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# Dental Local Anaesthetics and Latex: Advice for the Dental Practitioner

**Abstract:** Natural rubber latex (NRL) is present in many medical products, including disposable gloves, adhesive tape and bungs in medicine vials. People sensitized to NRL are at risk of developing allergic reactions, which can present with delayed symptoms such as a localized red itchy rash, or with immediate symptoms such as itching of the skin and eyes, sneezing, bronchospasm or anaphylactic shock. People sensitized to NRL should avoid contact with all products that contain it, either in the product itself, in the packaging or introduced during the manufacturing process or storage. This paper highlights the implications of latex allergy in patients for dental healthcare staff, and provides a list of local anaesthetic preparations used in dentistry in the UK which are latex free.

**Clinical Relevance:** All dental staff need to be aware of latex allergy and know where to find information on latex content of dental local anaesthetics.

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Natural rubber latex (NRL) is a strong, flexible, hard-wearing and protective material used to make many medical products, including disposable gloves, adhesive tape, bandages, dental dams, bungs in medicine vials, syringes and venepuncture-related equipment.<sup>1,2</sup>

Between 1% and 6% of the general population are potentially sensitized to proteins in NRL and at risk of developing an allergic reaction after contact or after inhaling powder containing NRL.<sup>3,4</sup> Allergic reactions to NRL include a type IV reaction, resulting in a red itchy rash in the area in contact with NRL that can become widespread or, less commonly, a type I reaction presenting as immediate hypersensitivity with itching of the skin and eyes, sneezing, bronchospasm or anaphylactic shock.<sup>2,3</sup> Type I reactions occur immediately after exposure to NRL in sensitized individuals and can be life-threatening; type IV reactions usually

occur 6–48 hours after exposure and may be in response to chemicals used in the rubber manufacturing process, rather than NRL itself.<sup>3</sup> NRL can also cause irritant contact dermatitis, but this is not a true allergy.<sup>3</sup>

People sensitized to NRL should avoid contact with all products containing NRL.<sup>1,4–7</sup> Contact between NRL and a mucosal surface (such as mouth and nose) causes a more severe reaction than contact with intact skin.<sup>4,6</sup> Unfortunately, most products are not labelled to warn that they contain NRL.<sup>1</sup> Natural rubber latex may be found in the product itself, in the packaging, or be introduced during the manufacturing process (for example, through contact with powdered latex gloves worn to ensure sterility of the product) or storage.

The UK Medicines Information Service has produced a document which lists local anaesthetic preparations used in dentistry in the UK and their latex content. The document will be updated annually and can be viewed on their website ([www.nelm.nhs.uk/en/NeLM-Area/Evidence/Medicines-Q--A/Which-dental-local-anaesthetics-are-latex-free/](http://www.nelm.nhs.uk/en/NeLM-Area/Evidence/Medicines-Q--A/Which-dental-local-anaesthetics-are-latex-free/)). There are two tables. The first table lists products that are latex-free – there is no latex in the product or packaging, and the product

has not been in contact with latex during the manufacturing process (Table 1). The second table lists products that contain latex (red highlighting), or may contain latex (orange highlighting) because, although the products and/or packaging do not contain latex, they cannot be guaranteed to have been free of contact with latex during manufacture or storage (Table 2).

## References

1. Latex Allergy Support Group. *About NRL (Natural Rubber Latex)*. Available at [www.lasg.org.uk/information/about-nrl-natural-rubber-latex](http://www.lasg.org.uk/information/about-nrl-natural-rubber-latex) (accessed 16/12/2011).
2. NHS Plus, Royal College of Physicians, Faculty of Occupational Medicine. *Latex Allergy: Occupational Aspects of Management. A National Guideline*. London: RCP, 2008. Available at [www.nhsplus.nhs.uk/providers/images/library/files/guidelines/Latex\\_allergy\\_guidelines.pdf](http://www.nhsplus.nhs.uk/providers/images/library/files/guidelines/Latex_allergy_guidelines.pdf) (accessed 15/12/2011).
3. Latex Allergy Support Group. *NRL (Natural Rubber Latex) Allergy*. Available at [www.lasg.org.uk/information/nrl-natural-rubber-latex-allergy](http://www.lasg.org.uk/information/nrl-natural-rubber-latex-allergy) (accessed

