The Impact of the Physiotherapy Practitioner on ED Care for Patients with Musculoskeletal Injuries

Australia and New Zealand ED Airway Registry

ED Leadership Forum

Hatem Alkhouri
Hatem.Alkhouri@health.nsw.gov.au
NSW: EDs with Physiotherapy Service

- Patients with MSK injuries are common presentations to the EDs

<table>
<thead>
<tr>
<th>FirstNet users</th>
<th>LHD</th>
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<tbody>
<tr>
<td>1 Westmead Hospital***</td>
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<td>17 RNSH</td>
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<td>University of Newcastle</td>
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<td>20 SVH</td>
<td>SVH Network</td>
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</table>
Emergency Physiotherapy Practitioner (EPP)

Assessing and managing
1. Soft tissue injuries (fractures and sprains)
2. Mobility assessment
3. Respiratory conditions

ATS: 1-5

Registration  Triage

Doctor Consultation  Physio

Traditional role: Secondary contact

More recently
Primary contact

Assessing and managing
1. Isolated soft tissue injuries (fractures and sprains)

ATS: 3-5

Doctor Consultation  Nurse  Physio

or
Rapid Response Team

ACI  NSW Agency for Clinical Innovation

Emergency Care Institute
NEW SOUTH WALES
The role of the Emergency Physiotherapy Practitioner (EPP) is not always well defined and thus subject to variation between hospitals.
Project aims

- Identify the different roles performed by physiotherapy practitioners in EDs in NSW

- Determine the impact of this service on patient outcomes
  - Waiting time
  - Length of stay
  - Time to first analgesia
  - Patient satisfaction on the level of care and advice received

- Understanding the departments’ own experience of the physiotherapy practitioner’s role
## Methods

Data collection on the different roles carried out by EPP

<table>
<thead>
<tr>
<th>Date</th>
<th>ED Physiotherapy Project</th>
<th>Name of Physiotherapist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<table>
<thead>
<tr>
<th>Please tick where applicable</th>
<th>ED Physiotherapy Project</th>
<th>Name of Physiotherapist</th>
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<tr>
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<td>Morphine</td>
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<td>Analgesia initiated by</td>
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<td>Prior to presentation</td>
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<td>Time of 1st Analgesia</td>
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<td>Time patient triaged</td>
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<td>Time of analgesia</td>
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<td>Comments</td>
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Data collection on the different roles carried out by EPP

Methods

Data collection on the different roles carried out by EPP
**Methods**

**ED Staff Survey**

**Patient Satisfaction Survey**

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**Emergency Physiotherapy Practitioner: Staff Survey**

We are investigating the role of the emergency physiotherapy practitioner in the emergency department for the management of musculoskeletal conditions. We would appreciate you taking 5 minutes to complete this survey to provide us with your feedback on this service.

**Patient Satisfaction Survey - Emergency Department**

A review of the patient's satisfaction with emergency care and discharge advice given. This survey will only take approximately 5 minutes to complete. There are no right or wrong answers and the information you provide is confidential and will not affect your care.

Please select which best reflects your findings:

1. Care Provider: (Pick one option only, if you are not clear please ask care provider)
   - My condition was assessed and managed by a doctor only
   - My condition was assessed and managed by a nurse practitioner/advance clinical nurse only
   - My condition was assessed and managed by a physiotherapist, or
   - I was assessed first by the doctor and then managed by a physiotherapist

2. I was given advice about: (Pick more than one if applicable)
   - Medication
   - What exercise I should be doing to improve my condition
   - How to manage my condition at home (i.e. using, elevation, rest, patches)
   - What to do if there was a change in my condition (i.e. return to emergency or see my GP)
   - When I should come to follow up on my condition after being discharged

3. I felt I received good advice and information about my condition

4. I was given enough time to ask questions and discuss my injury

5. I felt confident that the members of staff could manage my conditions appropriately

6. I have understood the discharge information given to me

7. The member of staff explained the results of their assessment

8. Overall I was satisfied with the treatment I received

9. I felt my management occurred in a timely manner

10. Please rate your overall level of understanding of the discharge information given to you
   - Totally understood
   - Understood
   - Uncertain
   - Somewhat understood
   - Did not understand

