Introduction

- Tracking injuries – occurring for many years
- Specialist software for recording injury; treatment; training and rehabilitation; yet the task of managing information is onerous
- Data capture quality is a key concern
- Increased risk of litigation: attributed to poor data quality
Background:
1) Data quality & knowledge transfer
   - Data quality is multi-dimensional concept
   - Correct; complete; timely; concise
   - Link between data quality and knowledge transfer
   - Knowledge transfer: process by which knowledge is captured, codified and deployed in a format acceptable to the user and at the time needed (Awad & Ghaziri 2004)
   - Knowledge transfer: needed for knowledge sharing and evidence-based practice

Background:
2) Injury management & Speech-enabled application (SEA)
   - Problems with speech-recognition:
     - language (grammar and vocabulary) in the work environment is complex
     - requires significant training of the speech recognition engine
     - work environment is noisy
     - relies on the correct positioning of microphones (Lewis & Powers 2002)
Background:

2) Injury management & SEA

- Growing interest in speech as a modality into human computer interface (Zhang et al 2002)
- Speech recognition: important component to the future success of business applications, particularly those that require data collection in the field (Washburn 2002)
- Increasing workload and cost associated with tracking and reporting athletes’ injuries
- Volume of data captured by a range of medical and operational staff within very tight timeframes

Research Question

‘How does the implementation of speech-enabled application influence the knowledge transfer of injury data in an elite sporting club?’
This study

- Ethnographic study of an Elite Sporting Club
- Professional sporting club within a league
- Numerous interviews and meetings between April 2005-January 2008
- Interviews: transcribed or annotated
- Data analysis: descriptions, thematic conceptual matrices and cognitive mapping
- Numerous field notes & documents

SEA Description

- SEA uses Dragon Naturally Speaking speech recognition software to translate data into text
- Three modules executed in sequence:
  - Audio capture and speech to text translation
  - Consultation text interpretation, validation & correction;
  - Injury tracking database update
- User interface: based on semi-structured natural language
SEA Example of an Encounter


Key themes from this research:
1) Improved data quality & knowledge transfer

Figure 1: Data quality and performance before and after speech recognition and software application
Key themes from this research: 1) Improved data quality & knowledge transfer

- Data quality improvements to 98%
- Correct incomplete or incorrect data by validating it against reference data
- Analysing an entire consultation from point of injury to return to competition
- Knowledge transfer is sophisticated: includes various access to either summarised or analysed data
- SEA supports injury management knowledge transfer

Key themes from this research: 2) Injury management & injury prevention

- Injury prevention: business driver
- Improved data quality leads to improved analysis of injury knowledge
- This leads to improved understanding of how/why injuries occur (data mining)
- Hence; SEA is an enabler for injury prevention
- 'Prevention: easiest injury to manage is the one that doesn’t occur’ (Training services manager)
Conclusion

- SEA enables improved data capture, especially timely, accurate and complete data
- Improved data quality assists with knowledge transfer and sharing; improved analytics and data mining
- Injury management, through improved knowledge about how/why injuries occur (data mining), leads to injury prevention