

The effect of Polyethylene bags on the incidence of hypothermia in preterm neonates: A Systematic review and Meta-Analysis

Sebastian A, O'Connor T, Patton D, Moore Z¹, Nugent L, Watson C

¹Skin Wounds and Trauma (SWaT) Research Centre, School of Nursing & Midwifery, Royal College of Surgeons in Ireland, University of Medicine and Health Sciences, Dublin, IE; ²School of Nursing and Midwifery, Griffith University, Queensland, Australia

‘Capturing the full picture of fetal and neonatal outcomes. The iceberg phenomenon – the continuum of care’

1. Introduction

- Admission temperature is an important parameter of outcomes across all gestations especially in preterm neonates.
- Hypothermia if continued can cause detrimental effect on neonates.
- The objective of this meta-review was to synthesise the evidence on the effect of polyethylene bags on the incidence of hypothermia in preterm neonates on admission to neonatal intensive care unit.

2. Review Question

- What is the effect of polyethylene bags on the incidence of hypothermia in preterm neonates?

3. Methods

- Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to guide the conduct and reporting of the meta-review.
- Data were extracted by three authors and adjudicated by a fourth.
- Data were analysed statistically using Revman 5.4 software and narrative analysis.

4. Results

- Nine studies met the inclusion criteria.
- Six studies reported data on incidence of hypothermia on preterm neonates ≤ 34 weeks' gestational age and meta analysis was conducted with 5 studies.
- From participants enrolled (N = 168), the meta-analysis showed a significant finding for the use of plastic bag vs routine care to prevent incidence of hypothermia.

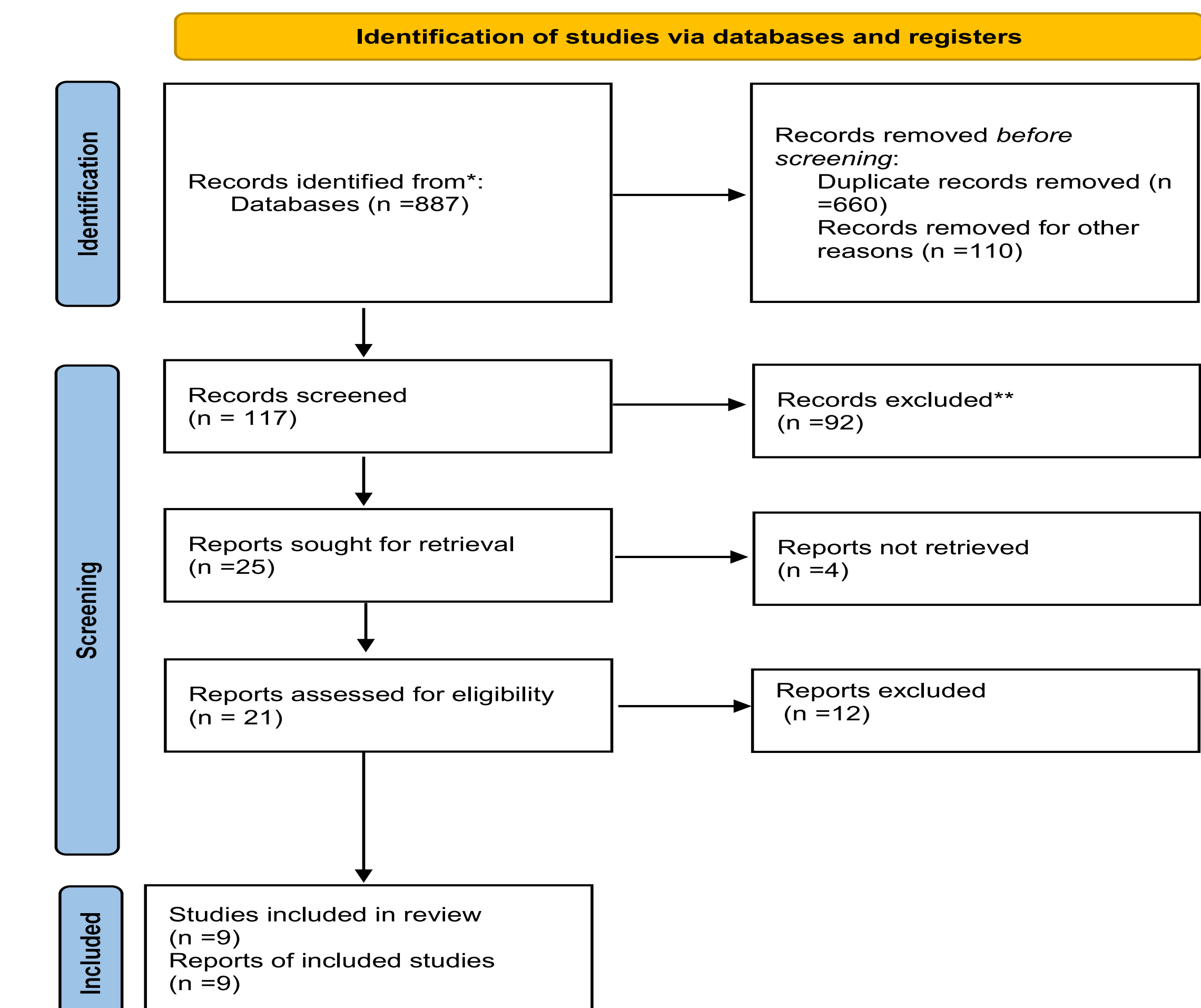
Key Messages

Hypothermia episodes were more in the routine care group (74%) compared to plastic bag group (62%)



Keep me warm with appropriate use of thermoregulation measures.

PRISMA Flow Chart



Reference

- Smith, J., Usher, K., Alcock, G., & Buettner, P. (2013). Application of plastic wrap to improve temperatures in infants born less than 30 weeks' gestation: a randomized controlled trial. *Neonatal Network*, 32(4), 235-245. doi:10.1891/0730-0832.32.4.235
- Nimbalkar, S. M., Khanna, A. K., Patel, D. V., Nimbalkar, A. S., & Phatak, A. G. (2019). Efficacy of Polyethylene Skin Wrapping in Preventing Hypothermia in Preterm Neonates (<34 Weeks): A Parallel Group Non-blinded Randomized Control Trial. *J Trop Pediatr*, 65(2), 122-129. doi:10.1093/tropej/fmy025
- Rohana J, Khairina W, Boo NY, Shareena I. Reducing hypothermia in preterm infants with polyethylene wrap. *Pediatr Int*. 2011 Aug;53(4):468-74
- Hu, X. J., Wang, L., Zheng, R. Y., Lv, T. C., Zhang, Y. X., Cao, Y., & Huang, G. Y. (2018). Using polyethylene plastic bag to prevent moderate hypothermia during transport in very low birth weight infants: a randomized trial. *J Perinatol*, 38(4), 332-336. doi:10.1038/s41372-017-0028-0
- Leadford, A. E., Warren, J. B., Manasyan, A., Chomba, E., Salas, A. A., Schelonka, R., & Carlo, W. A. (2013). Plastic bags for prevention of hypothermia in preterm and low birth weight infants. *Pediatrics*, 132(1), e128-134. doi:10.1542/peds.2012-2030
- Rolim C.M.K., Freitas,C.L., Lima,G.H.A., Magalhaes, J and Gurgel P.P.E. (2015) Polyethylene wrap for maintaining the body temperature of the new-born, *Journal of nursing referencia*2015.,pp.9-15