Please write any additional comments in the box below:

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Emergency Department Staff Survey: Version 1.1 dated 30th March 2014

Patient Satisfaction Survey: Version 1.1 dated 30th March 2014
## Methods

<table>
<thead>
<tr>
<th>Tracking Group</th>
<th>Arrival DT/TM</th>
<th>Triage Category</th>
<th>Triage DT/TM</th>
<th>Presenting Problem</th>
<th>Track Event</th>
<th>Event Start DT/TM</th>
<th>Diagnosis</th>
<th>Discharge Disposition</th>
<th>Discharge DT/TM</th>
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<td>11/03/2014 7:16 PM</td>
<td>Falls</td>
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<td>11/03/2014 10:01 PM</td>
<td>Fracture of multiple ribs</td>
<td>Adm To Ward/hpt, not Critical Care</td>
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<td>Physio Secondary</td>
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<td>Pain, limb lower / hip</td>
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<td>Pain, limb upper / shoulder</td>
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<td>15/03/2014 4:25 PM</td>
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<td>16/03/2014 2:03 AM</td>
<td>Pain, limb lower / hip</td>
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<td>Injury of ankle</td>
<td>Departed - Treatment Completed</td>
<td>10/03/2014 4:03 PM</td>
</tr>
</tbody>
</table>
WSLHD Investigators

Photo L-R: Anne Hornitzky, Sandhya Desai, Curtis Wong, Hatem Alkhouri, Angelo Efthimiou, Katherine Maka, Michele Darwall, Catherine Chan
Positive feedback received by ED clinicians on the role of the EPP

- 100% agree or strongly agree that will improve:
  - access to emergency care
  - quality of care of MSK presentations

- 95% agree or strongly agree that:
  - will make ED team more effective
  - assisted them in improving their casting/plastering skills

- requested to extend physiotherapy service hours

It would be nice to have a physio starting earlier. Because sometimes we have to admit pt to short stay as they will break before they are seen. An early if this is a back pain.
Length of Stay & Waiting Time

### Length of Stay (LoS)

- **Physio Primary**
- **Physio Secondary**
- **Dr only/day shift**
- **Dr only/night shift**

**Time (hh:mm)**
- Physio Primary: 02:04
- Physio Secondary: 05:46
- Dr only/day shift: 03:52
- Dr only/night shift: 04:21

### Median Age

- **Physio Primary**: 33 years
- **Physio Secondary**: 55 years
- **Dr only/day shift**: 38 years
- **Dr only/night shift**: 39 years

### Waiting Time

**Time (hh:mm)**
- Physio Primary: 00:32
- Dr only/day shift: 00:42
- Dr only/night shift: 01:17

* P < 0.05
Discussion

• This project may provide supportive evidence from the involvement of EPP within NSW in relation to:
  - patient waiting times, length of stay
  - overall staff and patient satisfaction

• Findings may encourage EDs to integrate this model of care
  - utilise the knowledge and skills of the EPP ……MSK
  - increase medical staff availability to attend to other patients
The Impact of the Physiotherapy Practitioner on ED care for Patients with MSK Injuries

Australia and New Zealand ED Airway Registry

ED Leadership Forum

Hatem Alkhouri
Hatem.Alkhouri@health.nsw.gov.au
Rapid Sequence Induction (RSI) is a high risk procedure associated with severe complications in EDs.

- junior staff/after hours
- unfamiliar team
- training and supervision
- failure to plan for failure
- difficult airway
- obesity, underlying pathology

**Introduction**

Endotracheal intubation is a high-risk, multidisciplinary procedure that is associated with an increased rate of severe complications when it occurs in emergency departments (EDs) as opposed to operating theatres. This is a procedure often undertaken on critically ill or injured patients and complications such as aspiration and hypotension occur commonly. The reasons for this are multifactorial and some are shown in Figure 1 (top right).

This project aims to improve the safety of intubation in Australian and New Zealand EDs by developing a standardised data collection tool to audit practice then feedback to promote improvement.

