Treatment of extravasation injuries in infants and young children: a scoping review and survey

Mark Corbett,¹* David Marshall,¹ Melissa Harden,¹ Sam Oddie,² Robert Phillips¹ and William McGuire¹

¹Centre for Reviews and Dissemination, University of York, York, UK
²Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK

*Corresponding author mark.corbett@york.ac.uk

Declared competing interests of authors: William McGuire is a member of the Health Technology Assessment Commissioning Board and the Health Technology Assessment and Efficacy and Mechanism Evaluation Editorial Boards.

Disclaimer: The views expressed in this report are those of the authors and not necessarily those of the NIHR Health Technology Assessment programme. Any errors are the responsibility of the authors.

Published August 2018
DOI: 10.3310/hta22460

Plain English summary

Treatment of extravasation injuries in infants and young children
Health Technology Assessment 2018; Vol. 22: No. 46
DOI: 10.3310/hta22460

NIHR Journals Library www.journalslibrary.nihr.ac.uk
Plain English summary

Extravasation injuries are skin injuries caused by accidental leakages of treatments that are given intravenously. They can cause short-term pain and longer-term scarring that can sometimes result in restricted movement of the affected joint. These injuries may be particularly problematic in babies because of their fragile skin. Prompt care is usually required, but there is no agreement on the best treatment approaches. This is mainly because much of the published research appears to have a limited value in helping to inform treatment decisions. This project aimed to identify which treatments may be the most promising for babies and children. The results would help to inform which treatments may be the most appropriate to study in the future.

We identified and studied all the key data from all relevant studies and also surveyed knowledge and opinions across relevant NHS staff. The results from examining the studies showed that, although it is unclear which treatments are best, flushing injuries with salt solution appears to be an approach worthy of further research. However, this treatment carries risks, so it is possible that a simpler treatment—such as a dressing—might be better.

The survey results showed that variation exists across the NHS in terms of how extravasation injuries are initially assessed and in terms of which treatments are used. In hospital units that care for newborns, treatment of injuries by flushing them with salt solution was adopted in around half the units, but was never used in around one-third of units. The survey also revealed a variation in opinion about how a future research study should be designed. We comprehensively discussed the likely advantages and disadvantages of adopting different types of research design when considering how to plan a new research study on treatments for extravasation injuries.
Criteria for inclusion in the Health Technology Assessment journal

Reports are published in Health Technology Assessment (HTA) if (1) they have resulted from work for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in Health Technology Assessment are termed ‘systematic’ when the account of the search appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

HTA programme

The HTA programme, part of the National Institute for Health Research (NIHR), was set up in 1993. It produces high-quality research information on the effectiveness, costs and broader impact of health technologies for those who use, manage and provide care in the NHS. ‘Health technologies’ are broadly defined as all interventions used to promote health, prevent and treat disease, and improve rehabilitation and long-term care.

The journal is indexed in NHS Evidence via its abstracts included in MEDLINE and its Technology Assessment Reports inform National Institute for Health and Care Excellence (NICE) guidance. HTA research is also an important source of evidence for National Screening Committee (NSC) policy decisions.

For more information about the HTA programme please visit the website: http://www.nets.nihr.ac.uk/programmes/hta

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 15/175/02. The contractual start date was in February 2017. The draft report began editorial review in October 2017 and was accepted for publication in March 2018. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors’ report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care.

© Queen’s Printer and Controller of HMSO 2018. This work was produced by Corbett et al. under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

Published by the NIHR Journals Library (www.journalslibrary.nihr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).
NIHR Journals Library Editor-in-Chief

Professor Tom Walley  Director, NIHR Evaluation, Trials and Studies and Director of the EME Programme, UK

NIHR Journals Library Editors

Professor Ken Stein  Chair of HTA and EME Editorial Board and Professor of Public Health, University of Exeter Medical School, UK

Professor Andréé Le May  Chair of NIHR Journals Library Editorial Group (HS&DR, PGfAR, PHR journals)

Dr Martin Ashton-Key  Consultant in Public Health Medicine/Consultant Advisor, NETSCC, UK

Professor Matthias Beck  Professor of Management, Cork University Business School, Department of Management and Marketing, University College Cork, Ireland

Dr Tessa Crilly  Director, Crystal Blue Consulting Ltd, UK

Dr Eugenia Cronin  Senior Scientific Advisor, Wessex Institute, UK

Dr Peter Davidson  Director of the NIHR Dissemination Centre, University of Southampton, UK

Ms Tara Lamont  Scientific Advisor, NETSCC, UK

Dr Catriona McDaid  Senior Research Fellow, York Trials Unit, Department of Health Sciences, University of York, UK

Professor William McGuire  Professor of Child Health, Hull York Medical School, University of York, UK

Professor Geoffrey Meads  Professor of Wellbeing Research, University of Winchester, UK

Professor John Norrie  Chair in Medical Statistics, University of Edinburgh, UK

Professor John Powell  Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK

Professor James Raftery  Professor of Health Technology Assessment, Wessex Institute, Faculty of Medicine, University of Southampton, UK

Dr Rob Riemsma  Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

Professor Helen Roberts  Professor of Child Health Research, UCL Great Ormond Street Institute of Child Health, UK

Professor Jonathan Ross  Professor of Sexual Health and HIV, University Hospital Birmingham, UK

Professor Helen Snooks  Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, UK

Professor Jim Thornton  Professor of Obstetrics and Gynaecology, Faculty of Medicine and Health Sciences, University of Nottingham, UK

Professor Martin Underwood  Director, Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, UK

Please visit the website for a list of editors: www.journalslibrary.nihr.ac.uk/about/editors

Editorial contact:  journals.library@nihr.ac.uk