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Vikas Kapil, Richard W Sattin, Scott Sasser, et al.

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INTRODUCTION

In the USA, unintentional injuries are the leading cause of death for people aged 1–44.¹ Injuries are associated with significant physical, emotional and financial consequences that can affect the lives of individuals, their families and society. Injuries also place an enormous burden on hospital emergency departments and trauma care systems, with unintentional injuries alone accounting for approximately one-quarter of all emergency department visits.²

THE CDC INJURY RESEARCH AGENDA

CDC's National Center for Injury Prevention and Control (NCIPC) recognises that injuries may occur despite our best efforts at primary prevention. Therefore NCIPC's Division of Injury Response works not only to prevent injuries but also to improve injury care and response to minimise the consequences of injury. In 2009, NCIPC published the CDC Injury Research Agenda outlining critical research needs and priorities for 2009–2018.³ This Research Agenda includes a section on 'acute care', which focuses on improving acute care practices to help improve outcomes for those who are injured. SAVIR and NCIPC are collaborating to promote the Research Agenda and to identify potential partners and resources to support these research priorities. One specific priority area identified for this collaborative effort and highlighted in the Research Agenda is 'field triage...the on-scene decision-making by emergency medical services (EMS) providers at injury scenes for the care and transport of the injured to the most appropriate facility in a timely fashion'.

IMPORTANCE OF FIELD TRIAGE

Every day, EMS providers have a substantial impact on the health and safety of Americans. On average, EMS providers undertake ~18 million transport calls annually and work in ~15 000 EMS systems across the country.⁴ Of these, ~27% (or 4.8 million) of ambulance transports are for injuries and are potential candidates for application of field triage protocols.⁵ The importance of these field triage decisions has been highlighted in previous research supported by CDC. For example, Mackenzie *et al*⁶ found that the overall risk of death among severely injured patients was 25% lower when they received care in a level 1 trauma centre versus a non-trauma centre hospital.

In 2009, CDC published the Field Triage Decision Scheme: The National Trauma Triage Protocol.⁷ The Decision Scheme includes a revised algorithm designed to identify those at greatest risk of severe injury and determine the most appropriate facility to which patients should be transported. This Decision Scheme was developed in 2006 in partnership with the American College of Surgeons-Committee on Trauma and the National Highway Traffic Safety Administration based on current best practices in trauma triage. It has been endorsed by 17 organisations, along with concurrence from the National Highway Traffic Safety Administration, and is intended to be the foundation for the development, implementation and evaluation of local and regional field triage protocols.

Subsequently, CDC has developed an educational initiative to help EMS providers, EMS medical directors, trauma system

leadership and EMS management learn about and implement the revised Decision Scheme. This initiative includes easy-to-use materials for EMS professionals that provide information that they can use to improve health outcomes for persons injured in their communities.

POTENTIAL AREAS OF RESEARCH

The CDC Research Agenda outlines the areas of acute care research relevant to CDC's work. The document states:

... 'Investigators have demonstrated that trauma systems save lives, but which components of a trauma system improve health outcomes other than mortality remain unknown. Therefore, research is needed to identify and evaluate the specific components of trauma systems across the continuum of care—from prehospital through hospital and rehabilitation—that contribute to improvements in outcomes for injured persons and to determine how specific components can be tailored to improve system performance...'

In the Research Agenda, SAVIR and CDC have identified a number of current research needs related to implementation of the Decision Scheme, and potential future needs that may emerge as knowledge gaps are also addressed. These include:

- ▶ Evaluation of injury outcomes among patients assessed using the revised Decision Scheme (including mortality and short-/long-term morbidity).
- ▶ Economic impact of the use of the Decision Scheme (including cost effectiveness and cost benefit).
- ▶ Challenges and barriers for broader national, state and local implementation of the Decision Scheme.
- ▶ Potential role of vehicle telemetry data in field triage decision-making for injuries from motor vehicle crashes.
- ▶ The potential role of new and emerging technologies in the broader implementation and evaluation of the revised Field Triage Decision Scheme.

CONCLUSION

Rapidly evolving healthcare system changes (including impending healthcare reform), evolution in health information technologies, and a growing emphasis on injury as a public health problem have resulted in opportunities for implementation of evidence-based initiatives focused on primary, secondary and tertiary prevention in a variety of settings. Such opportunities must be grounded in the best available science. Development of the evidence base related to field triage decisions may have important implications for optimising clinical outcomes and utilisation of scarce healthcare resources. CDC and SAVIR are working in collaboration to promote the CDC Research Agenda and further explore the role of field triage in acute injury care and in improving outcomes for injured persons.

For more information on CDC's field triage activities and resources, visit: <http://www.cdc.gov/FieldTriage>.

Vikas Kapil,¹ Richard W Sattin,^{2,3} Scott Sasser,^{1,4} Lisa C McGuire,¹ Richard Hunt¹

¹Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Atlanta, Georgia, USA; ²Medical College of Georgia, Department of Emergency Medicine, Augusta, Georgia, USA; ³Board of Directors, Society for Advancement of Violence and Injury Research, Washington DC, USA; ⁴Department of Emergency Medicine, Emory University, Atlanta, Georgia, USA

Correspondence to Dr Vikas Kapil, Associate Director for Science, Division of Injury Response, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 4770 Buford Highway, Atlanta, Georgia 30341-3724, USA; vc3@cdc.gov

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