Engaging rural clinicians in implementing paediatric emergency medicine research findings

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on behalf of the Paediatric Research in Emergency Departments International Collaborative
Outline of talk

- PREDICT research projects
- Knowledge translation research
- Models of studies underway to engage rural clinicians
- Early findings
Paediatric Research in Emergency Departments International Collaborative

- established in 2004 by clinician researchers in PED in Australia and New Zealand
- to improve the power and capacity of paediatric research by coordinating research activities among the participating institutions and providing a sustainable research infrastructure
- NHMRC funded PEM Centre of Research Excellence (2014-2019) managed through Murdoch Children’s Research Institute
PREDICT research projects

• CRIB study - Bronchiolitis hydration

• PARIS High Flow Study Bronchiolitis

• Bell’s Palsy in Children RCT
• provide evidence to fill knowledge gaps in paediatric emergency care
• develop better pathways to improve practice in the Emergency Department
• create a new ability to translate knowledge to improve care of children in Australasian emergency departments.
Knowledge to Action Framework

Strauss S., Tetroe J., Graham I. Defining knowledge translation, CMAJ 2009, 181 (3-4) 165-168
The most widely used definition of knowledge translation was published in 2000 by the Canadian Institutes of Health Research (CIHR): "Knowledge translation (KT) is defined as a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system."[1]


Knowledge translation research in PEM

• limited evidence for the most effective methods to translate knowledge into practice in PEM

• systemic review\(^2\) of the literature identified 15 studies of varied design, including cluster-controlled trials, and interrupted time series and before and after intervention studies.

• KT interventions were predominantly aimed at the treating clinician and changes in clinical practice were variable.

PREDICT KT Research Projects

- Bronchiolitis Guideline
- Paediatric Head Injury management
Australasian Bronchiolitis Guideline

- evidence based guideline for ED and general ward management of bronchiolitis developed in 2016
- methodological approach including Grading of Recommendations Assessment, Development and Evaluation (GRADE) and National Health and Medical Research Council (NHMRC) Evaluation of Evidence
- guideline development committee
  - 20 individuals from 6 Australian states and territories and New Zealand
  - representing tertiary, metropolitan and regional medical and nursing specialists from EDs, general paediatrics and respiratory medicine
Australasian Bronchiolitis Guideline

Australasian Bronchiolitis Guideline (complete version), Paediatric Research in Emergency Departments International Collaborative (PREDICT), (2016), link
Australasian Bronchiolitis Bedside Clinical Guideline (short version), Paediatric Research in Emergency Departments International Collaborative (PREDICT), (2016), link

To date, this guideline has been endorsed by the following groups:

- Royal Australasian College of Physicians (RACP)
- The College of Emergency Nurses New Zealand
- Australian College of Children and Young People’s Nurses
- Royal NZ College of Urgent Care
- Women’s & Children’s Healthcare Australasia
- Australian Paediatric Society
- Australian College of Emergency Nursing (ACEN)
- Australasian College for Emergency Medicine (ACEM)
- The Thoracic Society of Australia and New Zealand
Key Messages – Australasian Bronchiolitis Guideline

• Clinical diagnosis, assessment of risk factors
• Applicable to infants < 12 months age with mild to moderate severity
• Not recommended
  • Chest X-rays or blood tests
  • Medications – bronchodilators, antibiotics or steroids
• Consider
  • Humidified High Flow Oxygen
  • Superficial Suctioning
Cluster RCT KT study for Bronchiolitis

• Rationale: substantial variation in practice patterns in Australasia in relation to the management of bronchiolitis

• Site inclusion
  • identification of nursing and medical champions and the capacity to audit medical records, sample size of 135 presentations per annum

• stratification of tertiary and secondary providers of paediatric care including regional hospitals that are referral centres for surrounding rural towns.

• Sites randomised to control or intervention group (supportive educational and behavioural change strategies)
Recruitment of sites for Bronchiolitis KT study

• 26 sites across Australia and New Zealand enrolled
• 7 tertiary and 19 secondary sites, of which four are outside major metropolitan centres
• endorsement required from both the paediatric department and ED at each site.
• few sites unable to participate due to only one of the departments being engaged.
• 10 additional sites, predominantly regional centres, expressed interest but unable to participate due to inadequate numbers of bronchiolitis presentations
Australian Paediatric Head Injury Rules Study

- multicentre prospective observational study of over 20,000 paediatric ED presentations for head injury across Australia and New Zealand
- examines three existing clinical decision rules for the management of paediatric head injuries (PECARN, CHALICE, CATCH)
- main outcome measures - head CT rates and detection of clinically significant intracranial injuries
Study design

• audit of practice variation in cranial CT rates for acute paediatric head injury

• Sites - 30 EDs regional/ rural, metropolitan and tertiary sites

• qualitative telephone interviews to identify information needs of doctors and nurses, to inform the content and methods to deliver KT strategies to improve appropriateness of cranial CTs in children with mild head injuries.
Recruitment for APHIRST KT study

- in recruitment phase with 31 sites confirmed across Australia and New Zealand (9 tertiary/11 major urban/11 rural/regional)
- sites will audit 100 head injury presentations
- finalising NEAF application for low risk ethics approval
- clinicians will be invited to participate in qualitative interviews
Summary of findings to date
Enablers for research participation

- relevance of the study to clinical practice in their own settings
- site coordinator visits
- capacity building measures such as “Train the Trainer day”
- achievable data collection and timeframes
- relevant data to local setting
Barriers to research participation

• Unable to participate due to inadequate ED presentations for required sample size
• Failure of endorsement by both ED and Paediatric Unit
• Delays in ethics applications due to lack of familiarity with process
• Geographic spread – site visits timely and costly
Conclusions

• Engagement with the clinicians treating children, particularly in non-tertiary settings has been very positive.

• Will help establish a model for implementation of research findings for future projects.

• Design of translational research projects to include rural and regional centres is integral to improving paediatric health care.
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