



Mum & Baby Academy | Child Health Academy

This CPD module can be used by Midwives and Health Visitors

CLINICAL REVIEW:

Laundering fabrics that touch a baby's skin

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Reviewed by: **The British Skin Foundation**



Learning Objectives

After reading this module and completing the online assessment, you should:

- be aware of guidelines for effective laundering
- appreciate which laundry products are most suitable for sensitive skin
- gain confidence in advising parents how to launder baby clothes and other fabrics.



Questions

Visit our website to test your knowledge.

Our questions cover:

- effective laundering methods
- laundry detergents
- laundering guidelines.

This learning module can be used towards CPD for revalidation with the Nursing and Midwifery Council (NMC).



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Laundering fabrics that touch a baby's skin

The NHS advise using only plain water to clean a baby's delicate skin in the first month.¹ But what about the clothes, nappies and other fabrics that touch a baby's skin? Does it matter how parents launder these items and which products they use?

Ideally, fabrics that touch a baby's skin should be:

- soft to touch
- free from materials and residues that irritate skin and trigger allergic reactions
- visibly clean – not just for aesthetic reasons; dirt and stains can harbour microbes
- hygienically clean – where there is a risk of contamination, an effective laundering process is required to destroy potentially harmful microbes and reduce the risk of transmission.

This module explores how best to achieve this and will give healthcare professionals more confidence in advising parents how to launder their baby's things.

Babies are vulnerable to contact dermatitis

Contact dermatitis (irritant and allergic) is an inflammatory skin condition triggered by contact with a particular substance (e.g. fragrances, preservatives, dyes). The skin can become itchy, red, blistered, dry, and even crack. This reaction can occur within a few hours or up to a few days after exposure, and can be really uncomfortable. Fabric rubbing against skin, heat and humidity can make it worse.

Baby skin is thinner, has a higher pH and tends to lose moisture faster than an adult's,² which makes it more vulnerable to contact dermatitis. Those who have atopic eczema, in which the skin's barrier function is impaired, are particularly susceptible.

The best way to prevent contact dermatitis is to avoid contact with the irritants or allergens that cause the symptoms. If a baby does develop symptoms, you should encourage parents to consult a doctor who will help pinpoint the cause and prevent a recurrence, but knowing which fabrics and products can trigger reactions may help parents avoid problems in the first place.

Sensitive skin can react to some fabrics

Rough fibres (e.g. coarse wool, rough seams or edges) can cause irritant contact dermatitis. It is rare for clothing fibres to cause allergic reactions, though nickel (e.g. from metal stud fasteners) and elastic can.³ Allergic reactions more often result from the formaldehyde finishing resins, flame retardants, textile dyes, glues, additives and tanning agents used in processing fabrics.³ To reduce the risk of reactions, you should encourage parents to:

- Choose smooth, natural fibres such as cotton.
- Avoid putting rough fibres, elastic or nickel next to skin.
- Pre-wash fabrics to remove excess dye and processing chemicals.
- Use gentle wash cycles and add a fabric conditioner to the rinse cycle to help keep fibres smooth and clothes soft.

Laundry detergents

The cleaning action of laundry detergents is primarily achieved through the action of enzymes and/or oxygen-based bleaching agents which remove stains, together with surfactants and other ingredients which lift and suspend dirt so it can be rinsed away.

There are two main types: biological and non-biological. The key difference is that biological detergents contain enzymes, whereas non-biological detergents do not. Enzymes are proteins which bind to specific molecules to help break them down. They include:

- proteolytic enzymes which eliminate protein stains (e.g. blood, egg, milk, vomit, faeces)
- amylases that break down starchy stains (e.g. potato, pasta)
- lipases that digest oil, fat and grease.

Most enzymes only function in a particular temperature and pH range. To achieve optimal enzymatic cleaning, biological detergents are best used at low washing temperatures (30-50°C).

Some detergents contain an oxygen-based bleaching agent, such as percarbonate, and an activator such as tetra-acetyl-ethylene-diamine (TAED). When dissolved, this releases hydrogen peroxide and generates peracetic acid, which oxidises stains and helps keep white items white. It can also inactivate germs. If a detergent contains a bleaching agent, 'oxygen-based bleaching agent' is shown on the label. In general, detergent powders and tablets contain bleaching agents, whilst liquids and products for coloured fabrics do not.

Laundry detergents for sensitive skin

Patch testing on skin of healthy volunteers is commonly used to demonstrate the expected safety profile of laundry products during normal use. Product safety has to be rigorously tested and clear labelling is mandatory under European Classification, Labelling and Packaging (CLP) Regulation (EC) No. 1272/2008. You should encourage parents to read product labels so that they understand any potential hazards and use products safely. Contact with some ingredients can cause irritation and allergic reactions, so parents should always keep them out of reach of children. However, reactions to laundry detergent residues on laundered fabrics appear to be relatively rare.⁴



ABOUT THE HEALTH PROFESSIONAL ACADEMY

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All our online CPD modules are developed in partnership with a team of leading academics, so you can be sure the module you've chosen is credible, referenced and up to date. All information by HPA is in line with guidance from the NHS, NICE and Royal Colleges, as well as Unicef's Baby Friendly Initiative.

