Livewell Southwest

Local Anaesthesia in Podiatric Practice

Version No 3:3

Notice to staff using a paper copy of this guidance

The policies and procedures page of Livewell Southwest's Intranet holds the most recent version of this document and staff must ensure that they are using the most recent guidance.

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	Manager, Plymouth Hospitals Trust. 01st June 2007. 4. Lidocaine Injection 2% w/v Summary of Product Characteristics. (Manufacturer's Product Leaflet). B. Braun Melsungen AG, Last updated: June 2004. 5. Scandonest 3% Plain Solution for Injection (Manufacturer's Product Leaflet). Septodont, Last renewal of authorisation: 22/06/1999 6. GMYREK R., DAHDAH, M., 2007. *Local Anaesthesia and Regional Nerve Block Anaesthesia* [online]. Available from: http://emedicine.com [Accessed 30th April 2007]
Associated documentation	• Equality Impact Assessment tool • Podiatry Services Health and Safety Policy • Podiatry Services COSHH Assessments • Infection Control Manual – Livewell Southwest
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Document review history

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For previous review history please contact the PRG secretary.				
3	Ratified	18/3/10	Policy ratification group	Minor amends.
3.1	Review	February 2012	Podiatry Services Manager (West Locality)	Minor amends to update procedural changes and clinical information
3.2	Review	January 2014	Podiatry Services Manager (West Locality)	Minor amends to update procedural changes and clinical information. Also detail
3.3	Review	January 2016	Podiatry Services Manager	Review of content due

Local Anaesthesia in Podiatric Practice

1 Introduction

1.1 Injectable local anaesthetic drugs are used by Health Professions Council Registered Podiatrists with appropriate annotation, to achieve anaesthesia for certain procedures in the course of their practice.

1.2 However, the use of local anaesthetic drugs is not without risk and its appropriate and safe use is only achieved through robust clinical expertise and knowledge supported by a standardised and high quality approach to the management of drug usage and patient care.

1.3 High quality clinical care includes issues of informed consent and compliance with drug management procedures and legislation amongst others; which this document includes to clearly identify the expected standard of performance from staff.

2 Purpose

2.1 This document details the use of local anaesthetic drug by the Podiatry Service to ensure its appropriate and safe use.

2.2 Original information was produced by the service in part as a response to the "Promoting Safer Use of Injectable Medicines", National Patient Safety Agency, Safety Alert 20, 28th March 2007 and this document now formalises this and other "guidance".

It is intended that the information in this document will:

- support staff in their clinical practice to make informed choices based on best practice and current evidence
- ensure patient safety and a high level of patient satisfaction with the care they receive
- ensure staff safety when using injectable drugs
- support the Podiatry Service's quality agenda

3 Duties

3.1 Executive accountability for the implementation of this policy lies with the Chief Executive of Livewell Southwest.

3.2 Locality Managers/ Assistant Locality Managers have an overall responsibility in supporting Podiatry Service Managers/Clinical Lead to implement this protocol.

3.3 The Podiatry Clinical Lead will be responsible for the implementation and monitoring of this protocol.

3.4 This document applies to all Podiatrists and Podiatry Assistants employed by the Podiatry Service of Livewell Southwest

3.5 The use of local anaesthetic drugs by the academic staff and students of the University of Plymouth's Podiatry Programme working under honorary contracts within Livewell Southwest is also governed by this and allied policies. The Head of the Podiatry Programme will be jointly responsible for the implementation of this document and ultimately the compliance of academic staff and students.

3.6 Qualified staff (HPC Registered Podiatrists) will retain responsibility and accountability for the actions of students under their supervision.

3.7 The terms "staff" and "podiatrist(s)" are used in this document to encompass all those individuals detailed in paragraphs 3.2 and 3.3. All such persons are responsible for engaging with and implementing the content of this document in their clinical practice.

4 Definitions

Abbreviations:

HCPC Health and Care Professions Council.

Local Anaesthetic: A drug, usually given by injection, that eliminates pain, though not necessarily all sensation, in a particular area of the body without affecting consciousness.

5 Use of Local Anaesthetic Drugs by Podiatry Services

5.1 The Service primarily uses injectable local anaesthesia to undertake non-invasive minor surgical procedures such as nail avulsions and blunt dissection. There is occasional need for the (conservative) treatment of painful conditions under local anaesthesia that are by their nature not classed as surgical interventions.

5.2 The use of local anaesthesia drugs is limited to the Mount Gould Local Care Centre, where suitable emergency equipment and care is more easily accessible.