A partnership with the NSW Emergency Care Institute (ECI), part of the NSW Agency for Clinical Innovation has enabled EDs from across Australia and New Zealand to participate in the project.

**Key activities**

Following an initial 6 month observational study, a practice improvement bundle was developed at Royal North Shore Hospital (RNSH) to improve patient safety. This involved multidisciplinary training, development and use of a pre-intubation checklist and changes in intubation practice according to best evidence.

At Northern Sydney Local Health District, the registry has also enabled real-time review and improvement of intubation practice in the EDs of Mona Vale, Hornsby and Hornsby hospitals.

The ECI partnership has allowed the registry to spread across Australia and New Zealand. It is the first multicentre study of intubation in this region and is expected to contain over 3000 uploads by the end of the project in mid-2016.

This data will become the region-wide benchmark for the standard of intubation in EDs, while the information gained will continue to improve patient safety and the skills of ED clinicians.

It is envisaged that improvements will occur not only through local audit but also through the large database for researchers into the effects of different techniques.

**Key achievements**

Over 30 EDs have contributed to the database. Using our tools, many of them are now taking steps to improve their patients’ safety.

At RNSH, intubation success on first attempt improved from 68 per cent to 84 per cent (P=0.002) and the incidence of complications fell from 28 per cent to 20 per cent (P=0.017).
ANZEDAR aims

- To provide each ED with the data they require for audit of their own practice

- Pooled data will be used for a descriptive study of the practice of intubation in Australasian EDs
  - Indication
  - Staff seniority
  - Techniques (drugs/ laryngoscope)
  - Number of attempts
  - Urban district vs regional EDs
Data collection tools

AUSTRALIA & NEW ZEALAND ED AIRWAY REGISTRY
To be completed for all intubations in the Emergency Department

**Data:**
- Estimated Patient Weight:

**Team Leader:**

**Indication For Intubation – Tick ONE ONLY**
- Trauma
- Medical
  - Head injury – reduced LOC
  - Respiratory failure
  - Altered mental status – not overdose
  - Cardiac arrest
  - Burn / inhalation
  - Discoloring
  - Chest trauma
  - Shock
  - Traumatic cardiac arrest

**Was laryngoscopy predicted to be difficult?** Y / N
**Was a formal assessment made?** Y / N

**Why difficult?**

**Observations:**

**Time of Intubation:**

**Patient Position:**

**Medication For Induction:**

**Attempt Intubation:**

**LEOM Evaluation**

**Cornack andLehane Grading**

**ETT Placement Confirmation**

**Intubation Maneuvers – Tick one only:**

**Intubation Complications – Tick one only:**

**Disposition:**

**Comments:**

**THANK YOU**

ACI
NSW Agency for Clinical Innovation

Emergency Care Institute, New South Wales Government

*ACI = Acute Care Innovation*
Global Airway Registry Page

The Airway Registry Project is now in phase 2. We are testing our data gathering forms and data upload forms which are now finalised. During phase 1 many sites gathered data which we have compiled and are now putting into a dashboard so you can see how your site is doing and compare that against the mean of other sites. More detailed breakdowns and comparisons will be available in time.

Within NSW we are doing a more formal observational study to look at practice of airway management in our (NSW) EDs.

Phase 2 is essentially all data gathered using the latest forms downloadable from this page below. A project officer from the ECI is commencing their position in January 2014 and will commence further roll out of the project.

It is being led by Dr. Tilly Fogg and Dr. John Vacca from Royal North Shore Hospital ED as a collaborative research venture with EDs across Australia (and internationally) and the ECI.

The primary objectives are:
- To provide each participating department with the data that they will require for audit of their practice, with the hope that departments will highlight areas of potential process improvement and then enact change.
- 'Pooled' data will be used for a descriptive study of the practice of intubation in Australian EDs, with particular emphasis on the induction, staff warning, technique(s), induction drugs or type of laryngoscope, number of attempts at intubation and the rate of complications. The project will encompass tertiary, urban district and regional EDs, as well as FACS/Respiratory/EDs (or equivalent) with regards to the above and many more metrics.

