Benefits Measurement

Automated Anaesthetics Record Keeping

Queensland Government

Introducing

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Background ~ literature, history, studies

- Potential benefits

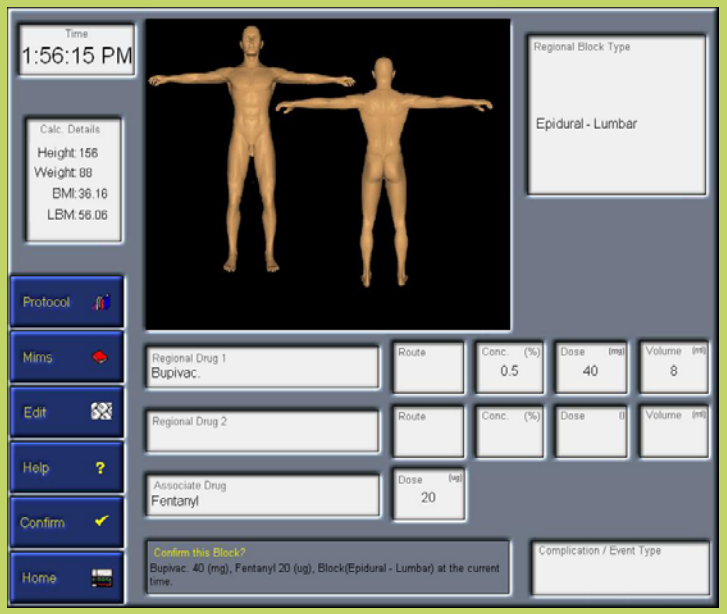
Greater accuracy	Ferrari 1989; Kalli, Partanen & Hermunen 2002
Increased legibility	Gravenstein 1989
Greater consistency	Ream 1989
Reduced record keeping times	Weinger, Herndon & Gaba 1997
Improved quality assurance and risk management	Edsall 1991; Petry 1998
An aid for medico-legal defence	Gibbs 1989
Provision of data for research	Stanley 1991

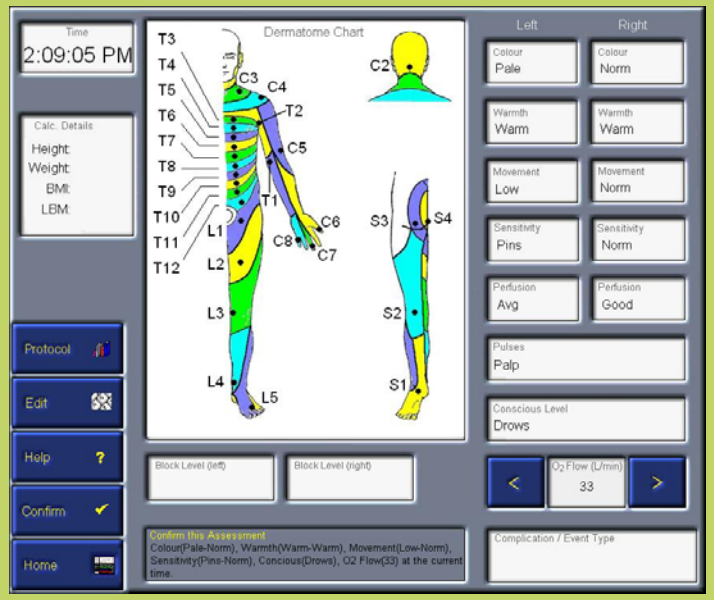
- Potential drawbacks

User acceptance of technology in the perioperative environment	Block 1989; Block, Reynolds & McDonald 1998; Minic, Block & McDonald 1989
Time consumed by the anaesthetist-machine interface	Allard et al. 1995

Objectives

- QH Objectives





- Study Objectives

Methodology

- Design
- Conduct
- Team

Design

- Measurement indicators

- Checklist for
  -OR
  -PACU

- Survey

Checklist for OR/PACU

Sequence of:

- Patient arrival
- Patient induction
- Commencement of surgery
- Completion of surgery
- Awakening
- Leaving the OR
- Arrive/Depart PACU

Conduct

2 Phases:

- Before implementation of AARK
- After implementation of AARK
  - minimum 6 months

Team

- Same Measurement Team- both clinicians with experience in OR/PACU
- Joint observations for standardisation on Day 1 in each hospital
- Cross correlation twice daily
- Same day analysis of results

Analysis of observations/measurements

Case Sampling

- Short duration
- Medium duration
- Long duration

Results – Short cases

Pre-implementation (Hospital 1)	**Post-implementation (Hospitals 1 & 2)**	
Data Entry Duration Summary (Minutes):	*Data Entry Duration Summary (Minutes):*	
Hospital 1: Pre-implementation	Hospital 1:Post 6 months	Hospital 2-:Post 8 years
Longest Duration = 15	Longest duration = 5.20	Longest duration = .19
Shortest duration = 4.0	Shortest duration = 1.30	Shortest duration = .15
Average duration = 9.5	**Average Duration = 2.43** **(74.22% reduction data entry)**	**Average Duration = .16** **(93.3% reduction data entry)**

