TILAK, A High Performing Hospital Network

Tiroler Landeskranankenanstalten (Tyrolean Provincial Hospitals or TILAK) make up one of the largest hospital groups in Austria and, thanks in particular to the university clinics in Innsbruck, they are pioneers in the application of modern operating methods. TILAK consists of five hospitals in and around Innsbruck with 28 university clinics at five locations with a total of 2,500 beds. Almost 8,000 providers care for more than 120,000 inpatients and 1.9 million outpatients annually.

High standard health services

The strategic goal established by TILAK towards the end of the 90’s was to build a comprehensive, integrated hospital information system (HIS) that would provide optimal support for the medical and care processes. After a detailed analysis, the unanimous choice was the Cerner Millennium® HIS, which provides the core functionalities of TILAK's IT environment including the electronic patient chart, physician and nurse documentation, scheduling, transcription and discharge letters, emergency registration, discharge management, diagnosis and procedure documentation, and more.

Increasing number of patients in the ED

One of the most important departments of hospitals - including TILAK - is the emergency department. Seven outpatient clinics are integrated into the emergency department at Medizinzentrum Anichstraße (MZA) at the Universitätsklinikum Innsbruck. The internal medicine, neurology, ophthalmology, gynaecology, dermatology, neurosurgery and psychiatry departments offer patient services around the clock. The number of patients in the ED at MZA has steadily increased in the past 11 years - by about 3.7 % annually. In 11 years this increase amounts to over 40% more patients. As a result, patient triage at MZA has become more challenging for the local providers, thus making a unified triage process necessity.

Patient triage

The Manchester Triage was developed in its namesake city during the 90's and is increasingly used in the German speaking markets. Before implementing the computer assisted triage with the Manchester Triage System (MTS), patient triage in the emergency departments at TILAK was carried out either on paper or, according to each provider's own assessment of priority based on their respective qualifications and training. This lead to inconsistent documentation as well as to decisions that retrospectively were not always plausible.

Paper-based MTS triage

In order to optimise their work flows, TILAK implemented triage according to the MTS - at first still on paper.

The Manchester Triage System is a standardised triage approach to determine the priority of patients in the emergency room using presenting problems and main symptoms. The goal of MTS triage is the fast determination of comprehensible treatment priorities.

Treatment order is established by the patient's acuity and not their arrival time in the ED. By using this standardised process, the patient assessment becomes transparent and the consistent documentation leads to comprehensible decisions.

The paper-based triage at TILAK was performed by a nurse, who filled out an emergency report. Next, the details were entered into the nursing documentation and the hand-written form was scanned. *This data was only used for documentation, but couldn't be analysed or reused. Sometimes forms were lost, couldn't be found for a certain period of time, or were incomplete. In addition, the Manchester Triage System was not implemented in all emergency...*
Computer-supported MTS triage in the Cerner Millennium HIS

As a result, TILAK decided in December of 2012 to implement a computer assisted MTS triage process and integrated the MTS forms into the Cerner Millennium HIS - more precisely, into Cerner's solution for the emergency department: FirstNet®. After coordinating with the MZA emergency department and TILAK's IT department to define the desired details and parameters, TILAK's management group (Kofü) commissioned Cerner less than six months after making the decision. The computer assisted MTS was implemented in all seven outpatient clinics integrated in the MZA emergency department over a period of five months. Today not only the MZA emergency department but also the emergency outpatient clinic of the general surgery department as well as the pediatric emergency room at the Universitätsklinik Innsbruck successfully use the computer assisted MTS.

Since November 2013 patient triage has been carried out in FirstNet with forms that are integrated in the HIS and which document symptoms, vital signs, acuity and more - just like the paper forms in the past. "The data is displayed in FirstNet in a so-called patient tracking list concisely and in real time, thus providing more information at a glance, allowing several specialties to work in the system concurrently, and enabling data sorts and searches. Additionally, all data is updated in real time, associated to the respective encounter, and the view can even be customised", Alexander Berger enthusiastically reports. By following a standardised approach and using "consistent language", medical controlling can easily analyse the data and compare it to other hospitals or country-wide.

Since November of 2013 the assignment of patients to different acuity levels as well as different time periods can be analysed, for example the time between admission and triage, between triage and first physician contact, wait times without medical care, duration of medical care, or the entire length of stay in the emergency department.

"Another big advantage for us is the ability to create cohorts or groups of patients. We define a period of time (e.g. one month) and a group (e.g. all patients with myocardial infarction). Then we compare all available data and explore new ideas. This system supports us in planning modifications, define necessities and avoid potential errors. This is a big step towards improved error and quality management. Moreover, all data specific to an individual encounter can be analysed, which considerably assists during follow-up with patients who have questions or complaints", adds Alexander Berger.

Since the Cerner Millennium HIS is based on a single database, all encounter related data is also available in other departments and hospitals of our organisation. The patient-centric, cross-encounter patient chart contains important data for evaluations and care planning, i.e. for the potentially automated discharge management and ongoing care planning as well as for recurring medical emergencies.

Resistance dissipated fast

"In the beginning some providers had difficulties in adjusting to the new situation or adhering to the structured workflows with the computer. With the help of detailed training of the respective providers, we were able to eliminate these irritations fast. Some nurses also had questions in regards to legal consequences, especially on the nurses' liability as it applies to patient triage. With the clearly defined and documented instructions, these doubts could also be resolved quickly. The standardised workflows considerably reduce errors and lower the risk of treating critical patients too late or to miss them completely", Berger further remarks.

Faster treatment of critical patients

The clearly arranged design of the tracking list provides a coherent, uncomplicated structure that can be used by different professional groups simultaneously. The information platform can be viewed by all authorised users. Due to the continuous entry of data by all involved and the program refresh every minute, all users have access to current data at all times. This allows nurses to assess at one glance which patients have to be treated first. Patients whose lives are not in danger will be informed of their evaluation during triage and also reminded by a posting in the waiting room. That way, questions to nursing on wait times and treatment processes were considerably reduced.

"In summary it is fair to say that the computer assisted MTS is clearly a better choice compared to the paper option as data is much more complete, it is customisable and data can easily be analysed", states Alexander Berger.
"The plan now is to implement the computer assisted triage in all other emergency departments of the Universitätsklinik Innsbruck in the coming months. The success already produced interest in the other TILAK hospitals."

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**Cerner Millennium solutions implemented at TILAK**

- Electronic patient chart (PowerChart)
- Orders (PowerOrders)
- Nursing documentation, structured documentation (CareNet)
- Scheduling, Registration Management
- Clinical pathways (PowerPlan)
- Emergency department (FirstNet)
- Diagnosis and charge capture (HIMChart Coding)
- Transcription/Discharge letter (MTM)
- Clinical trials (PowerTrials)
- Nursing workstation (CareCompass)
- Interactive views (MPages)
- Discharge Management

**Sources:**

Management group (Kofü): Joint management of a hospital by heads of the departments physician, nursing, administrative and technical services.

http://de.wikipedia.org/wiki/Manchester-Triage-System, as of March 21, 2014