Patient Group Direction For The Administration Of Medicines As Included In The Advanced Practitioner Radiographers Formulary By Advanced Practitioners Working In The Breast Screening, Symptomatic Mammography Departments And Clinic E Within NHS Grampian

Lead Author: Superintendent Radiographer	**Consultation Group**: See relevant page in the PGD	**Approver:** Medicines Guidelines and Policies Group **Authorisation:** NHS Grampian
Signature: 		**Signature:** 
NHSG Identifier: MGPG/PGD/APR_Form/ 1581	**Review Date:** December 2026 **Expiry Date:** December 2027	**Date Approved:** December 2024

NHS Grampian have authorised this Patient Group Direction to help individuals by providing them with more convenient access to an efficient and clearly defined service within the NHS Boards. This Patient Group Direction cannot be used until Appendix 1 and 2 are completed.

Uncontrolled when printed

Version 3

Revision History:

PGD that has been adapted and/or superseded	NHSG/PGD/APR_Form/MGPG1183, Version 2	
Date of change	**Summary of Changes**	**Section heading**
13/02/24	Updated names on PGD Consultative group.	PDG Consultative Group
13/02/24	Updated PGD Formulary monographs to include bupivacaine 0.5 % with adrenaline.	Individual medicine monograph
13/02/24	Updated PGD Formulary monographs to include Iohexol (Omnipaque) 350mg I/mL contrast.	Individual medicine monograph
19/12/24	Monograph titles updated	Monographs
19/12/24	Hyperlinks updated	Throughout
19/12/24	Lidocaine Hydrochloride 1% w/v Solution For Injection monograph updated	Monograph

NHGS Identifier: MGPG/PGD/APR_Form/MGPG1581
Keyword(s): PGD Patient Group Direction Advanced Practitioner Radiographer local anaesthetic lidocaine xylocaine bupivacaine Ioxehol Omnipaque

Policy Statement: It is the responsibility of the individual Advanced Practitioner Radiographers and their line managers to ensure that they work within the terms laid down in this PGD and to ensure that staff are working to the most up to date PGD. By doing so, the quality of the services offered will be maintained, and the chances of staff making erroneous decisions which may affect individual, staff or visitor safety and comfort will be reduced. Supervisory staff at all levels must ensure that staff using this PGD act within their own level of competence.

The lead author is responsible for the review of this PGD and for ensuring the PGD is updated in line with any changes in clinical practice, relevant guidelines, or new research evidence.

Review date: The review date for a PGD needs to be decided on a case-by-case basis in the interest of safety. The expiry date should not be more than 3 years, unless a change in national policy or update is required.

Document:	Drafted:	February 2024
	Completed:	December 2024
	Approved:	December 2024 (published – January 2025)
	Amended and re-authorised:	

Organisational Authorisations

This PGD is not legally valid until it has had the relevant organisational authorisation.

PGD Developed/Reviewed by;

Medical practitioner	**Name:** Dr Gerald Lip **Title:** Consultant Radiologist **Contact email:** geraldlip@nhs.scot **Signature:** ..... **Date:** 31/12/2024
Senior representative of the professional group who will provide care under the direction	**Name:** Alice Dewar **Title:** Consultant Radiographer **Contact email:** a.dewar@nhs.scot **Signature:** ..... **Date:** 19/12/2024
Lead author	**Name:** Michelle Cumming **Title :** Superintendent Radiographer **Contact email:** michelle.cumming@nhs.scot **Signature:** ..... **Date:** 19/12/2024
Pharmacist	**Name:** Keira Watson **Title :** Clinical Pharmacist **Contact email:** keira.watson@nhs.scot **Signature:** ..... **Date:** 19/12/2024

Approved and authorised for use within NHSG by;

Medicines Guidelines and Policies Group Chair	Signature	Date Signed
Lesley Coyle		06/01/2025

Management and Monitoring of Patient Group Direction

PGD Consultative Group

The consultative group is legally required to include a medical practitioner, a pharmacist and is best practice to have a representative of the professional group who will provide care under the direction.

