



Publications 2015

Publishing results of our work in the peer reviewed literature is essential. In 2015, the following research papers were published as a result of collaborations or primary studies conducted by the Fiona Wood Foundation research team.

With our understanding that every intervention from the time of injury influences the scar worn for life, we approach each clinical problem with a unique set of skills to reduce the suffering from burn injury. All the work is focused on solving a given clinical problem across the spectrum from first aid practices in the community, manipulation of scars at the cellular level, to understanding the barriers to improved function. The key strength of the group is the bringing together of basic science, population health research and clinical research - *Translating Research Into Practice*. How this is achieved is indicated briefly for our most recent publications.

Following each paper is a statement about how we plan to take a 'TRIP' with these latest results i.e. *Translate Research into Practice* (TRIP).

1. **Enhancing the Efficacy of Cation-Independent Mannose 6- Phosphate Receptor Inhibitors by Intracellular Delivery** . [V Agarwal](#), [P Toshniwal](#), [N Smith](#), [N Smith](#), [B LI](#), [T Clemons](#), [L Byrne](#), [F Kakulas](#), [F Wood](#), [M Fear](#), [B Corry](#) and [S Iyer](#). Chem Commun (Camb). 2015 Oct 30. [Epub ahead of print]

TRIP: This paper presents a novel way to target an important pathway involved in scarring. We will continue to use this strategy to develop a new treatment to improve scars after injury.

2. **The role of Eph receptors and Ephrins in the skin**. Wijeratne DT, Rodger J, Wood FM, Fear MW . Int J Dermatol. 2015 Oct 24. [Epub ahead of print]

TRIP: This paper is a review.

3. **Cells from the hematopoietic lineage are only present transiently during healing in a mouse model of non-severe burn injury**. Suzanne Rea, Andrew Stevenson, Natalie L Giles, Fiona M Wood and Mark W Fear. Stem Cell Res Ther. 2015 Jul 24;6:134.

TRIP: This study is important for the development of better cell therapies. Cell therapies are important in burns treatment to replace lost skin. This study helps identify which cell types may be useful for improving healing.

4. **Secreted biofilm factors adversely affect cellular wound healing responses in vitro**. Robert Marano, Hilary Wallace, Dulharie Wijeratne, Mark Fear, Hui Wong, and Ryan O'Handley. Scientific Reports (Accepted 16 July 2015).

TRIP: The role of local infection and biofilms is poorly understood but is likely to be crucial as it can slow healing and cause worse scars, extending time in hospital and the number of treatments needed. This paper provides a first look at what factors are produced in biofilms that cause problems in healing, so we may be able to target these in the clinic.



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5. [The Immune Response to Skin Trauma Is Dependent on the Etiology of Injury in a Mouse Model of Burn and Excision](#). Valvis SM, Waithman J, Wood FM, Fear MW, Fear VS. *J Invest Dermatol*. 2015 Aug;135(8):2119-28.

TRIP: This paper demonstrates that burn injuries have a different impact on the immune system than other injury types. This will be important to explore further to tailor treatments to the etiology of the injury.

6. [Manipulating directional cell motility using intracellular superparamagnetic nanoparticles](#). Bradshaw M, Clemons TD, Ho D, Gutiérrez L, Lázaro FJ, House MJ, St Pierre TG, Fear MW, Wood FM, Iyer KS. *Nanoscale*. 2015 Mar 21;7(11):4884-9.

TRIP: This is another paper looking at cell therapies of the future and demonstrated we could control cells using nanoparticles and a magnetic field. This will allow enhanced control of cell therapies in the future to improve treatment.

7. [Upregulation of cutaneous \$\alpha_1\$ -adrenoceptors after a burn](#). Drummond PD, Dawson LF, Finch PM, Drummond ES, Wood FM, Fear MW. *Burns*. 2015 Sep;41(6):1227-34.

TRIP: This paper is a pilot study to look at how long-term pain may develop after burns.

8. [Heatwave and risk of heat-related burn injury in children in Western Australia](#). Lisa Martin, Sally A Burrows, Fiona M Wood. *Med J Aust*. 2015 Jul 20;203(2):79-80.

TRIP: This study demonstrated that hot weather (in WA) led to increased incidence and admission of paediatric burn injuries.

9. [Does transfer time to a specialist burn service influence post-burn mortality in Australia and New Zealand? A multi-centre, hospital based retrospective cohort study](#). John T Cassidy, Dale W Edgar, Michael Phillips, Peter Cameron, Heather Cleland, Fiona M Wood + SC of BRANZ. *Burns*. 2015 Jun;41(4):735-41.

TRIP: This study confirmed the prowess of ANZ prehospital services and reinforced the urgency of transfer of burn patients, particularly with inhalation (smoke) injury.