5.3 In very exceptional circumstances where the clinical need and benefits to an individual patient outweighs the potential risks and this precautionary practice, local anaesthesia may be used in the community.

5.4 Where local anaesthesia is used in the community two members of staff are required to attend. However, every alternative must be considered in risk assessing the circumstances to avoid the use of local anaesthesia in domiciliary and community clinic settings wherever possible.

5.5 Authorisation to use local anaesthesia in the community must be sought from Service Management following a formal risk assessment and this must be recorded in the patient's podiatry record.

6. Training

6.1 Professional Standards

- All Livewell Southwest Podiatrists are registered with the Health and Care Professions Council (HCPC) and only those who have annotated registration permitting them to use the injectable local anaesthesia drugs detailed in current legislation may do so.

- Livewell Southwest requires that staff keep abreast of professional developments and keep their skills and knowledge up-to-date. Likewise, all Podiatrists have a duty to retain and update their skills and knowledge in line with the requirements of the HCPC in order to retain their registration, which is a requirement of continued employment.

- The profession body, The Society of Chiropodists and Podiatrists requires members to retain and update their skills and knowledge in line with their requirements for Continual Professional Development but membership of this body is not a prerequisite for employment by Livewell Southwest.

- Staff who identify a training or learning need for themselves must discuss this with their line-manager to ensure a development plan is established and enacted and is not limited to the scope of the appraisal process.

6.2 Training Sources

- Identified training needs (as through the appraisal process and audit etc) will be appropriately sourced as befits the needs of the individual. Where possible individual and/or en masse training and updates will be sought from internal sources and trainers as provided by Professional Training and Development.

6.3 Basic Life Support & Medical Emergencies

- All clinical staff are trained in Basic Life Support as dictated by the Livewell Southwest's Mandatory Training Schedule. Staff are not trained or expected to provide medical interventions in these situations other than that to sustain life until appropriate medical assistance can intervene.

6.4 Anaphylaxis

- All staff administering local anaesthesia or working in support of such staff will have attended the organisation's mandatory Anaphylaxis training and will be able to diagnose and initially treat the condition whilst waiting for emergency medical assistance.

6.5 Oxygen

- Oxygen will be available at the Mount Gould Local Care Centre for appropriate administration in the event of a clinical emergency and all staff will be trained and cognisant of its use and that of the related equipment via the Mandatory Training programme.

6.6 Blood Pressure Equipment and Monitoring

- All staff will be competent in the use of equipment for measuring blood pressure.

6.7 Podiatry Undergraduate Students & Academics

- The University of Plymouth retains the responsibility for ensuring that students and academic staff undertake the necessary training to comply with the requirements and training detailed above. The Podiatry Programme Lead will be responsible for ensuring this requirement is met and provide evidence of this to Livewell Southwest on request.

7 Choice of Local Anaesthesia Drugs Used by the Podiatry Service

7.1 The Podiatry Service uses only Mepivacaine Hydrochloride 3% plain solution, (Scandonest) for all patients aged four and over. This an amide type anaesthetic which is a ready-to-use product and thus does not require diluting, mixing or concentrating prior to administration.

7.2 Mepivacaine Hydrochloride 3% Plain Solution (PoM) (Scandonest) is supplied in 2.2ml dental cartridge form. The product is only licensed for use by Podiatrists in dental cartridge form and for adult patients. An adult must be defined as a person over the age of 18 years for legal rather than pharmacological purposes.

7.3 This has caused historical difficulties for the service with regard to children and young people and an alternative less effective drug the administration of which also did not comply with new EU “safer-sharps” legislation, was previously employed.

7.4 Approval of Mepivacaine for use in Children by Podiatrists
As of 2nd August 2013, the Medicines Governance Group (MGG) of Livewell Southwest (formerly Plymouth Community Healthcare CIC), confirmed the use by Podiatrists of Scandonest in children and young people aged four and over, in accordance with the completed request form for unlicensed medicines.

7.5 The administration of Mepivacaine Hydrochloride 3% Plain solution (Scandonest) should always take place at the Mount Gould Local Care Centre or other venue where there is immediate access to resuscitation facilities. The preparation must be used only in strict accordance with all other aspects of the

Summary of Product Characteristics (SPC). See Appendix A – note the reference to Livewell Southwest's preceding organisation, Plymouth Community Healthcare CIC.

