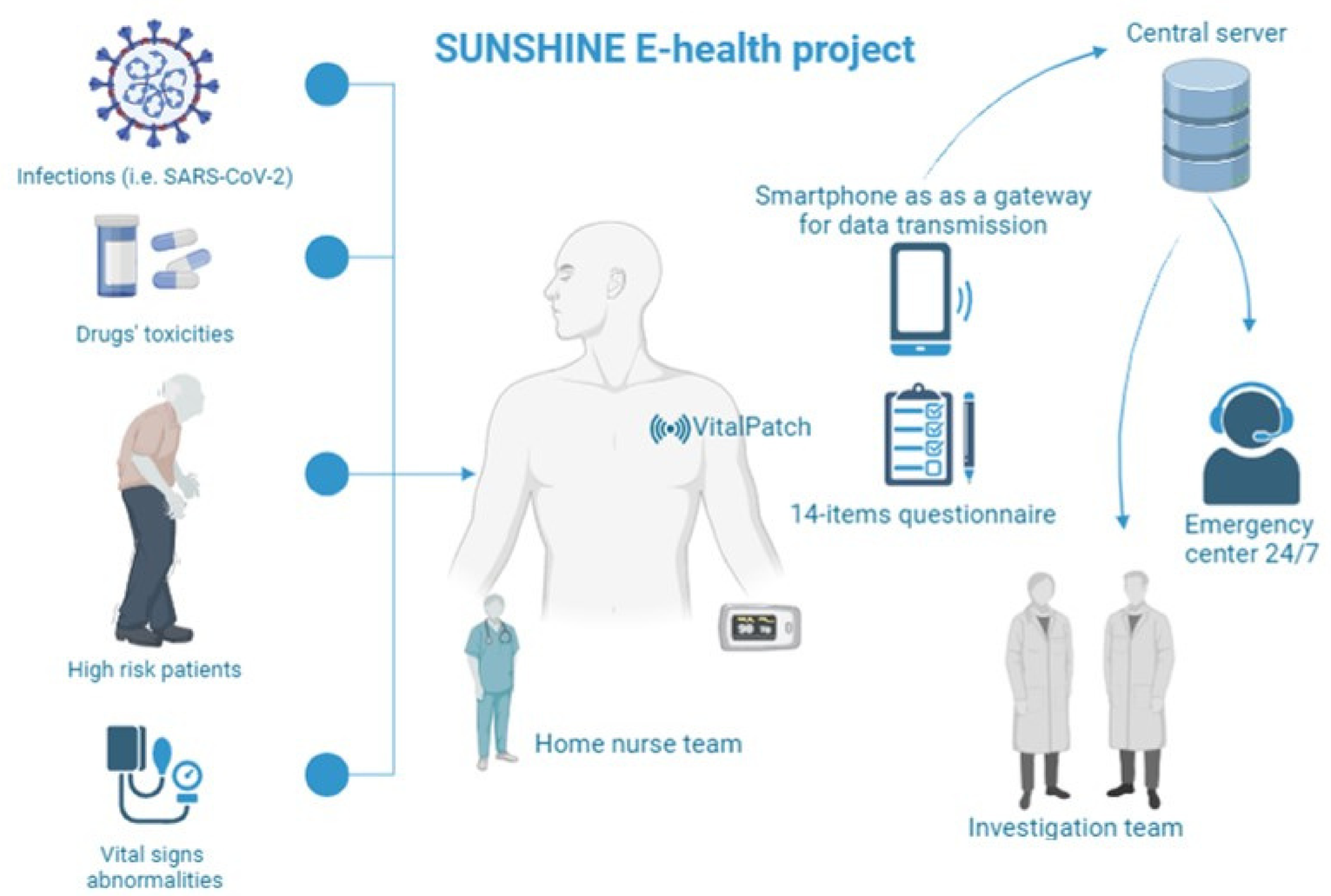
Timely recognition of clinical deterioration in oncological patients remains challenging. In our pilot project a telemedicine system was implemented for the early detection of vital signs deterioration in oncological outpatients at higher risk for complications. Main objectives were the evaluation of the sense of safety of patients at home, feasibility and prediction of clinical deterioration with machine-learning.

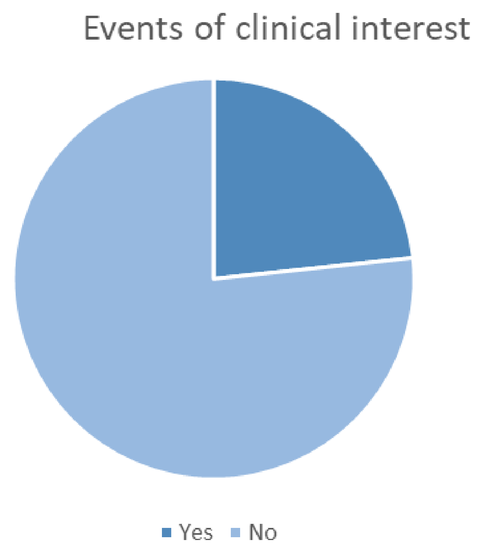
## Methods

The monitoring system was based on the IIa-class medical device VitalPatch. Seven parameters were monitored for 7 days: respiratory frequency, SpO2, heart rate, temperature, single ECG lead, posture, number of steps and fall detection. Access to the remote monitoring was ensured through an online platform with the support of a 24/7 emergency call center. At the end of the monitoring period, a 14-item questionnaire was administered to patients. A pilot analysis with machine-learning is ongoing at the moment of the abstract submission.

## Results

Thirty patients were monitored from 10.2021 to 07.2022. Median age at enrolment was 68.8 years (range 43–87). Most patients (78%) judged the devices very easy to use. The monitoring system increased the sense of safety of 96% of patients. The satisfaction with remote medical assistance was “very high” and “high” for 88% of patients. Remote monitoring led to treatment change in 43% of patients. Seven out of 30 patients had an acute event during the monitoring period, only 2 of them needed hospitalization.




**Event of clinical interest**

- High blood pressure (D1)
- Pleural effusion (D6)
- Atrial fibrillation (D1) - Hospitalization
- Fall (D3) - Hospitalization
- Bradycardia (D2)
- Febrile neutropenia (D1)
- Tachycardia (D2)

## Conclusions

Remote monitoring of vital signs of oncological patients with high risk for complications was feasible and well perceived by all patients.