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Brand name	Ingredients	Presentation	Company	Ref
<b>Articaine</b>				
Artikent	Articaine 4% with adrenaline 1:100,000	2.2 mL cartridge	Kent Express	8
Bartinest	Articaine 4% with adrenaline 1:100,000	2.2 mL cartridge	Dental Directory	8
Espestesin	Articaine 4% with adrenaline 1:100,000	1.8 mL cartridge	3M ESPE AG	9
	Articaine 4% with adrenaline 1:200,000	1.8 mL cartridge		9
Isonest	Articaine 4% with adrenaline 1:100,000	2.2 mL cartridge	Henry Schein	8
Septanest	Articaine 4% with adrenaline 1:100,000	2.2 mL cartridge	Septodont	8
	Articaine 4% with adrenaline 1:200,000	2.2 mL cartridge		8
<b>Lidocaine</b>				
Eurocaine	Lidocaine 2% with adrenaline 1:80,000	2.2 mL cartridge	Septodont	8
Lignokent	Lidocaine 2% with adrenaline 1:80,000	2.2 mL cartridge	Kent Express	8
Lignospan Special	Lidocaine 2% with adrenaline 1:80,000	1.8 and 2.2 mL cartridge	Septodont	8
Rexocaine	Lidocaine 2% with adrenaline 1:80,000	2.2 mL cartridge	Henry Schein	8
Utilycaine	Lidocaine 2% with adrenaline 1:80,000	2.2 mL cartridge	Dental Directory	8
Oraqix periodontal gel	Lidocaine 2.5% and prilocaine 2.5%	25 g tube	Dentsply	10
Xylonor gel	Lidocaine 5%	15 g tube	Septodont	8
Xylonor spray	Lidocaine 10% spray	36 g bottle		8
<b>Mepivacaine</b>				
Scandonest Special	Mepivacaine 2% and adrenaline 1:100,000	2.2 mL cartridge	Septodont	8
Scandonest Plain	Mepivacaine 3%	2.2 mL cartridge		8
<b>Prilocaine</b>				
Citanest with Octapressin	Prilocaine 3% and felypressin 0.03 units/mL	2.2 mL standard and 2.2 mL self-aspirating cartridge	Dentsply	10

**Table 1.** Latex-free dental local anaesthetics.

These products are latex-free – there is no latex in the product or packaging, and the product has not been in contact with latex during manufacture.

Brand name	Ingredients	Presentation	Company	Ref
<b>Lidocaine</b>				
Xylocaine*	Lidocaine 2% with adrenaline 1:80,000	2.2 mL standard and 2.2 mL self-aspirating cartridge	Dentsply	10
Emla cream	Lidocaine 2.5% and prilocaine 2.5%	5 g tube (with or without dressings)	AstraZeneca	11
Xylocaine spray	Lidocaine 10% spray	50 mL bottle		11
<b>Tetracaine</b>				
Ametop gel	Tetracaine 4%	1.5 g tube	Smith & Nephew Healthcare	12

**Table 2.** Dental local anaesthetics which are *not* latex-free.

These products contain latex (red highlighting) or *may* contain latex because, although the products and/or packaging do not contain latex, they cannot be guaranteed to have been free of contact with latex during manufacture (orange highlighting).

\*The product has not been tested for presence of latex – it is assumed, therefore, to contain latex.

- 16/12/2011).
4. Allergy UK. *Latex Rubber Allergy*. August 2009. Available at [www.allergyuk.org/fs\\_rubberlatex.aspx](http://www.allergyuk.org/fs_rubberlatex.aspx) (accessed 6/01/2012).
  5. British Dental Association. *Hand Dermatitis and Latex Allergy*. Fact file. May 2008. Available at [www.bda.org/Images/hand\\_dermatitis\\_factfile.pdf](http://www.bda.org/Images/hand_dermatitis_factfile.pdf) (accessed 16/12/2011).
  6. Latex Allergy Support Group. *Patient Information Sheet: Latex Allergy*. Available at [www.lasg.org.uk/\\_common/\\_core/server/svr-download.asp?file=/ftp/resource-downloads/Latex-Allergy-Patient-Information-Leaflet.pdf](http://www.lasg.org.uk/_common/_core/server/svr-download.asp?file=/ftp/resource-downloads/Latex-Allergy-Patient-Information-Leaflet.pdf) (accessed 16/12/2011).
  7. British Association of Dermatologists. Patient information gateway leaflets – *How to Prevent an Allergic Reaction*. Available via <http://www.bad.org.uk/site/1040/default.aspx> (accessed 4/01/2012).
  8. Personal communication. Septodont. 16/12/2011 and 11/01/2012.
  9. Personal communication. 3M ESPE AG. 4/01/2012 and 12/01/2012.
  10. Personal communication. Dentsply. 19/12/2011 and 11/01/2012.
  11. Personal communication. AstraZeneca. 19/12/2011 and 11/01/2012.
  12. Personal communication. Smith & Nephew Healthcare. 19/12/2011 and 31/01/12.
  13. British Association of Dermatologists. Patient information gateway leaflets – *Latex Allergy. What is Latex Allergy?* Available via [www.bad.org.uk/site/1031/default.aspx](http://www.bad.org.uk/site/1031/default.aspx) (accessed 16/12/2011).
  14. British Association of Dermatologists. Patient information gateway leaflets – *Latex Allergy. Glossary*. Available via [www.bad.org.uk/site/1030/default.aspx](http://www.bad.org.uk/site/1030/default.aspx) (accessed 16/12/2011).