7.6 The relevant authorising documentation is held by Livewell Southwest and the Podiatry Service.

8 Technical Information

8.1 Printed, current copies of the following information will be available for immediate reference by staff at the Minor Surgery Room, Out-patients Department, Mount Gould Local Care Centre:

- Product data sheets supplied by the manufacturers with each anaesthetic drug
- Weight conversion charts (kilograms to pounds and stones and visa-versa)
- Printed copies of the formula for the calculation of safe dosages and volumes
- Recommended dosage schedules for each drug as supplied by the manufacturer
- A current printed copy of this document
- An Inoculation Injury Pack
- ALERT Flow-chart procedures for the management of clinical emergencies.

9 Assessment and Consent

9.1 All patients requiring local anaesthesia will be assessed for clinical suitability prior to administration and staff must ensure the patient is informed of the reasons for the use of local anaesthesia and understands the benefits, risks and alternatives to its use in order for consent to be considered informed. Further information regarding consent can be found in the current Livewell Southwest and Podiatry Services policies.

9.2 These factors and a completed consent form must be recorded in the patient's notes.

9.3 Patients who require local anaesthesia for non-surgical procedures will also sign a consent form as evidence of their informed consent.

9.4 Those patients requiring minor surgical procedures such as a nail avulsion will be assessed fully - including their suitability to receive local anaesthesia. The patient will sign a consent form, which will include details of any anaesthesia to be used.

9.5 Where patients have been assessed and consent obtained prior to attending for treatment/anaesthesia, the administering Podiatrist will confirm the patient's suitability and make note of this and/or any changes on the appropriate form at the time. Consent must also be confirmed and this recorded.

9.6 Where there is any doubt as to the suitability of the patient to receive a local anaesthetic or surgery, treatment will be deferred and advice sought from an appropriate source such as the Pharmacy Lead for Livewell Southwest, the patient's General Practitioner, Consultant or Medicines Information at Plymouth Hospitals Trusts.

10 Local Anaesthetic use in Early Pregnancy and with Nursing Mothers

10.1 Staff are advised to avoid where possible administering local anaesthetic during pregnancy and without exception to avoid its use during the first trimester. The reasoning is reflected in the literature but which contains little definitive information.

10.2 Patients requiring anaesthesia during the first trimester of pregnancy and whilst breast feeding whose care cannot be deferred to a later date should have their case referred via their General Practitioner to secondary care and the involvement of a Consultant Anaesthetist.

10.3 It is not known whether local anaesthetics are excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Mepivacaine is administered to a nursing mother. In this situation the patient should be advised of the unknown situation and to refrain from breast feeding for 24-48 hours post-administration. Some mother's may wish to express milk in advance to cover this period. Advising the individual to consult their Health Visitor regarding the expression and storage of milk.

10.4 Mepivacaine Hydrochloride

10.4.1 "On the basis of long usage, anaesthetics of the Mepivacaine type are considered to be reasonably safe for use in pregnant women…..caution should be taken during early pregnancy", and, "to nursing women".[5] No more specific information is provided by the manufacturer.

10.4.2 Retrospective studies of pregnant women receiving local anaesthetics for emergency surgery early in pregnancy have not shown that local anaesthetics cause birth defects.

10.4.3 However, no controlled studies have been carried out in pregnant women. Moreover, no animal reproduction studies have been performed with Mepivacaine. Therefore, caution should be taken before administering this anaesthetic during early pregnancy.

11 Local Anaesthetic use in Children Under Four Years of Age

11.1 Staff are instructed to avoid the administration of Scandonest in children under four years of age. Such patients should be referred to secondary care via their GP.

12 Maximum Dose Guide

12.1 An individual patient's Maximum Safe Dose (MSD) in any 24hour period is calculated as:

Patient Weight in kilograms x Maximum Safe Dose of the Drug per kilogram

12.2 Maximum Safe Volume is calculated as:

$$\frac{\text{Patient MSD}}{(\%\ \text{concentration of drug} \times 10)}$$

12.3 For the purposes of administering doses of local anaesthetic a more accurate guideline is to relate the dosage in mg of the agent to kg of the patient's body weight. This takes account of variations in the size of patients and should be a principal consideration when assessing patients of small physique.

13 Local Anaesthetic Drug Posology

13.1 Mepivacaine Hydrochloride:

Adults
In Podiatric Practice in adults: 2.2 to 4 ml using no more than 4.4ml per digit.[5]

Do not exceed 6mg per kilogram of body weight in any twenty-four hour period. [5] For an adult at a maximum 70kg using 3% Plain Solution the maximum dose is 14.0mls per 24hours.

