OUTPUT FACT SHEET

Tools

Version 2

Project index number and acronym	CE1581 niCE-life
Output number and title	Output O.T2.2 – Monitoring tool "AP-nurse"
Responsible partner (PP name and number)	STU (PP4)
Project website	https://www.interreg-central.eu/Content.Node/niCE-life.html
Delivery date	03/2021

Summary description of the key features of the tool (developed and/or implemented) and of its transnational added value

AP-NURSE is a prototype of modular monitoring tool for patients with Alzheimer's and Parkinson's disease for home and medical application. It encompasses ambient sensors, which can monitor activity patterns, gas, temperature and movement aspects. It aims to simplify home caregivers or nurses' work by monitoring the patient's fundamental interactions with their environment during night or job duties and providing fast alert about possible dangers and support independent living of frail elderly. AP-NURSE encompass two use cases, to be available for both medical (AP-NURSE Care) and home (AP-NURSE Home) application and consists of several versions.

In case of any emergency detected by AP-NURSE Home, a caregiver is notified by the AP-NURSE wearable. It is assumed that patients live with a caregiver, therefore to ease the life and not to disturb the caregiver's partner during the night, the bracelet warns a caregiver by vibrating pattern. In case of the AP-NURSE Care, the caregiving personnel monitoring the conditions of the patients from the nursing room is notified on her/his computer or mobile. The conditions of the monitored patients are evaluated using a simple traffic light logic.

Both AP-NURSE Home and Care consist of a set of sensors selected to identify the most important abnormal events that could occur. The selection of sensors is based on the experience of project partners operating care centers and social homes in Bratislava, Warsaw and Olomouc, thus transnational added value was put on the development process. In order to collect information an electronic questionnaire was created. The questioner consisted of 65 questions focusing on the type of the diseases of treated clients, the experience of the caregivers with IoT solutions, their needs and requirements specific to their clients.

The laboratory testing has been already performed during WP2, where the findings and observations are currently being incorporated to the design prepared for testing in WP3.

NUTS region(s) where the tool has been developed and/or implemented (relevant NUTS level)

The AP-NURSE tool has been primarily developed at the Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information Technology (SK010 NUTS level 3).

The tool is going to be tested and implemented in care center in Petržalka Bratislava (SK010 NUTS level 3) and in care center in Warsaw (PL127 NUTS level 3).

Expected impact and benefits of the tool for the concerned territories and target groups

The expected benefits resulting from applying the tool are explained by two simple use-cases.

The AP-NURSE Home: 1. The patient, woke up and stepped out from the bed. 2. The patients moved towards to kitchen where AP-NURSE is installed. 3. As the patient turned on the gas stove, AP-NURSE notified the change in the environment and warned the caregiver who had been sleeping in the next room. 4.The caregiver, turned off gas stove and put the patient back to bed.

The AP-NURSE Care: 1. One of the patients, woke up and stepped out from the bed. 2. As the patient started to move in the room with AP-NURSE sensors, the PC of the caregiving personnel in the nursing room provided the first notification. 3. The actuation of sensors provided the next notification and required the personnel to intervene. 4.The caregiver, put the patient back to bed and made sure the remaining patients were safe.

Till these days the development of the tool did not lead to an uptake at policy or institutional level.

Sustainability of the tool and its transferability to other territories and stakeholders

The created devices, which will be used in the pilot testing, will be operated at the implemented centers and homes together with the necessary software. Due to the unallocated funds available after the project end, the possible repairs or maintenance of the equipment in case of failure will be not available. However, if the acquired experience from the testing is positive, future projects may be proposed willing to bring advanced AP-NURSE tools to the market thus allowing their use in other EU territories. The results from pilot testing will be publically accessible, thus may significantly contribute to the development of such devices by other research and technical groups worldwide. Lessons learned from the development are mainly related to the different insights of technicians and care-giving personnel to the functionality of the tool under development, crisis management of tool development activities during pandemic and overall understanding of needs of frail elderly.

References to relevant deliverables and web-links
If applicable, pictures or images to be provided as annex

The main relevant project deliverables are reports related to the STU tool development activity in WP2, namely: D.T2.2.1 Coordination meeting, DT2.2.2 AP NURSE & CARE monitoring tools – System specification, D.T2.2.3 AP NURSE & CARE monitoring tools – Construction of Data and Control Nursing Unit and software development, D.T2.2.4 AP NURSE & CARE monitoring tools – Testing of Integral Parts of the Modular Tool and Prototype Construction, D.T2.2.5 AP NURSE & CARE monitoring tools – Testing of the Prototype and Finalization of the Tool. Relevant is also a presentation delivered by STU team at Technologies for Active and Independent Living in Old Age (virtual conference) titled AP-NURSE – A Simple and Modular Monitoring Tool for Patients with Alzheimer's and Parkinson's disease and Frail Elderly People which can be found in the annex of this form.