

# Bleach baths using Milton Sterilising Fluid for recurrent infected atopic eczema

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*Staphylococcus aureus* (*Staph. aureus*) is the most common complication of atopic eczema and a major contributor to worsening atopic eczema. Antibiotic treatment improves secondary infection and severity of atopic eczema but continued use can increase the risk of bacterial resistance. Recent studies have shown that the use of bleach baths with intermittent nasal Mupirocin decreases the severity of atopic eczema in patients with signs of secondary bacterial infection.

There has also been a lot of publicity about using bleach baths as part of an atopic eczema management regimen, but these news stories don't give any guidance on how this might safely be done. Worse still, for most people the word bleach suggests Domestos or other household bleach, which would not be suitable for this purpose.

In this article, we describe a safe and effective recipe for bleach baths using Milton Sterilising Fluid (MSF), and describe a series of five case studies where it has been used in our department.

## Introduction

Atopic eczema currently affects one in five schoolchildren and is characterised by itchy, inflamed skin that runs a course of remission and exacerbation. Frequent scratching breaks the skin barrier, making it more susceptible to infection – particularly with *Staph. aureus*. It is estimated that 90% of people with atopic eczema are colonised with Staphylococcal infection compared to 25% of the population without atopic eczema.<sup>1</sup> *Staph. aureus* infection may produce overt signs such as weeping, crusting and folliculitis but may also worsen atopic eczema due to production of super antigens, which increase inflammation in atopic eczema. Antibiotic therapy is an important part of treatment for atopic eczema because it improves both secondary infection and severity of atopic eczema. Continued use of topical and oral antibiotics can however increase the risk of bacterial resistance.

It is therefore useful to look to other measures to eradicate *Staph. aureus* colonisation in people with atopic eczema. One recent – albeit small – randomised, placebo-controlled study showed that the use of sodium hypochlorite (bleach) baths with intermittent nasal Mupirocin decreased

the severity of atopic eczema in patients with signs of bacterial infection.<sup>2</sup> Dr Amy Paller, a Paediatric Dermatologist from the North-western University of Chicago, describes how she conducted a study involving 31 children, aged from 6 months to 17 years with atopic eczema. Half the study group used half a cup of bleach in a bath twice a week, and the other half used a placebo fluid in the same way. Both groups were treated with oral antibiotics and nasal Mupirocin, and all were reviewed at 3 months. All of the patients in the study group showed improvement in the areas that had been submerged in the bleach bath.

## Watford case study

The bleach used in the reported study referred to above – Clorox liquid bleach (sodium hypochlorite 6% concentration) – is not readily available in the UK. Most of the household bleach preparations that we examined on a supermarket shelf contained additives that may exacerbate atopic eczema, including surfactants and perfumes. We therefore considered using MSF, which contains 2% sodium hypochlorite without additional additives. This is used to disinfect baby utensils and is available at most supermarkets in 500-ml and 1-litre bottles.

## Method

Five children aged between 4 and 11, who regularly attend the Paediatric Clinic with chronic atopic eczema, were asked to take part. They had moderate to severe disease as assessed by the Investigator's Global Assessment (IGA) with clinical signs of bacterial infection. All were swabbed for *Staph. aureus* colonisation – nasal and skin cultures – and tested and all had at least three courses of antibiotics in the preceding 3 months, despite optimum use of appropriate supervised treatment for their atopic eczema.

All children were treated with an oral antibiotic, flucloraxillin for 1 week, nasal Mupirocin three times daily for 5 days and MSF baths for 2 months. They were all asked to complete the Children's Dermatology Life Quality Index (CDLQI)<sup>3</sup> with the help of their parents and scores ranged from 10 to 28 out of 30. (High scores = low self-esteem and severity of symptoms.)

The senior pharmacist at our hospital helped us to formulate a concentration of MSF that was similar to the Clorox liquid bleach used in the published bleach bath study.<sup>2</sup> We used 250 ml of MSF added to a full bath tub (120 litres of water). This gives a final concentration of 0.004% sodium hypochlorite, which is slightly

## Instructions for bleach baths

Unless your skin reacts to chlorine, your skin may benefit from being in chlorinated swimming-pool water due to its antiseptic effects. These instructions make an antiseptic bath at home with a similar concentration to a chlorinated swimming pool.

1. Add lukewarm water to fill the tub completely (about 120 litres of water).
2. Add 250 ml of Milton Sterilising Fluid (MSF) using a kitchen measuring jug. This contains 2% sodium hypochlorite and can be obtained from any supermarket. The amount of MSF added may need to be adjusted depending on size of the tub and amount of water used.
3. Stir the mixture with the jug to make sure that the bleach is completely diluted in the bath water.
4. The patient should soak in the chlorinated water for 5–10 mins.
5. Thoroughly rinse skin with lukewarm clean water at the end of the bleach bath to prevent dryness and irritation.
6. As soon as the bath is over, pat dry. Do not rub dry as this has the same effect as scratching.
7. Immediately apply any prescribed emollients and other treatments.
8. Repeat bleach baths twice weekly or as prescribed by your doctor or other dermatology healthcare professional.

## Cautions

- Do not use undiluted bleach directly on the skin. Even diluted bleach can potentially cause dryness and irritation.
- Do not use bleach baths with a known contact allergy to chlorine.
- Do not use bleach baths without first taking medical advice.
- Before the first bath test the MSF, diluted as above, on a small area of non-eczematous skin. Rinse off after 10 mins and wait for 24 hours to make sure you don't have a reaction to it, before using a bleach bath.

weaker than the 0.005% concentration used in the published study.<sup>2</sup>

Parents were instructed to bathe their children in this chlorinated water twice weekly for 5–10 minutes and then rinse thoroughly with clean water. The first bath was performed as a supervised treatment by the paediatric dermatology nurse with the parent, in the Dermatology Department. Parents had a practical demonstration and the families were given written guidelines to take home. (See Instructions for Bleach Baths above) This ensured that the parent was clear on the amount of MSF and dilution required, and that the child did not react to the MSF in a harmful way. Patients continued with their normal daily emollient and steroid regimen. They were also asked to apply nasal Mupirocin three times daily for five consecutive days in each month.

## Results

At 2 months all five children had improved. Three of the children had mild atopic eczema and one had moderate

atopic eczema, as determined by the IGA. Repeat nasal swabs were negative in four children and one showed slight growth of *Staph. aureus*. All children showed an improvement in their CDLQI scores. There were no reported side effects and the families had been happy to purchase the MSF and carry out the twice-weekly bathing. Four of these patients with previous frequent, severe worsening of the eczema due to infection have continued the treatment at home once or twice weekly.

Following this original study, further children and adults with atopic eczema complicated by recurrent bacterial infections referred to our department have used this MSF regimen with good overall results.

## Conclusion

Atopic eczema is frequently exacerbated by *Staph. aureus* infection and topical and oral antibiotics – typically of short duration to avoid bacterial resistance – are required.

Dilute bleach baths with MSF as described in this regimen are a safe and effective adjuvant anti-infective treatment that can help to decrease skin infections and reduce the need for systemic antibiotics in patients with atopic eczema complicated by recurrent infection. We would not however recommend that a bleach bath regimen is adopted for patients with atopic eczema without first seeking medical advice.

## References

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