13.2 Children Aged 4 Years and Over:

As above for Adults **but with a maximum dose of 0.1ml / kg.**

14 Administration of Local Anaesthesia

14.1 All staff will follow standard practice for the safe handling of sharps following current applicable Livewell Southwest policy and procedures. The Service only uses a disposable handle and needle system with a safeguard needle sheath and which complies with the current EU "safer sharps" legislation: Health and Safety (Sharps Instruments in Healthcare) Regulations 2013 - specifically Regulations 5 (1) (b) and (d) - use safe sharps (incorporating protection mechanisms) where it is reasonably practicable to do so) and place secure containers and instructions for safe disposal of medical sharps respectively.

14.2 In the event of an inoculation injury staff will follow current Livewell Southwest procedure as detailed in the Infection Control Policy Manual; copies of the process and associated paperwork are supplied in all clinical areas used by the Service.

14.3 Only Podiatrists are permitted to administer local anaesthesia. Podiatry Assistants may prepare Mepivacaine for use under the supervision of the responsible Podiatrist with the administering Podiatrist retaining responsibility.

14.4 The administering Podiatrist is responsible for checking the integrity of the product packaging and content, expiration dates and that the correct drug is being used.

14.5 Strict aseptic conditions will be observed and only the correct equipment as supplied will be used in the preparation and administration of local anaesthesia.

14.6 The patient's blood pressure will be recorded prior to the administration of local anaesthesia for use as a baseline measurement. [7]

14.7 When using a digital (ring) nerve block ensure the needle is kept moving during administration. However, repeated aspiration attempts should be made during administration[5] for other sites such as when using a Posterior Tibial Nerve Block.

14.8 The minimum dose possible to achieve appropriate anaesthesia will be used in all instances.

14.9 The product name, volume, batch number and expiry date of the anaesthesia used will be recorded in the patient's record.

14.10 No more than 4.4mls of anaesthetic per digit will be administered at one time[5]. "The injection of large volumes of anaesthetic to this area [digit] of limited distensibility should be avoided. Vascular compromise and ischemia are reported with the use of large volumes."[6]

14.11 All cartridges and vials are single use and are for use on one patient during one session of treatment and must be disposed of into a sharps container.

15 Management of Clinical Emergencies Following the Administration of Local Anaesthesia

15.1 Staff will follow current practice as per their mandatory training in the event of a medical emergency and are reminded of the algorithm in Appendix 1 and the A-B-C-D-E[7] approach to such events.

15.2 Laerdal Pocket Masks to assist with Basic Life Support are kept in all community and acute unit clinics and in domiciliary cases.

15.3 A stethoscope and sphygmomanometer is available for measuring pre-procedural blood pressure. [7]

15.4 Oxygen (available at the Minor Surgery Room and (portable) from the Main Reception, Mount Gould LCC) should be administered at high flow rates of 10-15 litres per minute. Caution should be observed in its use and the correct procedure for administering oxygen followed at all times. In particular, it is crucial that the air bag attached to the mask is inflated with oxygen prior to placing the mask on the patient. This is achieved by placing a finger over the outlet valve of the bag. [7]

15.5 Medical Assistance in Emergencies

15.5.1 Clinical Emergencies

- Staff will utilise their mandatory training in Anaphylaxis and Basic Life Support and the use of oxygen to provide the initial management of clinical emergencies, patients who are taken ill or whom suffer an accident.

- All clinical emergencies will be dealt with as indicated by the circumstances and the support of medical and paramedic support sought as appropriate.

- When appropriate to the circumstances staff should use their training in the use of the defibrillator held on LCC reception to treat patients. Patients in cardiac arrest must not have the use of a defibrillator delayed in preference of deferring care to any medical or paramedic intervention which may have been summoned in the management of the emergency.

- Oxygen should be administered at high flow rates of 10-15 litres per minute. Caution should be observed in its use and the correct procedure for administering oxygen followed at all times. In particular, it is crucial that the air bag attached to the mask is inflated with oxygen prior to placing the mask on the patient. This is achieved by placing a finger over the outlet valve of the bag.

- In the event of a life-threatening emergency requiring medical/paramedic support (for example cardiac arrest, myocardial infarction, anaphylaxis, unresponsive hypoglycaemia) staff are required to:

  - Activate the emergency pull in the room (see below)
  - Dial 2222 for the on-site medical emergency team
  - Dial 9-999 to summon emergency paramedics

- Activating the pull-alarm will NOT automatically trigger the summoning of the medical team or emergency paramedics.