Name:	Title:
Michelle Cumming	**Lead Author:** Superintendent Radiographer
Keira Watson	**Pharmacist:** Oncology pharmacist
Dr Gerald Lip	**Medical Practitioner:** Consultant Radiologist
Alice Dewar	**Senior Representative:** Consultant Radiographer
Donna Bartlett	Staff Nurse, Breast Screening
Daina Basko	Consultant Radiologist
Lynsey McLennan	Advanced Practitioner Radiographer
Amanda Moss	Advanced Practitioner Radiographer

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Clinical indication to which this PGD applies

Definition of situation/ Condition	This Patient Group Direction (PGD) will authorise Advanced Practitioner Radiographers (APR) to administer medicines included in the APR PGD Formulary (Appendix 3) to individuals aged 16 years and over. This PGD should be used in conjunction with the recommendations in the current British National Formulary (BNF) and the individual Summary of Product Characteristics (SmPC).

Inclusion criteria	Individuals aged 16 years and over requiring:
	
	• Biopsy under x-ray or ultrasound guidance of indeterminate lesions of the breast.
	• Breast abnormalities to be localised prior to surgical excision.
	• Contrast Enhanced Mammography:
	  ○ The Advanced Practitioner acting under this PGD must have evidence of a valid referral which has been justified by an entitled Consultant Radiologist and which details contrast agent to be administered.
	  ○ Individual must have completed a pre-examination checklist relevant to the imaging procedure being undertaken.
	  ○ There is no need to obtain eGFR if no risk factors for renal impairment have been identified. However, if an individual has been acutely unwell or is known to have renal impairment, eGFR should have been obtained within the 7 days before administration of the contrast agent.
	• Prior to the administration of the medicine, valid consent to receiving treatment under this PGD must be obtained. Consent must be in line with NHS Grampian current consent policy.

Exclusion criteria	Individuals who: • Are under 16 years of age. • Have any known hypersensitivity to local anaesthetics of the amide type.

	• Have any hypersensitivity to any of the excipients contained in the local anaesthetics. • Have complete heart block. • Have Myasthenia Gravis. • Have Hypovolaemia. • With infection/inflammation or damaged skin at the site of injection. Individuals for whom no valid consent has been received. For specific exclusion criteria see individual medicine monographs.
Precautions and special warnings	If there is any concern about the appropriate use of the medicine in the specific indications given within the PGD then medical advice should be sought. Precautions listed in the individual medicine monographs should be taken into account. **Note:** Lidocaine/Xylocaine/Bupivacaine/Iohexol (Omnipaque) should be used with caution in individuals who have conditions as listed in the special warnings and precautions for use section of the SmPC however it should be noted these conditions do not exclude individuals from receiving therapy. APR's must be familiar with the relevant SmPCs and should exercise their professional judgement with regard to administering local anaesthetic or contrast media. If there is any doubt as to individual's suitability they should be discussed with a Radiologist or appropriate medical professional.
Action if excluded from treatment	Medical advice must be sought – refer to relevant medical practitioner or radiologist. Document the reason for exclusion under the PGD and any action taken in the individual's appropriate clinical records.
Action if treatment is declined	The individual should be advised of the risks and consequences of not receiving treatment. Refer to Consultant Radiologist or relevant medial practitioner. Record outcome in Individual Medication Record if appropriate, or relevant individual record.

