SHIL

Supporting innovation across NHS Scotland

SCRAM®

An innovative solution to emergency anaesthesia

The Adult SCRAM® System

The Adult SCRAM® System - invented by Paul Swinton and Neil Sinclair (Scottish Ambulance Service) and developed alongside Scottish Health Innovations Ltd (SHIL) - is a system of advanced preparation and organisation of equipment and drugs for emergency airway management. It promotes the delivery of safe, timely, and well-governed pre-hospital emergency anaesthesia, designed to reduce procedural time, error rate and cognitive load.

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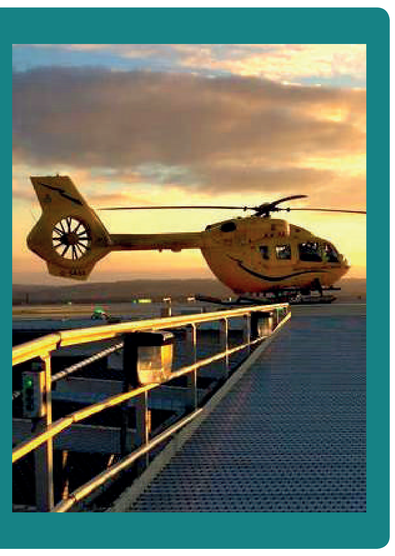
"The effectiveness and speed of potentially lifesaving pre-hospital airway management can significantly impact the outcome of critically ill or injured patients. The SCRAM® System was inspired by my experience working with the air-ambulance service attending accidents and emergencies in the pre-hospital setting."

Paul Swinton, Air Ambulance paramedic, Scottish Ambulance Service and co-inventor



AIMS AND OBJECTIVES

SHIL worked with the inventors of the Adult SCRAM® System to:

- Evaluate the idea
- Develop a prototype
- Commercialise the idea.

A trial carried out by Swinton and colleagues[i] incorporated the SCRAM System, evaluating the effect pre-prepared equipment and drugs had on Pre-Hospital Emergency Anaesthesia (PHEA):

- Procedural time
- Safety
- Cognitive load.

METHODOLOGY

The concept of Adult SCRAM® underwent SHIL's development and commercialisation process to develop a prototype, and establish a commercial partner.

Swinton and colleagues[i] carried out a randomised controlled experiment with a crossover design. Clinical teams (physician and paramedic) were randomised to perform a standardised pre-hospital clinical simulation using either unprepared (standard practice) or pre-prepared (SCRAM System) PHEA equipment and drugs.

Following a two-week washout period, each team performed the corresponding simulation. The primary outcome was intervention time. Secondary outcomes were safety-related incidents and errors, and degree of cognitive load.

RESULTS

The results of the trial are as follows[i]:

- Time required to perform PHEA using the SCRAM System was **significantly shorter than standard practice** (11:45 versus 20:59) minutes: seconds; p = <0.001)
- A **reduction in the number procedural errors** when using the SCRAM System (0 versus 9; p = 0.007)
- **Cognitive load experienced by the intubator assistant was reported to be less** when using SCRAM System (41.9 versus 68.7 mm; p = 0.006).

Following iterative development and a commercial partnership with Openhouse Products, Adult SCRAM® is now manufactured and distributed as SCRAM® 2.0.

"I'm very proud to have worked closely with the inventors to bring an improved model of the system – SCRAM® 2.0 – to market.

As the only organisation set up to work with NHS Scotland on commercialisation activity, SHIL recognise the value in maintaining strong relationships with all our inventors, supporting continuous improvement and development of products and ideas. We are proud to continue our support of the SCRAM® portfolio."

Marianne Murphy, Project Manager, SHIL

CONCLUSION

SCRAM® 2.0 can be used to pre-prepare equipment and drugs for emergency anaesthesia prior to the procedure being required. We propose that this could result in a safer performance of emergency anaesthesia, reduce procedural time, and enhance cognitive resilience[i].

SCRAM® 2.0 is now used in both pre-hospital and hospital environments throughout the UK and internationally.

References

www.shil.co.uk | http://www.scottishambulance.com

Swinton P, Corfield AR, Moultrie C, Percival D, Proctor J, Sinclair N, Perkins ZB. Impact of drug and equipment preparation on pre-hospital emergency Anaesthesia (PHEA) procedural time, error rate and cognitive load. Scandinavian journal of trauma, resuscitation and emergency medicine. 2018 Dec; 26(1):82. (i)