

## **TOUGHCLINIC – A WIRELESS APPROACH TO A DURABLE SYSTEM FOR FIELD HOSPITALS, REFUGEE CAMPS AND CRISIS MANAGEMENT**

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**Objectives:** The medical treatment of severely wounded persons or disaster victims as in a crisis area or the administration as in a refugee camp must be ensured frequently under unfavourable conditions. Paper-based documentations can be established quickly, but are subject to well-known disadvantages. So far networked IT-systems are not flexible and durable enough to be of adequate assistance. The system TOUGHCLINIC is designed to change that.

**Methods:** The system TOUGHCLINIC allows for documentation of medical and other content including digital photos with laptop computers and digital cameras, both built extremely durable to environmental conditions. Besides some basic contents of hospital information systems the software components of the (medical) record are adaptable due to the necessary documentations in the field. In contrast to previous WLAN solutions wireless cross-linking of many individual laptops without a central infrastructure is now possible by a so-called mobile ad-hoc network, abridged MANET. Loss of a network node (i.e. a laptop) does not affect the others, and it can be replaced easily. The devices used within range automatically synchronize with the others and always store a current volume of data. This is also helpful if laptops are used outside of the basis. After return of the co-worker a data alignment is accomplished automatically via wireless connection.

**Results:** TOUGHCLINIC can be called an international and extremely durable hardware and software hospital information system using language independent graphical documentation allowing for cooperation of personnel from different countries. It comes with basic medical and administrative documentations, alleviating a quick setup and implementation of the system on site. New data forms can be added or existing ones modified, using an integrated, very easy accessible tool box.

**Conclusion:** The three principles for the project are (i) simple operation and the ability to be completely configurable by non-technical personnel, (ii) extremely fast readiness after setup, as well as (iii) robustness and durability under worst environmental conditions. The project is still in planning stage and first cooperation partners have been found. Discussion and further cooperation are most welcome.

**Keywords:** hospital information system, electronic patient record, wireless LAN, crisis management