Numbers of Severely Injured Patients in Germany

A Retrospective Analysis From the DGU (German Society for Trauma Surgery) Trauma Registry

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SUMMARY

Background: Persons who sustain severe traumatic injury, i.e., those with an Injury Severity Score (ISS) of 16 or above, go on to suffer major physical, emotional, and socio-economic consequences. It is important to know the incidence of severe trauma so that these patients can be cared for optimally.

Methods: Data from the year 2012 on severely injured persons with an ISS of 16 or above were obtained from the trauma registry of the German Society for Trauma Surgery (DGU) and analyzed. Further information was obtained from the database of the DGU trauma network. The annual incidence of severe trauma was estimated from these data in three different ways.

Results: An extrapolation of hospital-based data to the German population yielded a figure of 16,742 severely injured persons per year. A population-based estimate from the German federal state of Bavaria yielded a figure of 16,514/year. We added 10% to each of these figures as a correction for assumed underreporting. We conclude that the number of persons who sustained a severe traumatic injury in Germany in 2012 lay between 18,209 (95% confidence interval [CI]: 17,751–18,646) and 18,416 (95% CI: 18,156–18,695). This corresponds to an incidence of 0.02% per year.

Conclusion: Data from a prospectively maintained nationwide trauma registry were used for the first time to calculate the annual incidence of severe traumatic injury in Germany: the expected number of severely injured persons per year is 18,200–18,400. Previous extrapolations yielded values in the range of 32,500–35,300. A high variability of documentation practices among supraregional trauma centers may have distorted the estimate, along with other factors. The figures were not normalized for age or sex.

Cite this as:

Severely injured patients are treated by pre-hospital emergency medical services and in-hospital emergency departments on a daily basis in Germany (1, 2). Often, young and otherwise healthy patients are affected, usually with severe sequelae (3). Polytrauma therefore has not only serious medical consequences but also high socioeconomic implications (4).

To improve the care of severely injured patients, the German Society for Trauma Surgery (DGU, Deutsche Gesellschaft für Unfallchirurgie) founded the trauma network TraumaNetzwerk DGU (TNW-DGU). Following the guidelines given in the Whitebook Medical Care of the Severely Injured, hospitals nationwide are being certified according to defined standards (5). Currently, 608 trauma centers (TC) in 51 regional trauma networks (TNW) provide an almost complete coverage for certification nationwide (as of April 2015) (Figures 1 and 2). In the future, about 50 hospitals nationwide that are not currently certified are expected to join. Hospitals participating within a TNW document the severely injured patients centrally in the DGU Trauma Registry (TraumaRegister [TR]-DGU). In addition to their importance for the clinical practice, TNW and TR-DGU have also provided data for many quality publications in recent years (6–10).

Despite their clinical importance and intense scientific scrutiny, the exact number of severe injuries that occur annually is still not known. When the TNW-DGU and TR-DGU were founded, only two publications, from 2000 and 2006, addressed the number of severe injuries in Germany (11, 12). In fact, recent publications still used these works to estimate the number of severely injured patients. Therefore, the data used to determine management planning for treating severely injured patients and for making resources available to each TC—both of which are associated with considerable costs and much organizational effort—are not up-to-date.

In recent years, increased emphasis has been placed on improving road traffic safety. We can therefore assume that this has also led to a decrease in the number of severe injuries. Now, using the large amount of prospectively collected data from the TR-DGU, we can determine for the first time how many patients actually sustain polytrauma.