

**Internationale Gesellschaft zur Erforschung von Hirntraumata IGEH
International Neurotrauma Research Organization INRO**



Annual Report 2008

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Researchers

Prof. Dr. Med. Martin Rusnak, PhD
Prof. Dr. Med. Walter Mauritz, PhD
Dr. Med. Alexandra Brazinova, PhD, MPH
Dr. Marek Majdan, PhD, Research Fellow
Dr. Med. Johannes Leitgeb, Scholar
Dr. Lucia Lenartova, Research Fellow
Dipl. Ing. Ivan Janciak, IT Manager
Dr. Med. Valeria Rudel, Research Fellow
Dr. Med. Patrick Weninger, Research Fellow
Balasz Zobor, student
Mag. Ingrid Wilbacher, Research Fellow
Dr. Med. Annalisa Rosso, Research Fellow

Donors

Neurotrauma Foundation
Ala and Ralph Isham

The TEAM of INRO

Prof. Martin Rusnak is the president of INRO's Board of Directors. He oversees project implementation and development of new project and scientific publications. Prof. Rusnak is also a chairman of the Department of Public Health at the Faculty of Health Care and Social Work, Trnava University, Slovak Republic (as of September 2006).

Prof. Walter Mauritz, the vicepresident of INRO's board of directors, is the chairman of Department of Anaesthesiology at Lorenz Boehler Trauma Hospital in Wien, which is also a teaching facility. Furthermore, Dr. Mauritz is a visiting professor at Trnava University. Prof. Mauritz is the project leader for the Prehospital project that is implemented by INRO in 2008-2013. Prof. Mauritz is the most valuable scientific and clinical advisor of INRO and he oversees the development of scientific work.

This close academic affiliation of prof. Rusnak and Mauritz brings students and young scholars interested in brain trauma research into INRO's activities.

Dr. Alexandra Brazinova is a medical doctor with further education in public health and PhD from Social Medicine. Dr. Brazinova is the executive director of INRO. She does administrative management, works on the development of project proposals, coordinates project implementation, writes project reports. Dr. Brazinova is the project coordinator for the Prehospital project that is implemented by INRO in 2008-2013. In her scientific work she focuses on qualitative research, writes and participates in development of scientific articles. She also teaches at the Department of Public Health of Trnava University as a part time lecturer.

Dr. Johannes Leitgeb is a trauma surgeon at the University Clinic for Emergency medicine, General Hospital Wien (AKH). He has been involved in project activities focused mainly on clinical evaluations of brain trauma treatment data. Currently he is working on his PhD thesis on TBI management.

Dr. Marek Majdan comes from Trnava University. He has a PhD in Environmental Health and Geographic Information Systems. For INRO he analyzes the data from the ITCP database, using the powerful statistical tool R software. Dr. Majdan also participates in the development of scientific papers.

Dr. Lucia Lenartova works as a consultant in public health in the Slovak Republic and abroad and as an INRO team member she participates in the development of scientific papers and works on her PhD thesis on brain trauma at Trnava University.

Dr. Ingrid Wilbacher, who used to work at INRO in 2002 – 2005, works for Austrian Social Insurance Company and currently finishes her PhD thesis on brain trauma at Trnava University.

Dr. Annalisa Rosso, the former INRO team member has left for a UNDP project in Cairo, but keeps in contact.

Dr. Valeria Rudel, an anaesthesiologist currently on maternity leave works with INRO on the cooperation with the Russian Association of Anaesthesiologists and Intensivists and on the development of future project proposals.

Dr. Patrick Weninger works with Prof. Mauritz at the Department of Anaesthesiology at Lorenz Boehler Trauma Hospital and in his scientific work he focuses at clinical management of brain trauma.

PROJECTS and PROJECT PROPOSALS in 2008

In 2008 we have implemented the following projects:

a. Projects implemented in 2008

‘Prehospital Project’

**(Project for optimizing early care for patients with severe brain trauma)
(Projekt zur Optimierung der Erstversorgung von Patienten mit
Schädel-Hirn-Trauma)**

– project funded by the grant of the Austrian Ministry of Health (BMGFJ) and Worker’s insurance fund (AUVA).