10. [Long term outcomes data for the Burns Registry of Australia and New Zealand: Is it feasible?](#) Gabbe BJ, Cleland H, Watterson DM, Schrale R, McRae S, Parker C, Taggart S, Edgar DW. *Burns*. 2015 Oct 2. pii: S0305-4179(15)00277-6. doi: 10.1016/j.burns.2015.09.005. [Epub ahead of print]

TRIP: This study demonstrated the difficulty of collecting long term data from burn patients and suggested solutions to improve the objective measurement of survey outcomes post-burn.

11. [When Can I Drive? Return to driving following a wrist fracture: a critical review](#). Stinton S, Pappas E, Moloney N, Edgar DW, Refshauge K. [Hand Therapy](#). Accepted to print June 29, 2015. *Hand Therapy*.

TRIP: This review demonstrated the lack of objective screening available to confirm safe return to driving after a broken wrist.



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12. [Towards more efficient burn care: identifying factors associated with good quality of life post-burn.](#) V Finlay, M Phillips, G Allison, D Ching, D Wicaksono, S Plowman, F Wood, D Hendrie, D Edgar. 2015. Burns. 2015 Nov;41(7):1397-404.

TRIP: This validated algorithm predicts which patients achieve good quality of life post-burn and helps identify those that may benefit from a streamlined care pathway. It has been developed into a calculation device that will be implemented into clinical practice by the end of 2015.

13. [Interactive gaming consoles reduced pain during acute burn rehabilitation: A randomized, pilot trial.](#) Matthew Parker, Brett Delahunty, Nicolas Heberlein, Neale Devenish, Fiona M Wood, Teresa Jackson, Teresa Carter; and Dale W Edgar. Burns. 2015 Nov 3. pii:S0305-4179(15)00198-9. doi: 10.1016/j.burns.2015.06.022. [Epub ahead of print]

TRIP: This study showed that the use of the Nintendo Wii reduced burn patient pain and increased their activity. Physiotherapists and nurses will now integrate such technologies as adjuncts to formal treatments.

14. [Alternate electrode placement for whole body and segmental bioimpedance spectroscopy.](#) T L Grisbrook, P Kenworthy, P Gittings, Michael Phillips, Tess Jackson, FM Wood, D W Edgar. Physiol Meas. 2015 Oct;36(10):2189-201.

TRIP: This study confirmed that alternate electrode placement for bioimpedance is possible, improving the use of this technique to measure burn swelling.

15. [Interpretation of the DermaLab Combo® pigmentation and vascularity measurements in burn scar assessment: An exploratory analysis.](#) Gankande TU, Duke JM, Wood FM, Wallace HJ. Burns. 2015 Sep;41(6):1176-85.

TRIP: This research identified how objective measurement tools could be used in conjunction with existing burn scar assessment methods to improve clinical assessment.

16. [Descriptive Epidemiology of Unintentional Burn Injuries Admitted to a Tertiary-Level Government Hospital in Nepal: Gender-Specific Patterns.](#) Sharma NP, Duke JM, Lama BB, Thapa B, Dahal P, Bariya ND, Marston W, Wallace HJ. Asia Pac J Public Health. 2015 Jul;27(5):551-60.

TRIP: The research in papers 16 and 17 represents recent collaborative work with the not-for-profit organization, Burns Violence Survivors Nepal, and the adult burns unit at Bir Hospital, Kathmandu. These studies examine risk factors and patterns of causes of burns in Nepal and are important to identify the major causes of burns in Nepal so that appropriate preventative interventions can be designed to reduce the incidence of burns. Paper 18 represents an invited paper by the Burns journal for comment from Wallace and Duke on the role of the courts in developing countries to prevent acid and burn violence against women.

17. [Intentional burns in Nepal: A comparative study.](#) Lama BB, Duke JM, Sharma NP, Thapa B, Dahal P, Bariya ND, Marston W, Wallace HJ. Burns. 2015 Sep;41(6):1306-14.

TRIP: See paper 16.



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18. **Acid and burns violence against women: the role of the courts.** Wallace H, Duke JM. Burns Accepted 11 Aug 2015 DOI: 10.1016/j.burns.2015.08.017.

TRIP: See paper 16.

19. **Long-term Effects of Paediatric Burns on the Circulatory System.** Duke JM, Randall SM, Fear MW, Boyd JH, Rea S, Wood FM. Paediatrics. 2015 Oct 12. pii: peds.2015-1945

TRIP: This study is part of a set of studies (19-26) that have, for the first time, demonstrated that burns have long-term consequences in some patients after they have healed and been discharged from hospital. These studies have used Western Australia's linked health datasets that are amongst the best resources in the world for looking at patient health outcomes. These studies provide critical population level evidence to guide better treatment in the future for burn patients to reduce long-term morbidity.

Other studies linked to this work listed here include papers 20 - 26.

20. **Understanding the long-term impacts of burn injury on the cardiovascular system.** Duke JM, Randall SM, Fear M, Boyd JH, Rea S, Wood FM. Burns In press Accepted.