## Glossary of terms<sup>1,2,13,14</sup>

### Allergen

Substance that causes the immune system to overreact.

### Allergy

Excessive immune system response to a substance that is normally harmless.

### Latex

Common name for 'natural rubber latex'.

### Latex allergy

Allergy to proteins in natural rubber latex.

### Latex-free

Contains no natural rubber latex proteins.

### Latex-safe

Term used to describe an environment that minimizes the risk of a reaction occurring in sensitized or allergic individuals. This is achieved by removing natural rubber latex products most likely to cause a reaction.

### Natural rubber

Type of rubber made from natural rubber latex.

### Natural rubber latex (NRL)

Name given to the milky liquid or 'sap' that comes from the rubber tree, *Hevea brasiliensis*, grown mainly in Thailand and Malaysia.

### Rubber chemical allergy

Allergy to chemicals used in the manufacture of natural and synthetic rubber.

### Synthetic rubber

Type of rubber made from petroleum, coal, oil, natural gas or acetylene. It contains no plant protein and therefore does not cause latex allergy.

### Type I allergy

Immediate hypersensitivity reaction

characterized by urticaria, conjunctivitis, rhinitis, bronchospasm and, occasionally, life-threatening anaphylaxis. It is mediated by immunoglobulin E (IgE) antibodies in sensitized individuals.

### Type IV allergy

Allergy characterized by an eczematous rash often developing 6–48 hours after exposure; it may be due to latex proteins or chemical residues used in latex processing. It is mediated by T-lymphocytes.

## Sources of information on latex allergy

### General information

Allergy UK

[www.allergyuk.org/fs\\_rubberlatex.aspx](http://www.allergyuk.org/fs_rubberlatex.aspx)

British Association of Dermatologists

[www.bad.org.uk/site/1029/default.aspx](http://www.bad.org.uk/site/1029/default.aspx)

Health and Safety Executive

[www.hse.gov.uk/skin/employ/latex.htm](http://www.hse.gov.uk/skin/employ/latex.htm)

[www.hse.gov.uk/pubns/indg320.pdf](http://www.hse.gov.uk/pubns/indg320.pdf)

Latex Allergy Support Group

[www.lasg.org.uk](http://www.lasg.org.uk)

National Patient Safety Agency

[www.nrls.npsa.nhs.uk/resources/?entryid45=59791](http://www.nrls.npsa.nhs.uk/resources/?entryid45=59791)

### For dental practice

British Dental Association

[www.bda.org/Images/hand\\_dermatitis\\_factfile.pdf](http://www.bda.org/Images/hand_dermatitis_factfile.pdf) (BDA members only)

Latex Allergy Support Group

[www.lasg.org.uk/guidance/dental-practice](http://www.lasg.org.uk/guidance/dental-practice)

## Abstract

### HOW DO YOU REMOVE THOSE UNAESTHETIC AMALGAM STAINS?

Modified Technique for Vital Bleaching of Teeth Pigmented by Amalgam: A Case Report. Calazans FS, Dias KRHC, Miranda MS *Operative Dentistry* 2011; **36**: 678–682.

Patients frequently complain about the appearance of upper premolars which are badly stained following the placement of a large amalgam restoration. In the absence of any recurrent caries it can be difficult to justify removing the sound but stained tooth tissue and further compromising the tooth. In the past patients have even requested a

full coverage crown be placed on this already weakened tooth.

This interesting paper describes a very simple technique which, if it has not been considered previously, may form a useful part of a clinician's armamentarium. Under local anaesthesia the amalgam was removed to expose the stained tooth tissue. A 35% hydrogen peroxide bleaching gel was then applied to the exposed tooth tissue in three 15 minute increments. Between each application the tooth was washed and dried. A temporary restoration was applied and the bleaching process repeated one week later. Immediately following the second bleaching

a posterior composite restoration was placed conventionally.

The clinical photographs that accompany the article show a significant and very satisfactory result. I was so intrigued that this technique had never occurred to me that I thought it should be disseminated much more widely. It certainly appeared to result in pleasing both the patient and the clinician, who had managed to retain sound tooth tissue intact – surely the aim of all caring dentists!

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