- The emergency pull must only be used for life-threatening clinical emergencies.

- When activated, the alarm system will alert the staff on the LCC's Main Reception to an emergency and they (and/or a member of the out-patient's nursing staff) will attend the room to provide assistance as required.

- The attending staff will not automatically summon medical or paramedic assistance, that responsibility remains with the Podiatry staff present.

- It is incumbent on the attending podiatry staff to deal with any telephone calls to the emergency services in order to provide full and accurate clinical information to the Ambulance service. This task should not be devolved to clerical staff.

15.5.2 Staff must inform a member of Service management as soon as is practicable of any serious medical emergency or incident. Staff are also reminded that they

must complete an e-incident form in the event of any accident, untoward incident or “near miss” in any workplace situation.

15.5.3 In the rare event that a local anaesthetic is provided in the community and an emergency occurs, staff will summon emergency paramedics using the 999 system and provide Basic Life Support as required.

16 Monitoring Compliance and Effectiveness

16.1 The Podiatry Service Clinical Lead will retain overall accountability and responsibility for the content, monitoring and implementation of this policy document.

16.2 An annual peer review of staff regarding minor surgical procedure compliance and competency will be included in the ongoing process to monitor quality, compliance and effectiveness.

16.3 Responsibility for undertaking the various review processes will be devolved by the Podiatry Service Operational Lead to appropriate and capable members of staff.

16.4 Audits and patient satisfaction surveys will be registered, published and actioned in line with current Livewell Southwest policy, whilst peer reviews will be subject to internal scrutiny and a part of the KSF and annual appraisal processes.

16.5 Untoward incidents and inoculation injuries will be monitored by Service Management and the Livewell Southwest Risk Management Team.

All policies are required to be electronically signed by the Lead Director. Proof of the electronic signature is stored in the policies database.

The Lead Director approves this document and any attached appendices. For operational policies this will be the Locality Manager.

The Executive signature is subject to the understanding that the policy owner has followed the organisation process for policy Ratification.

Signed: Director of Operations

Date: 1st March 2016

Local Anaesthesia in Podiatric Practice

Further Key Extracts:
Request Form for Use of Unlicensed Medicine (Mepivacaine)

Approved by LSW Medicines Governance Group (MGG) 3rd October 2013

Product Name: Mepivacaine Hydrochloride 3% Plain solution	**Proprietary Name (if known):** Scandonest
Strength: 3%	**Pharmaceutical Form:** Dental cartridge
Manufacturer (if known): Septodont Ltd, Unit R & S, Orchard Business Centre, St. Banabas Close, Allington, Maidstone Kent, ME16 0JZ Tel: 01622 695520 URL: www.septodone.co.uk	
Route: Sub-cutaneous Injection	**Duration of Treatment:** Single dose administered (30-60 seconds)
Dose: Adult Digital nerve block: Variable of 2.2ml to a maximum of 4.4ml per digit Posterior Tibial Nerve block etc: Usually 2.2ml Rarely subcutaneous infiltration: Minimum but usually 2.2ml Children 4 years and over: as above but with a maximum dose of 0.1ml / kg.	Frequency: Once
Indication for which the medicine is to be used: Digital (toe) nerve blocks, other local nerve blocks (e.g. Posterior Tibial Nerve) and rarely local subcutaneous infiltration. Used primarily in Podiatry to facilitate toenail avulsions and the treatment of painful lesions.	
If the product is licensed in another country please state licensed indication. The product is licenced in the UK for use by Podiatrists but only in adult patients. The product is licenced for use by other professionals in children in the dental cartridge format and there is no clinical reasoning for prohibiting its use by Podiatrists in children – this is purely a matter of a licencing oversight by the manufacturer.	
What side effects or toxic effects have been reported? Adverse experiences following the administration of Mepivacaine are similar in nature to those observed with other amide local anaesthetic agents. These adverse experiences are, in general, dose-related and may result from high plasma levels caused by excessive dosage, rapid absorption or unintended intra-vascular injection, or may result from a hypersensitivity, idiosyncrasy or diminished tolerance on the part of the patient. Serious adverse experiences are generally systemic in nature. The following types are those most commonly reported: **Central Nervous System** CNS manifestations are excitatory and/or depressant and may be characterized by light headedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, blurred or double vision, sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, respiratory depression and arrest. The excitatory manifestations may be very brief or may not occur at all, in which case the first manifestation of toxicity may be drowsiness merging into unconsciousness and respiratory arrest.	