Description of treatment available under the PGD

Name form and strength of medicine	See individual medicine monographs.
Legal status	Medicines referred to in this PGD are all POM (Prescription-only Medicines).
Is the use out with the SmPC?	See individual medicine monographs.
Dosage/Maximum total dose	See individual medicine monographs.
Frequency of dose/Duration of treatment	See individual medicine monographs.
Maximum or minimum treatment period	See individual medicine monographs.
Route/Method of administration	See individual medicine monographs. A cold compress can be applied to site for a minimum of 10 minutes to reduce risk of haematoma.
Quantity to be administered	See individual medicine monographs.
Storage requirements	See individual medicine monographs.
Additional Information	N/A
Follow-up (if applicable)	Individuals should not leave if they are feeling unwell without speaking to the APR first. If necessary a Radiologist should be contacted for advice.
Advice (Verbal)	Advice should be given on what to expect and what to do for major and minor reactions. The individual should be made aware that there may be initial stinging, transient local swelling and erythema associated with the injection followed by loss of sensation which may last for 30-60 minutes. There may be a continued sensitivity and awareness of touch/pressure at the injection site. Limit movement of site for 24/48 hours.

	Paracetamol can be taken for pain post procedure according to manufacturer's instruction. Contact GP if signs of infection arise, i.e. redness/heat/swelling. Avoid showering for 24 hours to ensure the dressing remains dry and intact.
Advice (Written)	The Patient Information Leaflet (PIL) contained in the medicine(s) should be made available to the individual. Where this is unavailable, or unsuitable, sufficient information should be given in a language that they can understand.
Identifying and managing possible adverse reactions	There should be a system in place to call an appropriately trained clinician who can deal immediately with a severe contrast agent reaction in the mammography environment. If required, the crash or resuscitation team should be called immediately as per department's pathway. Extravasation may be associated with large volumes of contrast agents, high pressure injection and fragile or damaged veins. Although most injuries caused by extravasation are minor, severe injuries may include skin ulceration, soft tissue necrosis and compartment syndrome. Should there be any concerns about extravasation, consult a medial practitioner immediately. These risks should be communicated with patient, so they are aware of what symptoms to look out for and who to contact. See individual medicine monographs. **This list is not exhaustive. Please also refer to current BNF and manufacturers SmPC for details of all potential adverse reactions.** **BNF:** BNF British National Formulary - NICE **SmPC/PIL/Risk Minimisation Material:** Home - electronic medicines compendium (emc) MHRA Products | Home RMM Directory - (emc) If an adverse reaction does occur give immediate treatment and inform relevant medical practitioner as soon as possible. Document in accordance with locally agreed procedures in the individual's record. Report any suspected adverse reactions using the Yellow Card System. Yellow Card Scheme - MHRA

Facilities and supplies required	The following are to be available at sites where the medicine is to be administered: • Appropriate storage facilities • An acceptable level of privacy to respect individual's right to confidentiality and safety • Basic airway resuscitation equipment (e.g. bag valve mask) • Immediate access to Epinephrine (Adrenaline) 1 in 1000 injection • Access to a working telephone • Another competent adult, who can summon urgent emergency support if required should ideally be present • Access to medical support (this may be via the telephone) • Approved equipment for the disposal of used materials • Clean and tidy work areas, including access to hand washing facilities or alcohol hand gel • A copy of this current PGD in print or electronically.

Characteristics of staff authorised to administer medicine(s) under PGD

Professional qualifications	Radiographers as registered with Health and Care Professional Council (HCPC).
Specialist competencies	**Approved by the organisation as:** • Competent to assess the individual's capacity to understand the nature and purpose of the medicine administration in order to give or refuse consent. • Aware of current treatment recommendations and be competent to discuss issues about the medicine with the individual. • Having undertaken appropriate training to carry out clinical assessment of individuals identifying that treatment is required according to the indications listed in the PGD. • Competent to undertake administration of the medicine(s). • All Advanced Practitioners **must** hold a Masters module within their area of expertise. • Competent in the recognition and management of anaphylaxis or under the supervision of persons able to respond appropriately to immediate adverse reactions. • Competent to work under this PGD and authorised by name as an approved person to work under the terms of the PGD.