TRIP: See paper 19.

21. **Increased admissions for musculoskeletal diseases after burns sustained during childhood and adolescence.** Duke JM, Randall SM, Fear MW, Boyd JH, Rea S, Wood FM. Burns. 2015 Sep 14. pii: S0305-4179(15)00264-8.

TRIP: See paper 19.

22. **Long-term musculoskeletal morbidity after adult burn injury: a population-based cohort study.** Randall S, Fear M, Wood F, Rea S, Boyd J and Duke J. BMJ Open 2015 Sep 11;5(9):e009395.

TRIP: See paper 19.

23. **Mortality after Burn Injury in Children: A 33-year Population-Based Study.** Duke JM, Rea S, Boyd JH, Randall SM, Wood FM. Pediatrics. 2015 Apr;135(4):e903-10.

TRIP: See paper 19.

24. **Long term mortality in a population-based cohort of adolescents, and young and middle-aged adults with burn injury in Western Australia: a 33-year study.** Duke JM, Boyd JH, Randall SM, Wood FM. Accident Analysis & Prevention, 2015; 85:118-124.

TRIP: See paper 19.

25. **Long-term mortality following burn injury: a population-based study of adults 45 years and older.** Duke JM, Boyd J, Rea S, Randall S, Wood FM. Bulletin of the World Health Organization, 2015;93:400-406 | doi: <http://dx.doi.org/10.2471/BLT.14.149146>.



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TRIP: See paper 19.

26. **Childhood burn injury – impacts beyond discharge.** Duke JM, Boyd J, Randall S, Rea S, Wood FM. Translational Pediatrics (Accepted 13 July 2015, doi: 10.3978/j.issn.2224-4336.2015.07.05)

TRIP: See paper 19.

27. **Advances in isolation and expansion of human cells for clinical applications.** Wood, Fiona. Skin Tissue Engineering and Regeneration Medicine, Albanna, Ch 15.
28. **Preparedness and training in staff responding to a burns disaster.** May, J; Colbert, D; Nara-Vensata, R; Rea, S; Wood, FM; Bristol Journal of Nursing 2015, Vol 24, No 18, pp 918 – 921.
29. **Skin Regeneration: The complexities of translation into clinical practice.** Wood, FM. International Journal of Biochemistry and Cell Biology, 2015, V56, pp 133-140.
30. **Non-severe burn injury leads to depletion of bone volume that can be ameliorated by inhibiting TNF- α .** O'Halloran, E; Kular, J; Xu, J; Wood, F; Fear, M. Burns, May 2015, Vol 41(3), pp 558 – 564.
31. **The Brief Fatigue Inventory is reliable and valid for the burn patient cohort.** Toh, C; Li, M; Finlay, V; Jackson, T; Burrows, S; Wood, F; Edgar, E. Burns, August 2015, Vol 41(5), pp 990 – 997.
32. **Transfer time to a specialist burn service and influence on burn mortality in Australia and New Zealand: A multi-center, hospital based retrospective cohort study.** Cassidy, J. T; Edgar, D; Phillips, M; Cameron, P; Cleland, H; Wood, F. Burns, June 2015, Vol 41(4) pp 735 – 741.
33. **Burns Education for non-burn specialist clinicians in Western Australia.** McWilliams, T; Hendricks, J; Twigg, D; Wood, F. Burns, March 2015, Vol 41(2) pp 301-307.
34. **Scald Burns in children aged 14 and younger in Australia and New Zealand: An analysis based on the Burn Registry of Australia and New Zealand (BRANZ).** Reidlinger, D; Jennings, P.A; Edgar, D; Harvey, J. G; Cleland, H; Wood, F; Cameron, P. A. Burns, May 2015, Vol 41(3) pp 462-468.
35. **Burn Injuries lead to Behavioral Changes that impact engagement in sexual and social activities in females.** Connell, K; Coates, R; Wood, F. Sexuality and Disability, 2015, Vol 33(1) pp 75-91.
36. **Optical coherence tomography for longitudinal monitoring of vasculature in scars treated with laser fractionation.** Gong, P; Es'haghian, S., Harms, K.-A., Murray, A., Rea, S., Kennedy, B. F., Wood, F. M., Sampson, D. D. and McLaughlin, R. A.J. Biophoton, 2015, doi: 10.1002/jbio.201500157

Thank you to all the individuals, corporates, Trusts and Foundations that have contributed to the Fiona Wood Foundation in 2015. Your support directly impacts our ability to continue our research. Anyone's life can change in an instant from a burn injury and we strive to continually improve outcomes from burn injury for all.

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The Fiona Wood Foundation Board, staff, clinicians and researchers extend to each of you, our heartfelt appreciation of your support. Without you, we would not be able to continue on our journey of scarless healing – in mind and body.

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