



# Telehealth Care Delivery for Remote Workers using an *Integrated Clinical Decision Support System*

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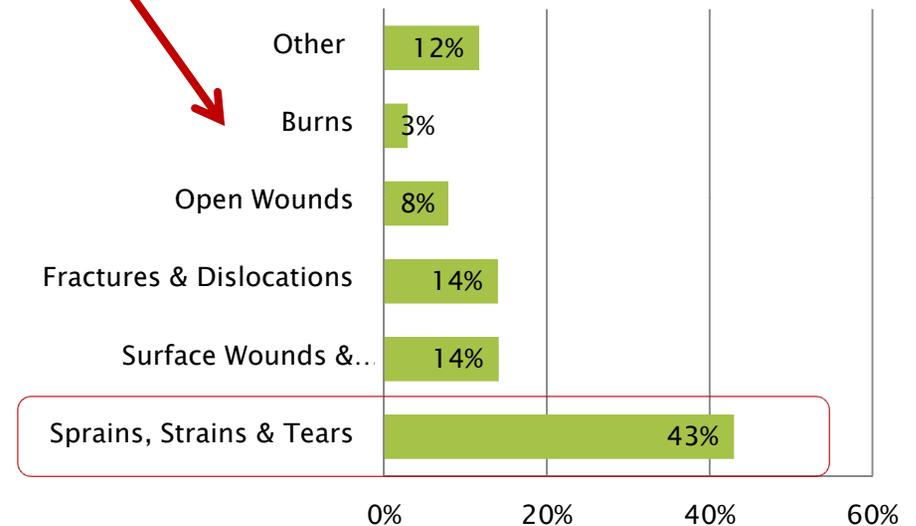
# Traumatic Reception & Resuscitation

- ▶ Traumatic injury is a **major** contributor to premature mortality.
- ▶ Mortality rates associated with trauma **increase with remoteness**, **having a 3.6 x higher occurrence in very remote areas**.
- ▶ 55–91% of the reported errors that contribute to preventable death occur during **trauma reception and resuscitation** (First 30 to 60 minutes).
- ▶ Errors occur because of **time pressure**, **complex prioritization**, **inexperience**, **reliance on memory**, **multi-tasking**, and **failures in trauma team coordination**.

- ▶ Evidence has shown that the **BEST survivability** from incident to surgery is 1 hour or less.
- ▶ **THE SHORTER THE TIME, THE BETTER !!**
- ▶  mortality if care given > 60 min.

# Oil & Gas Industry

- ▶ Medical evacuations: 55% for illness ~ 45% for injury
- ▶ **Alberta 2010: Nature of Injury or Illness** (*Gov. of Alberta, 2011*)
  - **Traumatic Injuries & Disorders 94.5%**
  - Back injuries (17.4%)
  - 2 common types of exposures are:
    - bodily reaction & exertion
    - contact with objects & equipment



- ▶ **Illnesses:** gastrointestinal (+ dental), musculoskeletal, respiratory, nervous system & mental problems
- ▶ Disabling injury rate increased by 8.5% in 2010 (2009: 1.59 per 100 person-years worked to 2010: 1.72)
- ▶ In 2010: Median work days lost = 14

# Clinical Decision Support System

## Emergency Remote MONITORING & Clinical Decision Support



Patient Navigators:  
Nurse Practitioners,  
Emergency Physician

CONSIDERED IMMEDIATE EMERGENCY	CONSIDERED VERY URGENT	CONSIDERED URGENT	RECENT ONSET OR ACUTE EXACERBATION	LOW ACUITY
Red Zone	Orange Zone	Yellow Zone	Green Zone	Blue Zone
Any CASE in the RED Zone means <b>IMMEDIATE</b> Emergency!	Any CASE in the ORANGE Zone is VERY URGENT and DIAGNOSIS and TREATMENT must be completed within <b>10 MINUTES!</b>	Any CASE in the YELLOW Zone is URGENT and DIAGNOSIS and TREATMENT must be completed within <b>30 minutes</b> from POINT of ENTRY!	Any CASE in the GREEN Zone is STANDARD and DIAGNOSTICS with TREATMENT PLAN must be completed within <b>120 minutes</b> from POINT of ENTRY!	Any CASE in the GREEN Zone is chronic but must be DIAGNOSED with TREATMENT PLAN made within <b>240 minutes</b> from POINT of ENTRY!

Dr. John Liebert

<http://www.digitalclinician.com/tdc/>

## Medical Emergency



CONSIDERED IMMEDIATE EMERGENCY	CONSIDERED VERY URGENT	CONSIDERED URGENT	RECENT ONSET OR ACUTE EXACERBATION	LOW ACUITY
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Platform Nurse/Medic  
Head-Mounted  
Wearable Computer



Remote Worker  
Emergency Wristband

- Localization
- Monitoring: Pulse, Respiration & Oximetry
- Emergency alert



# Emergency Wristband



Remote Worker  
wearing an  
Emergency Wristband



Patient Navigator  
Nurse Practitioners  
Emergency Physician



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- Indoor / Outdoor Localization
- Fall & Noise Detection
- Trigger Emergency Alert
- Continuous Monitoring of Pulse, Respiration & Oximetry
- Light & Durable (can be exposed to many temperatures, water, ...)
- To wear on duty

Oil Platform Nurse/Medic  
Head-Mounted  
Wearable Computer



## Benefits for Talisman Energy (1 / 2)

- ▶ Reduce major disabilities as a result of onsite injury
- ▶ Reduce the number of days on disability and sick leave
- ▶ Long-term cost reduction (e.g. workers compensation)
- ▶ Highest possible safety precautions
- ▶ Higher employee retention as a result high safety precautions
- ▶ Higher confidence and support of Medic in remote locations to manage emergency situations
- ▶ Increase the knowledge and skills of Medic people to deal with complex emergency situations
- ▶ Highest level of security because immediate medical expert support is present.
- ▶ Technology can be integrated in an already existing emergency medical support plan



## Benefits for Talisman Energy (2/2)

- ▶ Technology can be translated in multiple languages
- ▶ Technology can be part of other initiatives from Talisman to improve performance
- ▶ Technology can be used for education purposes of employees on health prevention and first aid
- ▶ Technology can be used in other industries, other healthcare disciplines, such as pediatrics, and for community contributions in Canada and overseas
- ▶ Opportunity for marketing and commercialization
- ▶ Collaboration with McGill researchers in various disciplines
- ▶ Updated on the state-of-the-art technologies beneficial for employees
- ▶ Talisman can become a leader and an example in emergency care



Thank You