**Study plan**

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**How do transfers and updating of clinical prediction models for trauma triage affect mistriage rates?**

**Introduction**

Physical trauma, injuries stands for 9% of global mortality. More than 5 million people die anually due to trauma and it is one of the leading mortality causes in individuals under 44 years old(1) Prediction models used in trauma care seek to facilitate categorizing of medical care regarding time frame and place. Models have and are still being developed to predict death or survival rates in patients. Many models are built on vital-parameters such as systolic blood pressure(sbp) and respiratory rate(rr) and other variables such as glascow coma scale(2). The variables are later put in a system to determine the level of trauma. Advancement of these models are in many cases being made limited to a specified location or setting and are later being used in other circumstances. Also, they are developed on a national level using databases for that specific country and is being used in other parts of the world. This study seeks to answer if transferring prediction models from a country and applying it in another country affects mistriage rates. Mistriage rates is measured as either over- or undertriage. Updating the prediction models may have an impact on mistriage rates also.

**Aim**

How do transfers of prediction models for trauma triage affect mistriage rates? If the mistriage rates are adversely affected by model transfers, how does model updating affect mistriage rates?

**Material and methods**

This is a registry-based cohort study with data being collected from the Swedish trauma registry, SweTrau, from the US national trauma data bank, NTDB and the Indian Improved Trauma Cara Outcomes TITCO.

Each dataset will be divided into samples of three; development, updating and validation samples. Logistic regression will be used to develop the models in the development samples. An estimation of the mistriage rates in the validation samples models and will be compared to it self and to the other validation sample from the other databases. The updating samples will be tested in different settings and compared to see how model updating affect the mistriage rates.

**Ethical considerations**

Autonomy-respect

The patients can withdraw from the register if they choose to do so. They are informed that the information can be used in a study.

The principle of beneficence

The study will hopefully improve the management of trauma care and contribute to better healthcare for patients.

The principle of nonmaleficence

No intervention is being made so there is no risk for physical harm. Data leakage will be the biggest risk for harm and integrity

The principle of justice

All patients are depersonalized and anonymous when the data is being obtained. The information gained from the registry will either way be treated equal.

*Ethical Permit*

2015/426-31 and 2016/461-32

**Referenser**

1. <https://www.who.int/violence_injury_prevention/key_facts/en/>
2. <https://onlinelibrary.wiley.com/doi/full/10.1111/aas.12256>

**Time plan**

3-15 September: Write study plan. 16-28 September: Write analysis plan. 29 September - 28 October: Initial analysis and prepare half time report. 29 October - 30 November: Complete analysis and write results. 1 December - 2 January: Write discussion and finalise thesis.

**Backup plan**