

## Hydrogen peroxide 1% cream for impetigo – March 2020

The National Institute for Health and Care Excellence (NICE) guideline [NG153] on impetigo: antimicrobial prescribing aims to optimise antibiotic use and reduce antibiotic resistance. Recommendations on antimicrobial prescribing strategies for adults, young people and children aged 72 hours and over with impetigo are made in line with these aims.<sup>1</sup>

For people with localised non-bullous impetigo who are not systemically unwell or at high risk of complications, hydrogen peroxide 1% cream is recommended as an initial treatment.<sup>1</sup>

This bulletin provides information on hydrogen peroxide 1% cream and its use in impetigo to support implementation of NG153. Additional implementation resources are available including a patient leaflet and a medicine information template on hydrogen peroxide 1% cream which can be adapted locally for use in, for example, medicine formulary applications.

### Recommendations

- Provide health care professionals such as practice nurses, practice pharmacists, GPs, community pharmacists and community walk-in centre nurses with prescribing information on hydrogen peroxide 1% cream and its use in line with NG153.
- Provide patients with information on impetigo and the use of hydrogen peroxide 1% cream in the initial treatment on non-bullous impetigo. Patients should also be advised about good hygiene measures to reduce the spread of impetigo to other areas of the body and to other people. Attachment 1 may be used for this purpose or locally adapted.
- Hydrogen peroxide 1% cream should be prescribed on NHS prescription rather than recommended for purchase over the counter due to the high retail price and the need to reduce any potential financial barriers for appropriate treatment of impetigo.
- Include hydrogen peroxide 1% cream in system wide medicine formularies for use as an initial treatment for non-bullous impetigo in people who are not systemically unwell or at high risk of complications. Attachment 2 provides medicine formulary information to support implementation.

## Background

Impetigo is a bacterial infection of the skin and has two main clinical forms<sup>2</sup>:

- Non-bullous impetigo - accounts for around 70% of cases and caused by *Staphylococcus aureus*, *Streptococcus pyogenes* or a combination of both.
- Bullous impetigo - fluid filled lesions typically more than 5mm in diameter and is caused by *Staphylococcus aureus*.

Impetigo is spread through direct contact with an infected person or indirectly via contact with contaminated items such as clothing, towels and toys.<sup>2</sup>

It affects most commonly children up to the age of 4 with an annual incidence of around 2.8%. In children aged 5-15 years there is a 1.6% annual incidence. The incidence decreases with increasing age and is lowest in people aged over 65 years. Males and females are equally affected.<sup>2</sup>

It is usually a self-limiting condition which takes two to three weeks to clear if untreated. Most infections are mild, but children may be excluded from school or nursery to prevent outbreaks. In some cases (such as neonates and people with severe immunosuppression) impetigo can be a serious condition leading to life-threatening complications.

Complications of impetigo are uncommon and include:

- Acute glomerulonephritis (following streptococcal impetigo)
- Cellulitis
- Staphylococcal scalded skin syndrome
- Lymphangitis
- Osteomyelitis and septic arthritis
- Septicaemia
- Scarlet fever, urticaria and erythema multiforme (following streptococcal infection).<sup>2</sup>

NG153 recommends hydrogen peroxide 1% cream as an initial treatment for people with localised non-bullous impetigo who are not systemically unwell or at high risk of complications.<sup>1</sup>

No evidence was identified for treating impetigo with other topical antiseptics, so the NICE committee could not make a recommendation for their use.<sup>1</sup>

NICE acknowledge that the use of hydrogen peroxide 1% cream for impetigo is a change in practice and health professionals may not be familiar with its use.<sup>1</sup>

## Presentation

Figure 1 Image of Crystacide cream 1% 25g tube<sup>3</sup>



Hydrogen peroxide 1% cream is available as a brand, named, Crystacide cream 1%. The cream is applied two to three times a day for 5 days.<sup>1</sup> A 5-day course is appropriate for most people with impetigo but can be increased to 7 days based on clinical judgement, depending on the severity and number of lesions.<sup>1</sup> A dry film will appear on the skin after application, this can be washed off with water.<sup>4</sup>

## Contraindications

Hypersensitivity to the active substance (hydrogen peroxide) or any of the excipients (glyceryl monolaurate, glyceryl monomyristate, macrogolstearate 5000, propylene glycol, citric acid anhydrous, sodium hydroxide, sulphuric acid, 1M, sodium oxalate, salicylic acid, disodium edetate, sodium pyrophosphate, sodium stannate, purified water).<sup>4</sup>

## Special warnings and caution in use

- Avoid contact with the eyes.
- Do not use on large or deep wounds.
- Do not apply to healthy skin.
- Hydrogen peroxide (active ingredient) can bleach fabric.
- Salicylic acid (an excipient) is a mild irritant and can cause dermatitis.
- Propylene glycol (an excipient) may cause skin irritation.<sup>4</sup>