Ongoing training and competency	**All professionals working under this PGD must:** • Have undertaken PGD module training on TURAS Learn. • Have attended basic life support training either face to face or online and updated in-line with Board requirements. • Have undertaken NHS e-anaphylaxis training or equivalent which covers all aspects of the identification and management of anaphylaxis in-line with Board requirements. • Maintain their skills, knowledge and their own professional level of competence in this area according to their individual Code of Professional Conduct. **Note:** All practitioners operating under the PGD are responsible for ensuring they remain up to date with the use of the medicine. If any training needs are identified these should be discussed with those responsible for authorisation to act under the PGD. • Have knowledge and familiarity of the following; ○ SmPC for the medicine(s) to be administered in accordance with this PGD.
Responsibilities of professional manager(s)	**Professional manager(s) will be responsible for;** Ensuring that the current PGD is available to all staff providing care under this direction. Ensuring that staff have received adequate training in all areas relevant to this PGD and meet the requirements above. Maintain up to date record of all staff authorised to administer the medicine(s) specified in this direction.

Documentation

Authorisation of administration	Advanced Practitioner Radiographers working in the North East of Scotland Breast Screening Programme clinic, Symptomatic mammography department and clinic E within NHS Grampian can be authorised to administer the medicine(s) specified in this PGD by their Clinical Manager/Radiologist. All authorised staff are required to read the PGD and sign the Agreement to Administer Medicines Under PGD (Appendix 1). A Certificate of Authorisation (Appendix 2) signed by the authorising professional/manager should be supplied. This should be held in the individual health professional's records, or as agreed locally.

Record of administration	An electronic or paper record for recording the screening of individuals and subsequent administration of the medicine(s) specified in this PGD must be completed in order to allow audit of practice. If a paper record is used for recording the screening of individuals and the subsequent administration of the medicine(s) specified in this PGD. This should include as a minimum: • Date and time of administration • Individuals name and CHI • Exclusion criteria, record why the medicine was not administered • Record that valid consent to treatment under this PGD was obtained • The name, dose, form, route (batch number, expiry date and site where appropriate for injectable medicines) of the medicine(s) administered • Advice given, including advice given if excluded or declined treatment under this PGD • Signature and name in capital letters of the healthcare professional who administered the medicine(s) • Record of any adverse effects and the actions taken (advise individuals' GP/relevant medical practitioner). Depending on the clinical setting where administration is undertaken, the information should be recorded manually or electronically, in one (or more) of the following systems, as appropriate: • Consent forms • Hand-held records such as red book if appropriate • Individual's GP records if appropriate • Secondary Care Medical Notes • HEPMA • Occupational health systems • Individual service specific systems. Local policy should be followed with respect to sharing information with the individual's General Practitioner. All records should be clear, legible and in an easily retrievable format.

<table>
<tr><td>Audit</td><td>All records of the medicine(s) specified in this PGD will be filed with the normal records of medicines in each practice/service. A designated person within each practice/service where the PGD will be used will be responsible for annual audit to ensure a system of recording medicines administered under a PGD.</td></tr>
<tr><td>References</td><td>Electronic Medicines Compendium
http://www.medicines.org.uk

<table>
<tr><th>Medicine</th><th>Date of Revision</th><th>Date Accessed</th></tr>
<tr><td>Lidocaine Hydrochloride 1% w/v 1:200000 (HameIn)</td><td>13/02/22</td><td>13/02/24</td></tr>
<tr><td>Lidocaine 1% w/v with Adrenaline 1:200000 (Aspen)</td><td>13/02/22</td><td>13/02/24</td></tr>
<tr><td>Bupivacaine 0.5% w/v with Adrenaline 1:200000</td><td>13/02/24</td><td>13/02/24</td></tr>
<tr><td>Iohexol (Omnipaque) 350mg I/mL</td><td>13/02/24</td><td>13/02/24</td></tr>
</table>

British National Formulary https://www.bnf.org/products/bnf-online/accessed 13/02/24.</td></tr>
</table>

Appendix 1

Healthcare Professional Agreement to Administer Medicine(s) Under Patient Group Direction

I: _____ (Insert name)

Working within: _____ e.g. Area, Practice

Agree to administer the medicine(s) contained within the following Patient Group Direction:

Patient Group Direction For The Administration Of Medicines As Included In The Advanced Practitioner Radiographers Formulary By Advanced Practitioners Working In The Breast Screening, Symptomatic Mammography Departments And Clinic E Within NHS Grampian, Version 3

I have completed the appropriate training to my professional standards enabling me to administer the medicine(s) under the above direction. I agree not to act beyond my professional competence, nor out with the recommendations of the direction.

