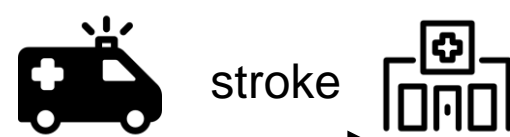


Development of a Digital Hub for improving emergency stroke care and introducing quality indicators to evaluate its impact: The CAEHR project

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Background and aims



Fast and secure transfer of imaging and clinical data between emergency medical services (EMS), regional hospitals and stroke centers is essential for acute stroke treatment. We present the design of a Digital Hub to improve availability of time-critical diagnostic information in the acute stroke by digital tools and describe the development of indicators for measuring quality of emergency stroke care.

Methods

In the Digital Hub CAEHR, interfaces for automatic transfer of routine data from EMS, regional hospitals and telemedical consultation systems with a tertiary stroke center in Germany were developed. For evaluating the impact of these tools on quality of acute stroke care, a multidisciplinary working group developed evidence-based quality indicators (QI) considering (inter-) national recommendations including a literature review, an independent evaluation by a multidisciplinary sounding board (MSB) (Figure 1). In addition, feasibility of its application was tested in a pilot phase.

Results

Solutions for digital interfaces between routine EMS documentation by tablets (NIDA® Pad, medTV) and telemedical consultation platforms (VIMED®, MEYTEC) with the hospital information system were developed. A set of 25 QIs was proposed to measure quality of emergency stroke care including stroke specific QIs (Process times: scene-to-brain-time, door-to-needle-time, door-to-groin-time; Prehospital documentation, NIHSS, mRS, telemedicine council, image transmission) and patient-reported outcomes (PROMS: EQ5D-5L, PROMIS-29, PHQ-4). The pilot phase for Use Case A in Wuerzburg took place in October 2022. Recruitment rates (number of eligible patient, willingness to participate, conduct and duration of the follow-up survey and acceptance of the study materials (comprehensibility and length) was tested. Overall, 25 patients were documented; average age was 68.8 years, 28% were women; the 3-months follow-up rate was 80%; the mean time for the follow up interview was 28.8 minutes. The QI documentation was rated to be feasible and useful by professionals and patients.

Conclusions

The digital hub CAHER will develop tools for improving the timely provision of intersectoral health information. The impact of its implementation on patient benefit will be evaluated by predefined QI.

The CAEHR project

Within the Digital Hub CAEHR (CArdiovascular Diseases – Enhancing Healthcare through cross-Sectoral Routine data integration), an improved care through the optimized timely provision of relevant health information as well as the establishment of intelligent, data-driven services along the entire care pathway will be provided.

This will be implemented and tested in three dedicated use cases:

In Use Case A (Emergency Care), a prospective registry will be established to evaluate the quality of care provided to stroke patients in a pre-post comparison including a standardized 3-month follow-up survey.

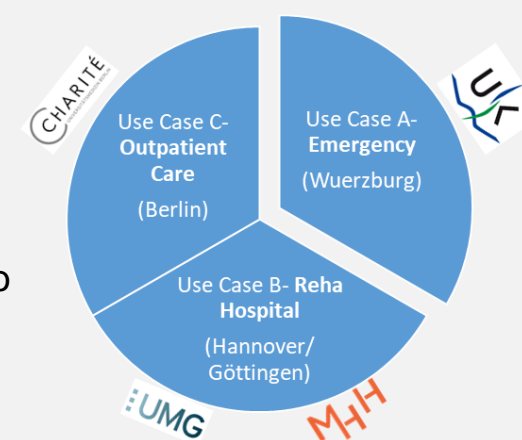
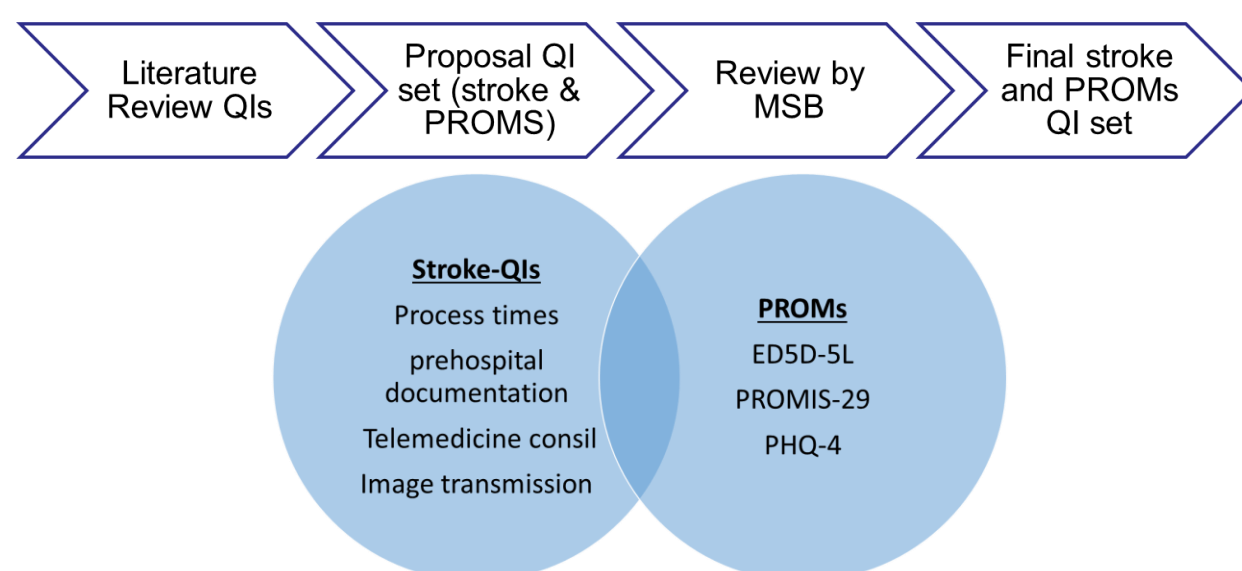


Figure 1. Quality indicators Development



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