The contracts of INRO with both AUVA and BMGFJ to implement this project were signed in 2008. The whole project is planned out for 5 years, starting in 2008 and ending in 2013.

Project outline:

The objective of the project is to **standardize treatment of Traumatic Brain Injury (TBI) in the early phase of the treatment, since the time of trauma until the first 5 days in the ICU stay, as that is the time that matters the most for the patient’s outcome.**

Within the project we will review the treatment chain of TBI management, with a special focus on the ‘prehospital’ phase, i.e. since the occurrence of the injury, through the emergency care and transport, to the hospital admission. Furthermore, all the treatment and patient outcomes within the first 5 days at the ICU (intensive care unit) will be closely screened. Afterwards, patient’s outcome on hospital discharge as well as after 6 months will be followed.

The project is implemented in cooperation with 17 Austrian hospitals that treat TBI on a regular basis. In the first project phase IGEH develops a database for patient data collection, afterwards the database and data reporting protocols is introduced to the cooperating hospitals and personnel is trained in data reporting.

Further on, patient data will be collected on a regular basis from the hospitals, reviewed and analyzed. Differences of patient management between the treatment centers will be reviewed and analyzed. Use of standardized procedures (guidelines) for prehospital TBI management will be reviewed. After a thorough analysis, a **unified prehospital TBI management guideline will be developed** and implemented in the cooperating hospitals and made publicly available. In the second round of data collection, patient data will be collected again to check for the guideline compliance and change in patients’ health outcomes.

Important dates of the project implementation until today:

May 2008 contract with AUVA signed
 October 2008 contract with BMGFJ signed
 October 2008 Austrian hospitals contacted and asked for participation in the project
 28 Nov.2008 project introduction seminar in Vienna for representatives of participating hospitals
 Oct-Dec2008 project data collection database interface developed
 Dec-Feb2009 communication with partic.hospitals, development and distribution of instructions for data collection
 February 2009 seminar in Vienna with representatives of later added participating hospitals
 March9-13 09 personal visit of project manager in all participating hospitals, delivery of data collection documentation

Participating hospitals:

1. LKH Amstetten
2. Donauspital SMZ OST Wien
3. LKH Feldkirch
4. Univ.klinik Graz
5. LK Waldviertel Horn
6. Univ.klinik Innsbruck
7. LKH Klagenfurt
8. AKH Linz
9. LKA Salzburg
10. LK Wiener Neustadt
11. LK St.Pölten
12. KH Schwarzach/Pongau
13. UKH Graz
14. UKH Linz
15. UKH Salzburg
16. UKH Wien XII (Meidling)
17. UKH Wien XX (Lorenz Boehler Unfall Krankenhaus)

LK, LKH, LKA and AKH hospitals are under the administration of the Ministry of Health (BMGFJ), UKH hospitals (Unfall Krankenhaus) are under the administration of AUVA

The project is implemented in cooperation with 17 Austrian hospitals that treat TBI on a regular basis.

Project time table:

- In the first project phase IGEH develops a database for patient data collection (Oct08 – Mar09)

- Afterwards the database and data reporting protocols is introduced to the cooperating hospitals and personnel is trained in data reporting (Jan-Mar09).
- Further on, patient data will be collected on a regular basis from the hospitals (Apr-Nov09)
- Data will be cleaned, reviewed and analyzed for the differences of patient management between the treatment centers and the use of standardized procedures (guidelines) for prehospital TBI management (Dec09 – Jul10)
- A unified prehospital TBI management guideline will be developed and implemented in the cooperating hospitals and made publicly available (Aug10 – Jul11)
- In the second round of data collection, patient data will be collected again (Aug11-Nov12)
- The collected data will be checked for the guideline compliance and change in patients' health outcomes (Dec12-Jul13)

The funding for the Prehospital project is over Eur 170 000 from the Ministry of Health and about Eur 100 000 from AUVA. Project is planned for 5 years.

