

**N!CA.**

Digitalisation of Innovative Care Processes to Unburden and Empower Nurses

Program: COMET  
Competence Centers for Excellent Technologies

Funding: COMET-Projekt

Project type: N!CA, Duration: 01.03.2024-29.02.2028,  
strateg./ multi-firm



PFLEGE DIGITAL TRANSFORMIEREN

## PERSONALISED FALLS PREVENTION: FROM GUIDELINE TO DIGITAL ACTION RECOMMENDATION

Falls are among the most frequent and serious risks long-term inpatient care and in hospitals. They can lead to injuries, reduced mobility and loss of independence. Evidence-based guidelines for falls prevention exist – but implementing them systematically and individually in everyday care is challenging. Nursing staff must process complex information under significant time pressure and decide on patient-centered interventions. In the N!CA project, we are working to propose personalized, evidence-based recommendations for patients and residents at risk of falling, based on existing routine data. Guidelines should not only be readable but also digitally usable and context-sensitive.

As part of our COMET project N!CA, we have collaborated with the Medical University of Graz and Treetop Medical to establish a central conceptual framework for the integration of digital guidelines. The current evidence-based guideline on fall prevention was systematically analyzed and translated into a structured, digitally mappable decision-making logic. In the process, relevant patient groups were clearly defined, risk scenarios were described in detail, and recommendations for action were formalized and made codable.

The guideline was not merely digitized, but semantically modeled. Recommendations were structured in such a way that they are machine-readable, can be evaluated using rule-based systems, and can eventually be integrated with risk prediction models. This step represents a significant milestone, as it bridges the gap between evidence-based nursing and digital decision support.

At the same time, the necessary foundations for interoperable data use were established. Personalized recommendations require standardized and machine-readable nursing data. Therefore, the harmonization and semantic standardization of

## SUCCESS STORY

routine data took place in the background, including by mapping existing nursing classifications (DiZiMa®) to international terminologies such as SNOMED CT. This standardization lays the groundwork for evaluating nursing information and, in the long term, integrating AI-supported risk models.

With the completion of the conceptual phase, a solid foundation now exists to refine the decision logic with nursing staff and shape it in a practical way (see Figure 1). The goal is to develop a prototype digital support tool that can be tested in everyday care and iteratively improved.

The project demonstrates how evidence-based guidelines, standardized nursing data, and digital technologies can be systematically integrated. This makes a significant contribution to enhancing patient safety, reducing the workload on nursing staff, and

driving the sustainable digital transformation of nursing care. At the same time, it creates a transferable model that can also be applied to other nursing guidelines.

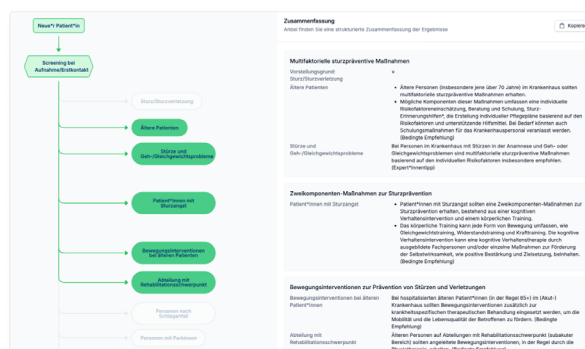


Figure 1: Conceptual diagram of the prototype for displaying personalized and evidence-based recommendations

### Project Coordination (Story)

DI Philip Stampfer  
 Projektleitung Teilprojekt 2  
 Joanneum Research / HEALTH  
 T +43 (0) 316 876 4504  
[philip.stampfer@joanneum.at](mailto:philip.stampfer@joanneum.at)

**NICA COMET-Project**  
**Medizinische Universität Graz**  
**Dr<sup>in</sup> Katharina Lichtenegger BSc, MSc**  
 Neue Stiftingtalstraße 6, 8010 Graz  
 T +43 (0) 316 385 72766  
[katharina.lichtenegger@medunigraz.at](mailto:katharina.lichtenegger@medunigraz.at)  
<https://www.medunigraz.at/nica>

### Project Partners

- decide Clinical Software GmbH, Österreich
- Althea Pflegebetriebs GmbH, Österreich
- LOIDL Consulting & IT Services GmbH, Österreich
- CAATS, Österreich
- Predicting Health GmbH, Österreich
- Treetop Medical GmbH, Österreich
- Steiermärkische Krankenanstaltengesellschaft mbH, Österreich
- Medizinische Universität Graz, Österreich
- Joanneum Research Forschungsgesellschaft mbH, Österreich
- FH Oberösterreich Forschungs & Entwicklungs GmbH; Österreich
- Umit Tirol – Private Universität für Gesundheitswissenschaften und –technologie mbH, Österreich
- Universität Wien, Österreich
- Vetterli, Roth & Partners, Schweiz

This success story has been approved for publication by the consortium leadership and the project partners listed. The COMET project NICA is funded by BMMI, BMWET, [Land Steiermark, SFG] as part of COMET – Competence Centers for Excellent Technologies. For more information on COMET: [www.ffg.at/comet](http://www.ffg.at/comet)