Interreg Danube Region

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DIGI4Care

Upskilling the prehospital workforce through tele-ultrasound training

Policy Factsheet

Recommendations to support national decision making in taking up digital medical technologies

prepared by Semmelweis University

Key message

1. **Access to structured, hands-on point-of-care ultrasound (POCUS) training is limited for prehospital personnel due to geographic barriers and a shortage of local instructors.**
2. **The Hungarian pilot proved that teledidactic training is non-inferior to traditional in-person instruction; paramedics reported high confidence levels (77.8%) and manageable cognitive load using remote expert supervision.**
3. **Beyond training, the pilot demonstrated that real-time remote expert support can enable earlier differential diagnosis in the field, ensuring patients are directed to the most appropriate level of care immediately.**

Learnings & Results

The DTP INTERREG project **DIGI4Care** aims to reshape healthcare systems in the Danube Region by strategically integrating digital and AI solutions into patient pathways. Through **four transnational pilots** spanning from prevention to rehabilitation, the project tested and validated novel technologies alongside horizontal framework elements such as data management models and training toolboxes. Within this framework, **Pilot 2 focused on** building emergency care capacity by **validating a teledidactic training model** for portable point-of-care ultrasound (POCUS) and integrating tele-supervised diagnostics into prehospital patient pathways to optimize routing decisions. In collaboration with the **National Ambulance Service (OMSZ)**, the Hungarian pilot results demonstrated that remote expert-supported **Point-of-Care Ultrasound (POCUS)** is a safe and feasible method for real-time prehospital care. The study enrolled **45 paramedics** to compare traditional hands-on instruction with a **teledidactic model** combining e-learning and remote practical coaching. Findings confirmed the teledidactic approach is **non-inferior** to conventional methods: **77.8% of participants** reported high confidence in the **eFAST protocol**, while measured cognitive load (**NASA-TLX**) remained manageable and comparable across training groups. This extension into real patient care proved that tele-supervision effectively bridges the gap between frontline staff and hospital expertise, significantly optimizing **patient routing decisions**. However, it is also proved that routine clinical adoption requires moving toward secure, natively integrated IT solutions.

Main results achieved through the participation in the project include:

- **Increase of institutional capacity:** The project has significantly strengthened the institution's capacity in **coordinating digital health implementation pilots**. Through the management of the teledidactic POCUS pilot, the centre established a robust **professional cooperation framework** between academic experts and prehospital emergency service providers, gaining unique know-how in validating digital training pathways.

- **Use of Digi4Care strategies and action plans:**
  Semmelweis University HSMTC utilizes the Institutional Action Plan to facilitate the integration of pilot findings into its permanent academic programs and training frameworks.
- **Uptake and use of Digi4Care solutions:**
  The institution directly utilizes the **Digitally Enabled ICM Strategy** and the project results to facilitate national policy dialogues. By leveraging the evidence-based findings of the pilots, the centre provides strategic support to decision-makers on resolving the regulatory and financial barriers identified during implementation, thereby fostering a more enabling environment for digital health.



Benefits for policymakers

Upskilling the prehospital workforce through teledidactic models allows for the **rapid and country-wide scaling of diagnostic competencies**. In clinical practice, the systematic application of tele-supervised POCUS enables **better-informed diagnosis and more accurate patient routing**, which optimizes hospital resource allocation and improves emergency outcomes. Furthermore, the usage of these digital tools, combined with real-time expert supervision, increases the professional confidence and retention of non-physician EMS providers.

Recommendations for policymakers

Investigate the rollout of the teledidactic POCUS training model to other specialties – including intensive care, emergency medicine, cardiology, and radiology – and to other healthcare professionals such as radiographers.

Establish a standardized framework for tele-supervised diagnostics that prioritizes native IT integration and interoperable communication platforms to enable real-time exchange while ensuring organizational cybersecurity.

Update national regulations to formally permit and **reimburse tele-supervised diagnostics** in routine clinical practice. This will ensure a compliant and sustainable pathway for systemic adoption, enabling seamless real-time collaboration between healthcare professionals across different levels of care.