Analysis of the data from the “Austrian Standardized Dataset for Intensive Care (ASDI). ASDI collects data from 43 Austrian ICUs; it has now more than 80.000 patients from the years 2000 – 2006 in the database. INRO team analyzes the subset of patients with TBI (approx. 4000 data sets), and compares the outcomes for patients with GCS < 9 who had ICP monitoring to those who did not have ICP monitoring. With this large set of data it should be possible to elucidate whether ICP monitoring influences outcomes – something which is still not fully clear.

This study is funded by the AUVA (Allgemeine Unfallversicherungsanstalt).

Analysis of the data from the ITCP database (1200 patients from Austria, Balkan states, and Slovakia). The paper published in the European Journal of Public Health is an outcome of this analysis

Analysis of the data from a pilot project (65 patients) where the course of ICP and other variables (CPP, glucose, hyperventilation, etc) was reconstructed as closely of possible.

In 2008 we have submitted several project proposals to either national (Austrian) or international granting agencies for funding:

b. National project proposals submitted in 2008

AUVA – revision of the ‘Prehospital project’

Ministry of Health (BMGFJ) – revision of the ‘Prehospital project’

c. International project proposals submitted in 2008

DG SANCO

The project planned to research and describe hospital-based injury data collection systems in at least 5 European countries through the collection and evaluation of samples of hospitalized injury data and information on the system. Standardized methodology for injury indicator monitoring was to be drafted and its feasibility assessed by project partners in their country. After the evaluation of the feasibility reports, an awareness campaign was designed to promote the drafted policy in participating countries. In the final phase of the project, an estimation of Burden of Disease of injury in general and

brain trauma in particular was to be addressed, together with a proposal of a strategy for future research.

Expected outcome of the project was the standardized methodology for hospital injury indicator monitoring, estimation of Burden of Disease of injury and a proposal of a strategy for future research.

The project was submitted to European Union (Directorate General for Health) in April 2008 and the funding was denied (we have learned in October 2008).

COST

The proposed project will use broad network cooperation of experts and TBI treatment centers in Europe, describe current head trauma care settings, guideline compliance and its obstacles in Europe in order to harmonize the care throughout Europe. The objective is the Development of standardized epidemiological monitoring methodology to clarify the situation in TBI incidence and trends and offer a sound basis for appropriate targeting of prevention. Another objective is to develop European guideline for TBI treatment that will provide basis for standards of care, uniform at the European level, addressing the European Commission's goal to achieve equal level of care for all European citizens. The granting was declined in November 2008

PROJECT AND PROPOSALS PLANNED in 2009

Our main activity in 2009 is the **‘Prehospital project’**.

From October 2008 to March 2009 we have developed the database for the data collection. This consisted of listing all the parameters describing patient’s status and treatment, discussing the list of parameters in the seminars with project participants (Nov08 and Feb09) and developing the final consensual list. Based on the list, the database for data collection will be finished and running as of April 2009.

In early March 2009 the project manager has visited all 17 participating hospitals and presented the contact persons with data collection documentation.

April – November 2009 is the phase of data collection in the hospitals. INRO is providing constant support to the hospitals, answering questions from data collecting contact persons (physicians and nurses) by email and phone.

The project manager will visit all participating hospitals at least twice this year – in the summer and in the end of data collection (November or December 2009) to collect the completed patient documentation.

The collected patient data will be continuously entered into the database.

We will report on the project progress to BMGFJ and AUVA in the summer and in the end of the year, including the financial report to claim reimbursement of the project expenses.

Apart from the ‘Prehospital project’, we are developing a new project **‘Improving quality of intensive care in hospitals of selected regions in Austria and Slovakia’**. The project will look at the level of intensive care in the participating hospitals, will compare structure of care and patient outcomes. We are planning to include about 6 hospitals in each country.

Later on, guidelines for intensive care and indicators for measuring quality of intensive care will be developed and implemented and the patient outcomes will be collected, analyzed and compared again, between the participating hospitals. Major benefit of the project will be the development and implementation of the methodology of clinical audit for intensive health care.

We are submitting the project to the European fund for regional development, Crossborder cooperation Austria-Slovakia.

