

The use of moisturisers to prevent infection in preterm infants

Cleminson J, McGuire W
Centre for Reviews and Dissemination, University of York

Summary

- The skin of preterm infants is less developed than that of term infants and may act as a route for infection.
- Topical emollients may improve the skin barrier.
- We analysed the data from trials that assessed the use of topical emollients on the rate of invasive infection and death in preterm infants.
- We found that there was not sufficient evidence to support the use of topical emollients in this context.
- In low- and middle-income countries, there may be a higher rate of growth in preterm infants that receive regular application of topical oils compared to high-income countries.

Glossary

Preterm infant: an infant born less than 37 completed weeks of pregnancy

Invasive infection: Infection of a normally sterile site, including the blood, the fluid surrounding the brain, and the urinary system

Topical emollients: moisturising products that are applied to the skin to protect and improve the skin barrier

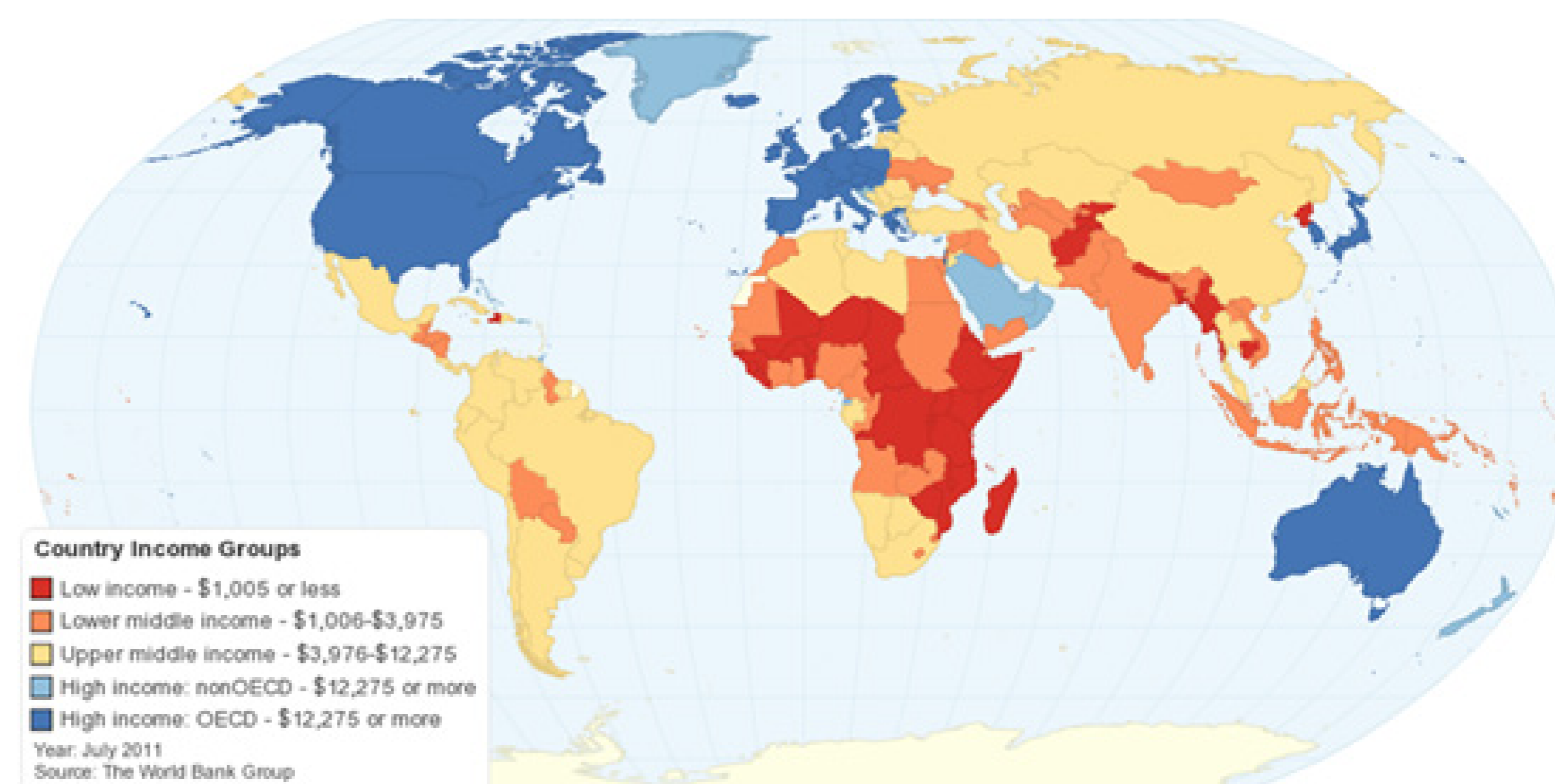
Background

- Preterm infants are at higher risk of invasive infection and death before hospital discharge, than those that are born at term.
- The skin of preterm babies is more immature, weaker and more easily broken.
- They are more at risk of organisms being able to enter the bloodstream. This can result in severe infection and death.
- Preterm infants that are born in low- and middle- income countries are at higher risk.
- Topical emollients may be able to improve skin barrier function.
- These products are generally split into two groups: Manufactured creams or ointments (usually used in high-income countries), and the natural plant oils (usually used in low- or middle-income countries).

Methods

- Cochrane Systematic Review.
- A systematic review combines the results of all the available studies on a topic. The Cochrane Collaboration is a global network of researchers that aim to produce high quality, rigorous analyses of current available research.
- We searched for relevant research papers, using strict inclusion and exclusion criteria. Resources included online libraries, online trial registration sites, neonatal conference proceedings and reference lists of included studies.
- After assessing the quality of the evidence, data was extracted and combined using a technique known as 'meta-analysis'. We grouped the results according to type of emollient used and the geographical location of the trial.

Country Income Groups (World Bank Classification 2011)



Source: ChartsBin statistics collector team 2011, Country Income Groups (World Bank Classification), ChartsBin.com, viewed 14th October, 2014, <http://chartsbin.com/view/2438>

Results

- We identified 16 studies that included 2809 babies in total. The data needs to be interpreted with caution as the quality of the trials varied, with some uncertainties in the methods in some of the trials.

Analysis 1: Ointment or cream vs. routine skin care

- 8 trials, 2086 babies. Mostly conducted in high-income countries
- *Overall*, we did not detect any difference in the rates of invasive infection or death before discharge from hospital.
- **For low- or middle-income countries: A slightly lower rate of death in infants that received the ointment or cream.** No difference in rates of invasive infection was detected.
- **For high-income countries: A slightly higher rate of invasive infection was detected in the babies that received the ointment or cream.** However, there was no detected difference in the rates of death.

Analysis 2: Oil vs. routine skin care

- 9 trials, 904 babies. Mostly conducted in low- or middle-income countries
- *Overall*, we did not detect any difference in the rates of severe infection or death.
- **Topical oil application increased rates of weight, length and head circumference measures.**

Conclusion

How can the findings affect current practice?

- We conclude that there is not sufficient available evidence to support the use of moisturisers to prevent invasive infection or death in preterm infants.
- In *high-income settings*, there may be an increased risk of bloodstream infection with bacteria that normally live on the skin.
- In *low- and middle-income settings*, some evidence exists that massage with plant oil results in *higher rates* of growth.

How can these findings inform future research?

As this simple, low-cost, and readily available intervention may reduce the number of invasive infections and death, and improve rates of growth, particularly in low- and middle-income countries, further well-designed trials are advocated.

Disclaimer

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