

Steps towards a SENIOR-friendly Emergency Department: context-driven, systematic implementation mapping and evaluation in a Swiss University Hospital (SeniorED)

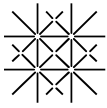
Background. As the population ages, the demand for emergency departments (EDs) for older patients over the age of 60 is rapidly outstripping EDs' capacity to meet their needs. The trend shows that older patients, as a group, are more likely frequent users of EDs and to have longer stays, higher hospitalization rates, and a greater risk of post-discharge functional impairment (1–3). At the University Hospital Basel (USB), Switzerland, overall, ED patient numbers rose by 20.6% from 2013 to 2020. Of all ED users over that period, 31% were aged 65 or older. And among that age range, 62% required hospitalization (4,5). Managing older patients is often complex due to polypharmacy, multimorbidity, and frailty (3). To accelerate and improve this group's treatment and care, the USB ED has incorporated assessments and interventions as part of a senior-friendly ED program, however, the interventions were not fully adopted. An implementation science approach can help to identify barriers and facilitators and to develop tailored strategies to overcome barriers while maximizing the interventions' utilization and effectiveness (6,7).

Aim. For a systematic uptake and sustainable implementation of the USB's senior-friendly ED program, we have defined three aims: 1) to examine the degree to which senior-friendly interventions (at the level of workforce, operational structure, and infrastructure) are already implemented in the target ED setting while identifying barriers and facilitators that affect their successful adoption and maintenance (with a focus on understanding their reach within that specific setting); 2) to systematically map the implementation process to develop (increasingly) effective implementation strategies for (re)introducing elements of a senior-friendly ED; and 3) to pilot-test the developed program with both the intervention elements of a senior-friendly ED and the corresponding implementation strategies, using the RE-AIM framework as a basis; to assess reach, adoption, and maintenance (implementation outcomes), as well as person-centeredness (effectiveness outcome); and to monitor the implementation.

Method. This Ph.D. project will be conducted using an implementation science approach. Following the implementation mapping steps, the project will involve three phases (8):

- Phase 1: We will identify stakeholders and assess implementation barriers and facilitators (8,9). We will perform a theory-driven context analysis, utilizing rapid ethnography. This involves observations, conversations, and interviews with healthcare workers and patients, Gemba walk and focus groups with the patient advisory board, and collection of patient routine data. The analysis will be guided by the Context and Implementation of Complex Interventions (CICI) framework (10).
- Phase 2: We will follow 3 steps: 1) Identification of intervention and implementation outcomes to be measured, as well as definition of performance objectives; 2) development of implementation strategies; and 3) co-design of implementation protocols (8). Building upon our findings from Phase 1 and a scoping review, we will select suitable implementation strategies to facilitate the uptake of intervention elements during the reimplementation process. Existing strategies will be adapted, extended, or replaced, with stakeholder involvement guiding the selection of the most appropriate strategies.
- Phase 3: Evaluation of intervention and implementation outcomes (8). We will use a hybrid type 2 design to look at both effectiveness outcomes (i.e., person-centeredness) and implementation outcomes (i.e., reach, adoption, maintenance) and monitor the implementation process over several time points.

Clinical relevance. Building a senior-friendly ED is a vital step toward sustainable person-centered emergency care (11,12). This Ph.D. project integrates existing evidence and contextual information to generate strategies that will foster a senior-friendly ED. The results can guide implementations in other national as well as international emergency settings, regarding the contextual adaption and implementation of the elements of a senior-friendly ED (11). Locally, this project holds considerable potential to enhance the quality of care through the implementation of value-based healthcare principles. By focusing on improving person-centeredness, as well as enhancing the value of patient-reported experience and outcome measures, this project can create a substantial impact (13–16). Additionally, it provides an opportunity for ED staff to receive additional training and qualifications in geriatric care.



References

1. World Health Organization (WHO). Ageing [Internet]. 2023 [cited 2023 Mar 15]. Available from: https://www.who.int/health-topics/ageing#tab=tab_1
2. Nagurney JM, Fleischman W, Han L, Leo-Summers L, Allore HG, Gill TM. Emergency department visits without hospitalization are associated with functional decline in older persons. *Ann Emerg Med.* 2017 Apr;69(4):426–33.
3. Nickel C, Bellou A, Conroy S, editors. *Geriatric Emergency Medicine*. Cham: Springer International Publishing; 2018.
4. Universitätsspital Basel. Medizinisches Zentrum: Notfallzentrum [Internet]. [cited 2022 Apr 22]. Available from: <https://jahresbericht.unispital-basel.ch/2020/berichte/leistungsberichte/Medizinisches-Zentrum-Notfallzentrum.html>
5. Kaeppli T, Rueegg M, Dreher-Hummel T, Brabrand M, Kabell-Nissen S, Carpenter CR, et al. Validation of the Clinical Frailty Scale for Prediction of Thirty-Day Mortality in the Emergency Department. *Ann Emerg Med.* 2020 Sep;76(3):291–300.
6. De Geest S, Zúñiga F, Brunkert T, Deschodt M, Zullig LL, Wyss K, et al. Powering Swiss health care for the future: implementation science to bridge “the valley of death”. *Swiss Med Wkly.* 2020 Sep 7;150:w20323.
7. Proctor EK, Powell BJ, McMillen JC. Implementation strategies: recommendations for specifying and reporting. *Implement Sci.* 2013 Dec 1;8:139.
8. Schultes M-T, Albers B, Caci L, Nyantakyi E, Clack L. A modified implementation mapping methodology for evaluating and learning from existing implementation. *Front Public Health.* 2022 Mar 23;10:836552.
9. Barkhordarian A, Demerjian G, Jan A, Sama N, Nguyen M, Du A, et al. Stakeholder engagement analysis - a bioethics dilemma in patient-targeted intervention: patients with temporomandibular joint disorders. *J Transl Med.* 2015 Jan 20;13:15.
10. Pfadenhauer LM, Gerhardus A, Mozygemba K, Lysdahl KB, Booth A, Hofmann B, et al. Making sense of complexity in context and implementation: the Context and Implementation of Complex Interventions (CICI) framework. *Implement Sci.* 2017 Feb 15;12(1):21.
11. Mooijaart SP, Carpenter CR, Conroy SP. Geriatric emergency medicine-a model for frailty friendly healthcare. *Age Ageing.* 2022 Mar 1;51(3).
12. American College of Emergency Physicians. GEDA Criteria for Levels 1, 2 & 3 [Internet]. [cited 2023 Mar 27]. Available from: <https://www.acep.org/globalassets/sites/geda/documnets/GEDA-criteria.pdf>
13. Male L, Noble A, Atkinson J, Marson T. Measuring patient experience: a systematic review to evaluate psychometric properties of patient reported experience measures (PREMs) for emergency care service provision. *Int J Qual Health Care.* 2017 Jun 1;29(3):314–26.
14. Bilger S, Müller A, Rüter F, Kappes A, Laubach K, Meier C. Patienten-zentriertes Feedback zur Steuerung von Gesundheit und System. *Vereinigung schweizerischer Fachärzte - FMH*; 2020 Aug.
15. van Oppen JD, Alshibani A, Coats TJ, Graham B, Holch P, Lalseta J, et al. A systematic review and recommendations for prom instruments for older people with frailty in emergency care. *J Patient Rep Outcomes.* 2022 Apr 1;6(1):30.
16. Häusler E. Value-Based Healthcare von der Theorie in die Praxis. *FMC.* 2022 Mar;5.