PUBLICATIONS

In 2008 we have developed and published the following scientific articles:

Articles:

Rusnak, M., Mauritz, W., Lecky, F., Kaniansky, M., and Brazinova, A.: Evaluation of traumatic brain injury guidelines using AGREE instrument. *Brat.Lek.Listy (Bratislava Medical Journal)*. 2008;109(8):374-80.

Mauritz, W., Wilbacher, I., Majdan, M., Leitgeb, J., Janciak, I., Brazinova, A., and Rusnak, M.: Epidemiology, treatment and outcome of patients after severe traumatic brain injury in European regions with different economic status. *Eur J Public Health*. 2008 Sep 15.

Mauritz, W., Leitgeb, J., Wilbacher, I., Majdan, M., Janciak, I., Brazinova A., and Rusnak, M.: Outcome of patients with a Glasgow Coma Scale of 3 and bilaterally fixed and dilated pupils. Submitted to and accepted at *The European Journal of Emergency Medicine*.

Conference presentations – publications in Books of proceedings:

Majdan, M., Rusnak, M., Mauritz, W., Janciak, I., Brazinova, A.: Public Health Consequences of traumatic brain injury – a European, five country comparison study. *European Journal of Public Health (Supplement 15th EUPHA Conference, Helsinki, 11-13 October 2007)*, 2007, Vol. 17, Supplement 2, p. 30. ISSN 1101-1262.

Brazinova, A., Mauritz, W., Rusnak, M., Majdan, M.: Hospital Based Traumatic Brain Injuries Epidemiology in Countries of Central and Eastern Europe. *EMN Annual Meeting 2008*. Heidelberg, Germany.

Brazinova, A., Mauritz, W., Rusnak, M., Majdan, M.: Outcome of brain trauma patients who have a Glasgow Coma Scale of 3 and bilaterally fixed and dilated pupils in the field. *EUSEM 2008*. Munich, Germany.

EDUCATIONAL ACTIVITIES and CONFERENCES

The two members of INRO team, Drs Lucia Lenartova and Ingrid Wilbacher are working on their PhD theses on brain trauma management and health care management at Trnava University. Prof. Rusnak is their scientific advisor.

Mag. Wilbacher will defend her thesis by the end of 2008.

In March 2008 we held a small Board meeting with the presence of Mr. Johannes Orsini-Rosenberg, Mr. Walter Mauritz, Mr. Martin Rusnak, Mrs. Sasha Brazinova and a call conference with Mrs. Ala Isham.

At the meeting the IGEH/INRO budget overview of 2007 and Annual Financial Reports of 2006 and 2007 were approved. Budget proposal for 2008 was discussed and approved.

In May 22 – 24 prof. Mauritz, Dr. Brazinova and Dr. Leitgeb participated at **13th EMN (European Multidisciplinary Neurotraumatology Academy) conference in Heidelberg, Germany**, with a presentation “Epidemiology, Treatment and Outcomes of Patients with Severe TBI in European Countries with Different Economic Status”. On behalf of IGEH/INRO we have attended the EMN board meeting, lead by prof. Unterberg and EBIC (European Brain Injury Consortium), lead by prof. Andrew I.R. Mass and discussed possible cooperation between us and these organizations. Both EMN and EBIC representatives agreed on future collaboration with IGEH/INRO.

IGEH also participates in a project on Brain Trauma Epidemiology with Trnava University, Slovak Republic. Data on traumatic brain injury in Trnava region in the Slovak Republic will be collected. The project has started in April 2008 and will last 2 years.

Prof. Rusnak has participated with a Key-note speech in the **International Brain Trauma Conference in India, Bhubaneswar in August 2008**. He has prepared the field for a possible future bilateral project between Austria and India on TBI guideline implementation. We will seek for funding of this project at the European Union granting structures.

Prof. Mauritz, Dr. Brazinova and Dr. Leitgeb attended and presented a poster at the conference: **5th European Society on Emergency Medicine in 15-18 September in Munich, Germany**. The poster presented was: “Outcome of brain trauma patients who have a Glasgow Coma Scale of 3 and bilaterally fixed and dilated pupils in the field”.

MEETINGS

As in the previous years, weekly meetings have been held in the INRO premises on Tuesdays. The project team has discussed progress of the planned activities and new ideas and plans.