

Prophylactic Moisturization Makes Sense—and Cents—for Newborns at High Risk for AD

Study results point to role for inexpensive petroleum jelly in the routine care of babies' skin.

BY PETER A. LIO, MD

Simply applying moisturizers to a baby's skin for the first six months of life may prevent eczema and possibly the entire atopic march, and this relatively inexpensive intervention could yield significant cost savings.

This was the principal finding from a study that our group published online in *JAMA Pediatrics* in December 2016.¹ The study was designed to investigate the cost-effectiveness of using a daily moisturizer as prevention of atopic dermatitis in high-risk newborns.

Early studies from Japan, the US, and the UK provided the rationale. These works suggested that full-body application of moisturizers for the first six to eight months of life could reduce the risk of developing eczema by some 50 percent.

Almost half of individuals affected by atopic dermatitis will develop the condition during the first year of life, and the majority during the first five years of life, underscoring the importance of starting the intervention as early as possible. The atopic march occurs in approximately half of pediatric patients with atopic dermatitis. Moreover, cost is a big issue as families who are caring for a child with eczema spend an average of \$274 per month on medical costs. In one recent study, an average of 35 percent of a family's discretionary income was spent out of pocket on atopic dermatitis, with moisturizers—an ongoing need, almost

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never covered by insurance—representing the single highest medication expense.

Our study looked at the cost-effectiveness of seven common, over-the-counter moisturizer products, such as petroleum jelly, Aquaphor, Cetaphil and Aveeno.

COST-EFFECTIVENESS SEEN FOR ALL MOISTURIZERS

The average cost of total-body moisturization using these seven moisturizers from birth to six months of age was

determined for both male and female infants. We assumed the same unit of weight per moisturizer used for a given body surface area. Based on previously reported data (relative risk reduction of 50 percent), the incremental gain in quality-adjusted life-years (QALYs) was determined using a six-month time window. The cost-effectiveness of each moisturizer was determined by assuming equal efficacy.

The calculated amount of daily all-body moisturizer needed at birth was 3.6g (0.12oz) per application, which increased to 6.6g (0.22oz) by six months of age. Of the products evaluated, the average price was \$1.07/oz (range, \$0.13/oz-\$2.96/oz). For a six-month time window, the average incremental QALY benefit was 0.021. The sensitivity analysis showed that the incremental gain of QALY ranged from 0.0041 to 0.030.



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By using the least expensive moisturizer in the study (petroleum jelly), the cost benefit for prophylactic moisturization was only \$353 per quality-adjusted life year, the study showed. Even when we assumed the lowest incremental QALYs for the most expensive moisturizer, the intervention was still less than \$45,000/QALY, meeting the National Institute for Health and Care Excellence of the United Kingdom's threshold for cost-effectiveness.

Eczema and Moisturization By The Numbers

- \$274:** Average monthly medical costs for family of a child with eczema
- 35%:** Percentage of a family's discretionary income spent out of pocket on atopic dermatitis
- 3.6g:** Amount of lotion, per application, for newborns, equivalent to 0.12oz
- 6.6g:** Amount of lotion, per application, for 6-month-olds, equivalent to 0.22oz
- \$1.07:** Average cost per ounce of lotions studied
- 0.021:** Average incremental QALY benefit over 6-month time window
- \$353:** The cost benefit for prophylactic moisturization per quality-adjusted life year

CONCLUSIONS

Atopic dermatitis represents a major health expenditure and has been associated with multiple comorbidities. The future for atopic dermatitis therapy is bright given the emerging biologics expected to come to market in the next few years, but an opportunity to prevent this disease is likely worth far more than even the best treatments to those afflicted. Daily moisturization may represent a cost-effective, preventative strategy to reduce the burden of atopic dermatitis. Larger, long-term clinical studies are underway to see if prophylactic moisturizing leads to such sustained benefits. ■

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1 Xu S, et al. Cost-effectiveness of Prophylactic Moisturization for Atopic Dermatitis. *JAMA Pediatr.* doi:10.1001/jamapediatrics.2016.3909.