Drowsiness following the administration of mepivacaine is usually an early sign of a high blood level of the drug and may occur as a consequence of rapid absorption.

Cardiovascular system

Cardiovascular manifestations are usually depressant and are characterized by bradycardia, hypotension, and cardiovascular collapse, which may lead to cardiac arrest.

Signs and symptoms of depressed cardiovascular function may commonly result from a vasovagal reaction, particularly if the patient is in an upright position. Less commonly, they may result from a direct effect of the drug. Failure to recognise the premonitory signs such as sweating, a feeling of faintness, changes in pulse or sensorium may result in progressive cerebral hypoxia and seizure or serious cardiovascular catastrophe. Management consists of placing the patient in the recumbent position and ventilation with oxygen. Supportive treatment of circulatory depression may require the administration of intravenous fluids, and when appropriate, a vasopressor (e.g. ephedrine) as directed by the clinical situation.

Allergic reactions

Allergic reactions are characterized by cutaneous lesions, urticaria, oedema or anaphylactoid reactions. Allergic reactions as a result of sensitivity to Mepivacaine are extremely rare and, if they occur, should be managed by conventional means. The detection of sensitivity by skin testing is of doubtful value.

Is any monitoring required? YES If so, describe

The safety and effectiveness of Mepivacaine depend on proper dosage, correct technique, adequate precautions and readiness for emergencies. Resuscitative equipment, oxygen and other resuscitative drugs should be available for immediate use.

The lowest dosage that results in effective anaesthesia should be used to avoid high levels and serious adverse effects. Repeated doses of Mepivacaine may cause significant increases in blood levels with each repeat dose due to slow accumulation of the drug or its metabolites. Tolerance to elevated blood levels varies with the status of the patient. Debilitated, elderly patients, acutely ill patients, and children should be given reduced doses commensurate with their age and physical condition

Give details any significant interactions.

If sedatives are employed to reduce patient apprehension, reduced doses of anaesthetic solution should be used since local anaesthetic agents, like sedatives, are central nervous system depressants which in combination may have an additive effect.

Give details of contraindications and any other risks to the patient.

SCANDONEST 3% PLAIN should not be used:

- in children below 4 years of age (ca. 20 kg body weight)
- in patients presenting specific allergies to amide type anaesthetics.

Give details of any precautions in use.

Do not inject into a blood vessel - inject slowly:

To minimize the likelihood of intravascular injection, aspiration should be performed before the local anaesthetic solution is injected. If blood is aspirated, the needle must be repositioned until no return of blood can be elicited by aspiration. Note, however, that the absence of blood in the syringe does not assure that intravascular injection will be avoided and a double aspiration is always recommended.

Local anaesthetic procedures should be used with caution when there is inflammation and/or sepsis in the region of the proposed injection.

This product does not contain any preservatives.

Use of the cartridge:

Use on one patient during one session of treatment only. If only part is used, the remainder must be discarded. Debilitated, elderly patients, acutely ill patients, and children should be given reduced doses commensurate with their age and physical condition

Cardiovascular and respiratory (adequacy of ventilation) vital signs and the patient's state of consciousness should be monitored after each local anaesthetic injection. Restlessness, anxiety, tinnitus, dizziness, blurred vision, tremors, depression or drowsiness should alert the practitioner to the possibility of central nervous system toxicity. Signs and symptoms of depressed cardiovascular function may commonly result from a vasovagal reaction, particularly if the patient is in an upright position: placing the patient in the recumbent position is recommended when an adverse response is noted after injection of a local anaesthetic.

Mepivacaine should be used with caution in:

- Patients with hepatic disease, since amide-type local anaesthetics are metabolized by the liver. Patients with severe hepatic disease, because of their inability to metabolize local anaesthetics normally, are at greater risk of developing toxic plasma concentrations.
- Patients with renal disease, since local anaesthetics are excreted by the kidneys, and the patient due to his condition is also at a greater risk of developing toxic plasma concentrations.

The use of Mepivacaine should be carefully considered if:

- There is inflammation and/or sepsis in the region of injection, since this may alter the pH at the site of injection, resulting in decrease or loss of anaesthetic effect
- There is a history of severe disturbances of cardiac rhythm or heart block, since the cardiac depressant effects of the anaesthetic are detrimental to the patient