HEALTH PROFESSIONAL ACADEMY TEAM

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CONTACT US

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If there is a known sensitivity, you can advise parents to check products for the presence of those particular irritants or allergens. The names of any of 26 known allergenic fragrances listed in the Cosmetics Products Regulation (EC) No. 1223/2009, such as citral, d-limonene and linalool, must be included on the product label (if present at >0.01% by weight or at a replacement limit). Any enzymes, disinfectants, optical brighteners and preservatives, which may cause reactions, must also be listed.

Parents can reduce the risk of a reaction, simply by substituting products containing known allergens and irritants. Parents should look for products marketed as being 'gentle on skin' or 'suitable for sensitive skin'. Manufacturers make these especially mild by omitting strong fragrances and optical brighteners. 'Hypoallergenic' products are free from common allergens, including fragrances, and are therefore less likely to pose a risk to sensitive skin. To reduce the risk of a reaction, advise parents to:

- Choose products that are 'hypoallergenic' or 'gentle on skin'.
- Read labels carefully and use products as directed.
- Be aware that extra detergent won't clean fabrics any better but risks leaving residues that may cause a reaction.
- Use sufficient rinsing to wash detergent away properly.
- Wash and dry hands thoroughly after handling laundry.

Hygienic laundering methods

We can destroy germs on baby clothes and other fabrics using a combination of:

- **Heat inactivation** - Generally, higher temperatures destroy more germs and most common pathogens, including *Staphylococcus aureus* are killed by temperatures over 60°C. This temperature also kills house dust mites. However, some fabrics require cooler washes to keep them in good condition, and parents may prefer low temperatures to save energy.
- **Chemical disinfection** - Detergents help loosen dirt and germs, but you need a detergent containing an oxygen-based bleaching agent, sodium hypochlorite (household bleach), or another antimicrobial pre-wash or rinse aid (laundry sanitiser) to kill germs, especially when laundering at low temperatures.

- **Mechanical action** - Thorough agitation and rinsing is important and machines should not be overloaded. Detergent and water need to circulate so they can carry away the dirt and germs.
- **Drying laundry promptly** - Sunlight, tumble-drying at 40°C or more, and ironing help destroy any germs that survive laundering. Sunlight also bleaches stains.

Laundering in healthcare facilities

'Hospital laundry arrangements for used and infected linen HSG(95)18' remains the most up to date laundering guidance for hospitals and other healthcare facilities.⁵ To minimise cross-infection risks, this advises a hot machine wash which reaches 65°C for not less than 10 minutes, or 71°C for not less than 3 minutes. Hospitals should avoid using heat-labile fabrics, but if a lower temperature wash is necessary, the guidance recommends achieving disinfection by adding sodium hypochlorite to the penultimate rinse.

Laundering facilities should be available in neonatal care units. The Department of Health advise that, 'a laundry room is required, located in the parents' communal area, for washing and drying baby clothes.'⁶ However, do make parents aware that maternity units don't usually provide laundering facilities, and that soiled items will be sealed in leak-proof bags to take home.

Hygienic laundering at home

The International Scientific Forum on Home Hygiene (IFH) provide advice about the infection risks associated with domestic laundry and guidance on the appropriate laundering methods to address these risks (see **Table 1**).⁷ To be effective, IFH advise using standard wash cycles with at least two, and preferably three rinse cycles, and not overloading machines. You should encourage parents to follow this advice.

Laundering nappies

Commercial services supplying NHS maternity wards with laundered cloth nappies must comply with HSG(95)18.⁵ Parents should ideally launder nappies using a hot machine wash (at least 60°C) and detergent containing an oxygen-based bleaching agent.^{7,8}

Table 1. Laundering methods to reduce cross-infection risks at home

Risk	Fabric	Effective laundering method*
High	Heavily contaminated items (e.g. items soiled with blood or body fluids, nappies, pet bedding, kitchen cloths).	Machine-wash at 60°C or more using detergent containing an oxygen-based bleaching agent.
	Fabrics used by an infectious person or someone more vulnerable.	Launder nappies and other soiled items as a separate load. Launder items used around food (e.g. tea towels) separately.
Medium	Fabrics that have extensive skin contact, such as baby grows, socks, underwear, towels, washcloths, bed/cot linen, soft toys (unless they meet high risk criteria).	Machine-wash at 30 to 40°C using detergent containing an oxygen-based bleaching agent.
Low	Other fabrics, e.g. outerwear, soft furnishings, table linen (unless they meet higher risk criteria).	Laundering at 30°C with any suitable laundry detergent is sufficient.

*Check care labels. It may not be possible to launder some fabrics at high temperatures or use a bleach-based detergent. In this case, pre-wash by soaking in cold water with suitable detergent, then launder according to the care label. Use an antimicrobial pre-wash or rinse aid/sanitiser to help destroy germs. For items that are not bleach-sensitive, sodium hypochlorite may be added to the final rinse cycle.

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