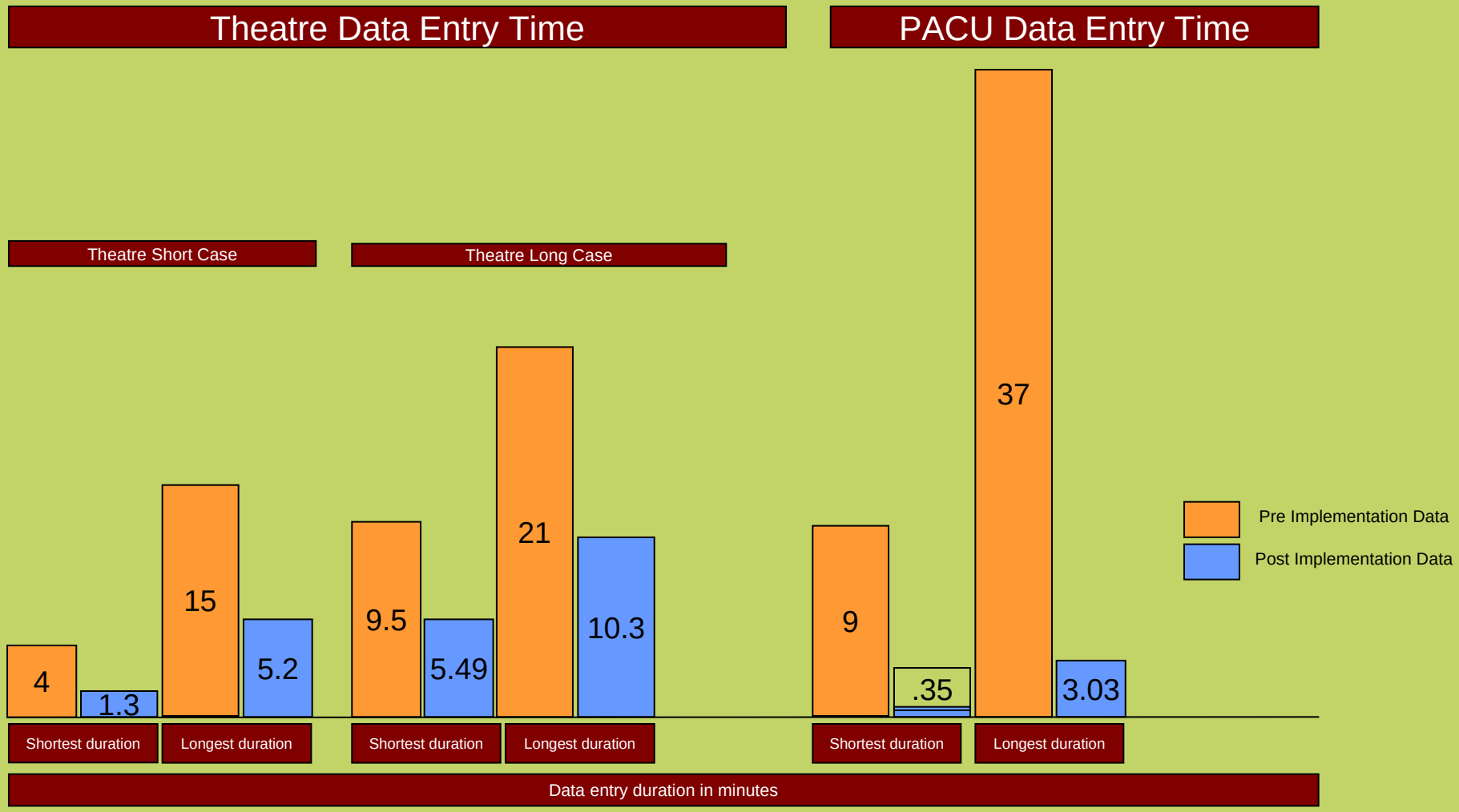
Results – Medium Cases

Pre-implementation (Hospital 1)	**Post-implementation (Hospital 1)**
Data Entry Duration Summary (Minutes):	*Data Entry Duration Summary (Minutes):*
Longest Duration = 12.5	Longest duration = 8.30
Shortest duration = 8.0	Shortest duration = .58
Average duration = 10.5	**Average Duration = 4.33** **(58.76% reduction in data entry)**

Results – Long Cases

Pre-implementation (Hospital 1)	**Post-implementation (Hospital 1)**
Data Entry Duration Summary (Minutes):	*Data Entry Duration Summary (Minutes):*
Longest Duration = 21.0	Longest duration = 10.30
Shortest duration = 9.5	Shortest duration = 5.49
Average duration = 14	**Average Duration = 7.27** **(48.07% reduction in data entry)**

Results Summary



Implications

- Time savings for anaesthetists

- Time savings for nursing staff

- Greater benefits for manual sites > early automation

What Next?

- Now
  - Baseline measurement - three more hospitals
- Imminent
  - Ongoing rollout
- Future
  - Further analysis of results
    - Time
    - Quality, legibility, completeness
    - Other realisable benefits?

Conclusion

- Acknowledgements for support and facilitation of the study:
  - Associate Professor Michael Steyn (RBWH)
  - Dr Peter Moran (PAH)
  - Associate Professor Dr John Archdeacon (CBH)

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