



Musculoskeletal

The Transmural Trauma Care Model (TTCM)

What are the barriers and facilitators associated with the implementation of this new rehabilitation model?

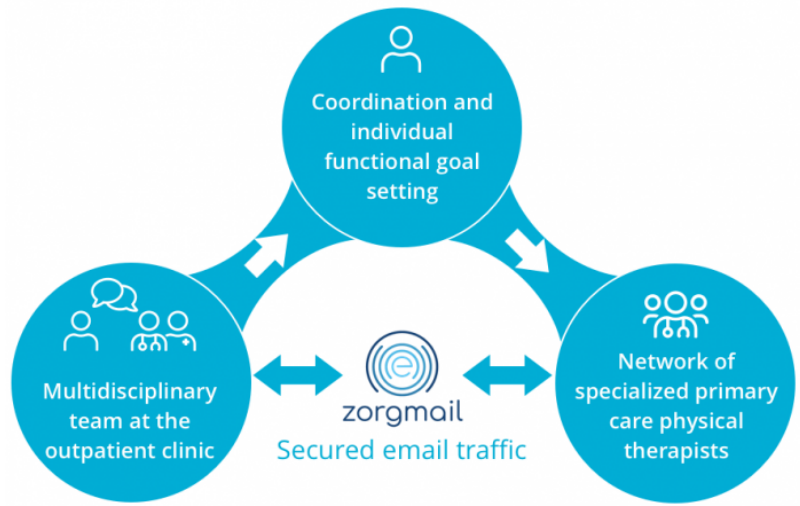
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Traumatic injury is one of the main causes of death and disability worldwide, and poses a substantial economic burden to society. Most trauma patients have one or more fractures due to their trauma. Treatment depends on fracture characteristics and patient characteristics, such as age, comorbidity, health status and activity level prior to the injury.

To optimise the rehabilitation process, we developed and evaluated the Transmural Trauma Care Model (TTCM). The TTCM is an advanced transmural rehabilitation model for mild, moderate and severe trauma patients with at least one fracture, aiming to improve patient outcomes and to reduce costs by optimising the organisation, content, and quality of the rehabilitation process.

The TTCM (see image below) consists of four components, all of which are linked to one another, i.e.:

1. A multidisciplinary team at the outpatient clinic for trauma patients;
2. Coordination and individual functional goal setting for each patient by the multidisciplinary hospital-based team;
3. A network of specialized primary care physiotherapists; and
4. Secured email traffic between the hospital-based physiotherapist and the primary care network physiotherapist.



We examined the TTCM's effectiveness and cost-effectiveness in 285 trauma patients with at least one fracture in a controlled-before-and-after study in terms of HR-QOL, functional outcome, pain and patient satisfaction. Preliminary evidence was provided that the TTCM improves patient related outcome measures, such as disease-specific HR-QOL, functional status, and patient satisfaction among mild, moderate and severe trauma patients with at least one fracture compared with regular care. For example, the mean difference for functional status at 9 months was nearly 21 points on a 100-points scale, favoring the TTCM group. Furthermore, patients in the intervention group suffered from statistically significantly less pain at 6 and 9 months than their control group counterparts.

Additionally, we performed a process evaluation, which showed that the TTCM was largely implemented as intended. However, various facilitators and barriers were identified that need to be considered when implementing the TTCM broadly. Examples of such facilitators and barriers are the "shared decision-making process at the outpatient clinic" and an "increased level of knowledge and skills" (facilitators) and the "absence of reimbursement for the hospital-based physical therapists at the outpatient clinic" (barrier for implementation).

Lessons learned from the TTCM trial and its process evaluation were used to further improve the TTCM and to set up a multicenter trial aimed to assess the effectiveness and cost-effectiveness of an improved version of the TTCM compared to regular care, on a wider scale and using an improved study design. Results of this multicenter trial are expected in 2023 and will hopefully lead to a nationwide implementation of the TTCM and thus contribute to an individually tailored rehabilitation path for every single trauma patient.

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Additional references

For more information on the Transmural Trauma Care Model, please see these additional references:

1. [Wiertsema et al. Cost-Effectiveness of the Transmural Trauma Care Model \(TTCM\) for the Rehabilitation of Trauma Patients. Int J Technol Assess Health Care 35 \(2019\) 307-316.](#)
2. [Wiertsema et al. The Transmural Trauma Care Model can be implemented well but some barriers and facilitators should be considered during implementation: a mixed methods study. J Physiother \(2021\) Online ahead of print.](#)

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