

The trauma system and the patient – A national, regional and individual perspective

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Morbidity and mortality following traumatic injuries constitute a substantial global health challenge. This thesis aimed to describe the current challenges of trauma on a national, regional and individual level. Study 1 was a cross-sectional study including all 41 Norwegian hospitals receiving injured patients in 2011.¹ Over time there was a substantial reduction of number of contributing hospitals, and many hospitals received a small number of patients. Acute care hospitals contributed substantially in the evaluation of trauma patients.¹ Study 2 was a retrospective multicenter observational study including 2323 patients within a defined geographical region (Central Norway).² Only 329 (14%) patients were defined as major trauma. Among all patients, forty-eight patients (2%) died within 30 days. Acute care hospitals contributed substantially as more than half of all patients initially presented in these hospitals and the majority of them here received their definitive care. In a region with dispersed network of hospitals and low rate of major trauma cases, emphasis on optimal triage, decentralized services` capability of early stabilization, and efficient transfer of patients to definite care is crucial.² Study 3 was a study of 1191 potentially severely injured patients, using trauma register data linked with Norwegian administrative databases.³ Patients with minor and moderate injuries had a twofold to

threefold increase in the risk of receiving medical benefits throughout the follow-up period. Median times after injury until return to work were 1, 4 and 11 months for patients with minor, moderate and severe trauma, respectively.³

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REFERENCES

1. Uleberg O, Vinjevoll OP, Kristiansen T, Klepstad P. Norwegian trauma care: a national cross-sectional survey of all hospitals involved in the management of major trauma patients. *Scand J Trauma Resusc Emerg Med.* 2014;22:64. <https://doi.org/10.1186/s13049-014-0064-0>.
2. Uleberg O, Kristiansen T, Pape K, Romundstad PR, Klepstad P. Trauma care in a combined rural and urban region: an observational study. *Acta Anaesthesiol Scand.* 2017;61(3):346–356. <https://doi.org/10.1111/aas.12856>.
3. Uleberg O, Pape K, Kristiansen T, Romundstad PR, Klepstad P. Population-based analysis of the impact of trauma on longer-term functional outcomes. *Br J Surg.* 2019;106(1):65–73. <https://doi.org/10.1002/bjs.10965>.

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