Enrollment of sites across NSW for the Project Study is currently happening. For further information, or if you have any queries, please contact Global Airway Registry.

NSW Observational Study Sites
If you are interested in wish to be part of the NSW observational study please go HERE.

Form For Data Collection
Click here for the NOP form for data collection.

Template for data entry
Please download and use the new form for each month's data.

Airway Registry File Naming Protocol
Please adhere to this convention for file names.

Airway Registry for NSW Study Sites
An information portal for areas involved or wishing to find out more.

Communication #1 from the Project Leads
Click here for the first communication.
Key Achievements

- Over 40 EDs now contribute to the ANZEDAR
- Contains > 3500 records (until Feb 2015)
- Many EDs are now taking steps to improve their patients’ safety
  - Pre-intubation checklists
  - More training for junior staff
  - Considering different type of laryngoscope etc…
- At RNSH, intubation success on first attempt improved from 83 per cent to 94 per cent (P<0.001)
2014 NSW Health and Innovation Award
Translation Research

L-R: Hatem Alkhouri, Tim Jewell, John Vassiliadis, Toby Fogg, Martin Ward,
The Hon. Jillian Skinner
Photo taken by Don Fuchs.

www.ecinsw.com.au
The Royal North Shore Hospital Emergency Department Airway Registry: Closing The Audit Loop
Toby Fogg¹, Martin Ward¹, Tim Jewell¹, John Mackenzie², Hatem Alkhourí², Matthew Murray², Sally McCarthy², John Vassiliadis¹
¹Emergency Department, Royal North Shore Hospital and ²Emergency Care Institute, NSW Agency for Clinical Innovation

Background
Timely, safe endotracheal intubation is a fundamental aspect of the ED resuscitation of critically ill or injured patients. Many studies have shown this to carry greater risks than intubation in the Operating Theatre. The reasons for this are multifactorial:

Project Aim
Having published the data from RNSH ED (Fogg et al 2012) a bundle of changes were developed and implemented to improve safety. This subsequent study was designed to assess their efficacy, particularly key metrics such as first pass success and complication rates.

Methods
Between October 2012 and March 2014, RNSH Data was extracted from the Australian and New Zealand ED Airway Registry (ANZEDAR). This was compared to the data in the original RNSH study.

The RSI Bundle
• Credentialing system, requiring 3 months anaesthetics experience before attempting any RSI in ED.
• Mandatory use of a bougie or stylet to aid intubation along with C-Mac video laryngoscopy for all attempts.
• Nasal prong apnoeic diffusion oxygenation for all patients to prolong time to desaturation.
• A pre intubation checklist must be completed before RSI starts.
• Standardised failed airway algorithm to improve teamwork.
• Simulation – in situ and sim-centre based crisis resource management (CRM) training.
• Procedural training – cadaveric laboratory and simulation lab.

Results 1
Indications for intubation, patient demographics and degree of physiological derangement were similar in both groups

Conclusion
• The bundle of changes introduced made significant improvements in both first pass

[Image: Diagram illustrating the RSI Bundle process]
MSK presentations: Intervention EDs

Number of MSK presentations/day

Time of the day

Age group (year)

Number of MSK presentations

~3h
~4h
~5h
~6h

ACI
NSW Agency for Clinical Innovation

Emergency Care Institute
NEW SOUTH WALES
Introduction

- Patients presenting to ED >> population growth
- Patients with musculoskeletal (MSK) injuries are common presentations to EDs
- EDs → continuous innovation to manage increasing demand most effectively
- Some evidence supporting physiotherapists role in ED
  - Based on data from a single site or from O/S \(^1,^2\)

Preliminary data

Nurse Practitioner

Great Service. Increase hours of service please.

JMO

Could do with an info sheet on referral criteria for ED physics?

Staff Specialist

I think that the aim start on a weekend is helpful.

Nurse

It would be nice to have a physio starting earlier. Because sometimes we have to admit pt to Short Stay as they will breach before they are seen. For eg. if this is a back pain.