

Supplementary Appendix 3. SHaPED Implementation strategy and intervention description

The implementation plan for the Sydney Health Partners Emergency Department (SHaPED) trial has been adapted from: Jabbour M, Reid S, Polihronis C, Cloutier P, Gardner W, Kennedy A, Gray C, Zemek R, Pajer K, Barrowman N, Cappelli M. Improving mental health care transitions for children and youth: a protocol to implement and evaluate an emergency department clinical pathway. *Implement Sci.* 2016;11:90.

1. Create implementation team:

- a) Obtain support from clinical leads and administration heads at the four emergency departments. Formalise a partnership agreement between institutions.
- b) Recruit and engage study champions at each emergency department. Team members to include: emergency physicians, physiotherapists, nurses, managers, and clinical educators.
- c) Develop a working group and form a steering committee at each emergency department to provide oversight on implementation progress.
- d) Establish meeting schedule: local steering committee to meet twice a week and report to study supervisors every week during the implementation period.

2. Assessment:

- a) Review and discuss the existing models of care for low back pain at the four emergency departments and recommend adaptation to facilitate adoption of the new model.
- b) Conduct an environmental assessment and identify typical pathway of care for a patient presenting with low back pain at each emergency department.
- c) Identify practices and processes that require development or change in order to support the implementation strategy.
- d) Identify internal and external stakeholders who will be impacted by the new model and therefore require education and support to implement it.

3. Plan strategy for change

- a) Identify leadership support required for implementation phase.
- b) Identify and engage influential clinical champions who will effectively drive change.
- c) Revise or develop policies as needed.
- d) Develop a knowledge translation strategy to support practice change, such as shared staff meetings, educational rounds, peer-to-peer mentoring.

- e) Identify factors that will support practice change, such as engaging all potential stakeholders, scheduling champions and clinicians to enable attendance at meetings and face-to-face education sessions, facilitating the development of relationships between emergency physicians and other clinical staff, conducting audits or monitor specific data indicators that will support practice change.
- f) Identify factors that may create a barrier for practice change in the emergency department, including attitudes and beliefs about low back pain management, and lack of clinician expertise/comfort to treat this population.
- g) Develop strategies to manage barriers, such as communication, education, opportunities to develop relationships within and between clinicians and service provider.

4. Implementation:

- a) Provide clinician information package:
 - Deliver printed copies of the ACI Model of care (full version and executive summary) to clinician participants.
 - Create a list of “red flags” to screen for serious pathologies from the ACI Model of care and deliver a printed version to clinician participants.
 - Create posters outlining the ‘10 principles’ of the ACI model of care, as well as the clinical pathways and place them at key locations of each participating emergency department.
 - Inform clinician participants about and provide them access to online videos and other printed (such as the ACI consumer information booklet) and electronic educational materials to educate patients with low back pain at emergency discharge.
- b) Provide patient information package:
 - Encourage clinician participants to provide a printed copy of the ACI consumer information booklet to patients with low back pain during emergency department visit.
 - Where most of the patient population do not speak English, encourage clinician participants to provide a copy of the Emergency Care Institute (ECI) Patient Factsheet for low back pain (available in six languages).
 - Create posters outlining four myths of low back pain management and placed them at the reception area of each emergency department.

c) Deliver clinician education:

- Educational seminars will be delivered by an experienced clinician (Dr Chris Needs) at week 1 of the intervention period. Booster sessions in the first week will also be conducted by local investigators (such as Directors of Emergency Medicine, clinical educators) as required, as well as in weeks 2 to 4.
- The educational seminars will be conducted primarily during the existing regular clinical staff meetings, but additional sessions will be scheduled to reach all emergency clinicians. The format of the seminars consists of a mini-lecture and interactive group discussions and will last for 40 to 60 minutes.
- During the educational seminars, clinician participants will be trained on history taking and examination of patients with low back pain, on how to use SNOMED diagnosis codes, and will be encouraged to follow the recommendations in the ACI model of care to manage these patients, with focus on the key outcomes of this study (that is, imaging, opioids, and inpatient admission rates).
- During weeks 1 to 4, individual meetings with clinician participants will be scheduled as required to cover the key messages and principles outlined in the ACI model of care. There will be at least one educational outreach visit to each clinician in weeks 1 to 4 and they can request additional if they have any concerns. Clinician participants can also seek advice from clinical educators by email.

d) Develop audit and feedback focussed on study outcomes

- Each emergency department and clinician participant will receive at the first educational seminar session an emergency department level feedback on the 12-month retrospective data performance against the outcomes of this study (that is, imaging, opioids, inpatient admission rates).
- This audit and feedback approach will be repeated each month after the implementation of the model of care during the regular emergency staff meetings until the end of the follow-up period.
- Clinician participants at the Sydney Local Health District (SLHD) will be encouraged to use the SLHD Targeted Activity and Reporting System (STARS) to monitor the emergency department performance during and after the implementation period.