## Adverse effects

A mild sensation of burning may be experienced for a short time after application.<sup>4</sup>

## Drug interactions

Crystacide cream is incompatible with iodine, permanganates and other stronger oxidising agents.<sup>4</sup>

## Product shelf life and storage

28 days after first opening the container.<sup>4</sup> Store below 25°C.<sup>4</sup>

## Antiseptic and disinfectant properties

Hydrogen peroxide is a well-known antiseptic agent and is effective against a majority of pathogenic micro-organisms. In-vitro pharmacology studies have shown that hydrogen peroxide has both activity against a wide variety of micro-organisms and is a potent antibacterial agent with effect against Gram-positive as well as Gram-negative bacteria. In-vitro studies have shown that the bactericidal activity of Crystacide cream 1% is equal in effect compared with a 1% aqueous solution of hydrogen peroxide, and the duration of action is longer for the cream.<sup>4</sup>

There are no known pathogenic bacteria or fungi that develop resistance to hydrogen peroxide.<sup>4</sup>

## Evidence of effectiveness

The evidence of effectiveness for hydrogen peroxide 1% cream considered in NG153 came from a systematic review comparing topical fusidic acid 2% with hydrogen peroxide 1% cream.<sup>5,6</sup> The review found that topical fusidic acid (2% applied two to three times a day for up to 21 days) was not significantly different to hydrogen peroxide cream (1% applied two to three times a day for up to 21 days) in children with impetigo for cure or improvement (follow-up not reported; 1 RCT, n=256, 82.0% versus 71.9%, RR 1.14, 95% CI 1.00 to 1.31; moderate quality evidence). There was no significant difference between topical fusidic acid and hydrogen peroxide in the number of children experiencing adverse events leading to withdrawal (1 RCT, n=256, 2.3% versus 0%, RR 7.00, 95% CI 0.37 to 134.16; low quality evidence) or the number of children with mild side effects (1 RCT, n=256, 7.0% versus 10.2%, RR 0.69, 95% CI 0.31 to 1.56; low quality evidence).<sup>5,6</sup>

The authors of the randomised controlled trial (RCT) state that development of bacterial resistance is an increasing problem and is a well-known phenomenon when using topical antibiotics. They argue that hydrogen peroxide does not give rise to resistant bacteria and so is a valuable alternative to topical antibiotics.<sup>6</sup>

## Over the counter (OTC) and self-care considerations

Crystacide cream 1% is classified as a pharmacy medicine and so can be sold to the public under the supervision of a pharmacist. The retail price is listed in the Chemist & Druggist as £14.25 for 25g.<sup>7</sup> The manufacturer has advised that the retail price in pharmacies varies from £12 to £13 for a 25g tube, to £16 to £18 for a 40g tube.<sup>3</sup>

These prices are higher than the current NHS prescription charge and so may discourage patients from purchasing the product. Children receive free NHS prescriptions and so

parents may be reluctant to purchase OTC. This could lead to patients seeking prescriptions for antimicrobial treatments instead. NG153 states that impetigo is not a condition that people manage at home with self-care treatments.<sup>8</sup>

Given the risk of spreading the impetigo infection if left untreated and the high retail price which may be prohibitive for people from lower socio-economic groups, hydrogen peroxide 1% cream may be prescribed on NHS prescription to overcome these issues.<sup>8</sup> A patient leaflet on impetigo and management with hydrogen peroxide 1% cream should be issued to patients to help explain how to care for their impetigo. Attachment 1 is a patient information leaflet which may given to patients or adapted for local use. Where patients, parents or carers would prefer to purchase hydrogen peroxide 1% cream OTC this can also be supported. Community pharmacists can provide information on how to use the product.

### Usage and costs

The current hydrogen peroxide 1% cream usage across England and Wales is (NHSBSA Dec 2018 – Nov 2019):

- Total items: -7,378 per year
- Total cost: -£72,620 per year

Table 1 compares the cost of hydrogen peroxide 1% cream with alternative topical antibiotics recommended in NG153.

**Table 1. Cost comparisons of topical treatments for impetigo**

Product	Pack size	NHS Cost <sup>7,9</sup>
Hydrogen peroxide 1% cream (Crystacide)	25g	£8.07
	40g	£11.62
Fusidic acid 2% cream	15g	£2.33
	30g	£4.66
Mupirocin 2% cream or ointment (Bactroban)	30g	£5.26

Use is likely to increase due to inclusion in NG153.<sup>1</sup> NG153 resource implications states that the incremental cost of hydrogen peroxide 1% cream is estimated to be around £3.50 more per person, when compared with current treatment options for people with localised non-bullous impetigo who are not systemically unwell or at risk of complications.<sup>10</sup> NICE expect the population that will be eligible for this treatment will not be greater than around 125,000 people per year, with the biggest incidence occurring in children.<sup>10</sup> This equates to £437,500 per year or £705 per 100,000 population.

## References

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