Signed: _____

Print Name: _____

Date: _____

Profession: _____

Professional Registration number/PIN _____

Appendix 2

Healthcare Professionals Authorisation to Administer Medicine(s) Under Patient Group Direction

The Lead manager/Professional of each clinical area is responsible for maintaining records of all clinical areas where this PGD is in use, and to whom it has been disseminated.
The Senior Nurse/Professional who approves a healthcare professional to administer the medicine(s) under this PGD is responsible for ensuring that they are competent, qualified and trained to do so, and for maintaining an up-to-date record of such approved persons.
The Healthcare Professional that is approved to administer the medicine(s) under this PGD is responsible for ensuring that they understand and are qualified, trained and competent to undertake the duties required. The approved person is also responsible for ensuring that administration is carried out within the terms of the direction, and according to their individual code of professional practice and conduct.
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Local clinical area(s) where the listed healthcare professionals will operate under this PGD:

Name of Healthcare Professional	Signature	Date	Name of Manager	Signature	Date

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Name of Healthcare Professional	**Signature**	**Date**	**Name of Manager**	**Signature**	**Date**

Appendix 3

NHS Grampian APR PGD Formulary

The information in these monographs is not exhaustive. They must be read in conjunction with the current issue of the British National Formulary, and the Summary of Product Characteristics for each product.

Bupivacaine 0.5% w/v with Adrenaline (Epinephrine) 1:200,000 Solution for Injection (20mL) (Administer)	
Legal Status	POM
Indication	Bupivacaine 0.5% with adrenaline is used to anaesthetise deeper tissue prior to a large volume vacuum assisted biopsy.
Inclusion Criteria	As per criteria listed in main PGD.
Exclusion Criteria	As per criteria listed in main PGD.
Precautions and Special Warnings	Refer to the product Summary of Product Characteristics (SmPC) for full details. Caution in liver impairment.
Dose/Maximum total dose	The dose to be administered is dependent on site(s) and proposed size of the biopsy/biopsies, however a maximum of 15mL should not be exceeded in a single biopsy. Injected to deeper tissue in approximately 3mL increments. The lowest possible volume should always be used. Maximum of 15mL only allowed under this PGD for single site biopsies.
Frequency of dose/Duration of treatment	Commonly one treatment, but consideration is required when multifocal or bilateral breast biopsies are required.
Maximum or minimum treatment period	N/A
Route/Method of Administration	Bupivacaine 0.5% with adrenaline injection is injected to deeper tissue in approximately 3mL increments (maximum of 15mL per individual) directed toward the indeterminate lesion that is to be biopsied. The needle should be inserted and bupivacaine 0.5% with adrenaline injected slowly, allowing 1-2 minutes for the injection to take effect.

Bupivacaine 0.5% w/v with Adrenaline (Epinephrine) 1:200,000 Solution for Injection (20mL) (Administer)	
	Each injection of bupivacaine 0.5% with adrenaline injection must be preceded by aspiration to ensure needle is not intravascular.
Quantity to be administered/ supplied	Injected to breast tissue in approximately 3mL increments to a maximum of 15mL. The quantity to be administered will vary according to site(s) and size of biopsy/biopsies, but must never exceed 15mL under this PGD.
Potential Adverse Reactions	Refer to the product Summary of Product Characteristics (SmPC) for full details of known adverse effects. The below list details reported adverse effects and does not represent all the product's known adverse effects. Adverse effects are rare and usually the result of excessively high blood concentration due to inadvertent intravascular injection, excessive dosage, rapid absorption or occasionally due to hypersensitivity. Side effects include paraesthesia, dizziness, bradycardia, hypotension, hypertension, nausea and vomiting. Systemic toxicity reactions can occur and the first symptoms of toxicity are usually, circumoral paraesthesia, numbness of the tongue, light headedness, hyperacusis, tinnitus and visual disturbances. APR's must be aware of the risks, signs and symptoms as well as the treatment for acute systemic toxicity.
Advice	Patient advice leaflet given.
Follow up (If applicable)	Individuals should not leave if they are feeling unwell without speaking to the Advanced Practitioner Radiographer first. If necessary, a Radiologist should be contacted for advice.
Storage	Store in a locked cupboard below 25ºC, protected from light.

Ioxehol (Omnipaque) 350mg I/mL Solution for Injection (Administer)	
Legal Status	POM
Indication	This medicine is for diagnostic use only. It is a contrast medium for use in adults undergoing a contrast mammography investigation.
Inclusion Criteria	As per main PGD inclusion criteria and additionally; • Individuals without an identified risk for renal impairment and those with an estimated glomerular filtration rate (eGFR) of $\geq$30mL/min/1.73m^2.
Exclusion Criteria	As per main PGD exclusion criteria and additionally; • Previous adverse drug reaction (allergic, hypersensitivity or other) after administration of a contrast agent. • Known renal impairment with an estimated glomerular filtration rate (eGFR) of <30mL/min/1.73m^2 • Any history documented in radiology/imaging referral/request or highlighted during the checklist of: o Manifest thyrotoxicosis o Congestive heart failure, severe cardiac disease or pulmonary hypertension o Homocystinuria o Sickle cell disease o Severe liver impairment or peri-operative liver transplant period o Asthma which is poorly controlled at the time of the procedure o Pregnancy/breast feeding.
Precautions and Special Warnings	• **Previous history of any adverse drug reaction to an intravascular contrast agent not listed in the exclusion criteria.** Caution should be exercised where there is a known previous moderately severe reaction to intravascular contrast such as bronchospasm or urticarial requiring treatment or severe reactions (e.g. laryngeal or angioneurotic oedema, severe bronchospasm or collapse) to intravascular contrast. Any individual known to have had a previous moderately severe or severe reaction to contrast agent should be discussed with the supervising Consultant Radiologist prior to administration of contrast agents under this PGD. If the practitioner acting under this PGD decides to continue to administer the named agent under the PGD, a full record of the decision must be made in the individual's clinical record.

Ioxehol (Omnipaque) 350mg I/mL Solution for Injection (Administer)	
	• Any history documented in the radiology referral/request of paraproteinaemias (multiple myeloma and Waldenstrom's macroglobulinaemia – increased risk of renal impairment) or hypercalcaemia. • History of severe/multiple allergies including food allergies, hay fever and urticarial that has required medical intervention. • Dehydration – General assessment of the individual should be undertaken to ensure they are not dehydrated (e.g. acute/recent vomiting or diarrhea reported or reduced fluid intake). • Care should be taken in individuals with serious cardiac disease/cardio-circulatory disease and pulmonary hypertension. • Like with any contrast agent, special precaution is necessary in individuals with a low threshold for seizures. Precautionary measures should be taken, e.g. close monitoring. • The administration of iodinated contrast media may aggravate the symptoms of myasthenia gravis. • There is a risk of the development of lactic acidosis when iodinated contrast agents are administered to diabetic individuals treated with metformin, particularly in those with impaired renal function. Refer to the product Summary of Product Characteristics (SmPC) for full details. Safety questionnaire to be completed with patient prior to procedure to assess any potential risk to renal or liver function due to Diabetes or renal impairment. No bloods require to be taken prior to the procedure unless the patient has known renal/liver issues and is unable to provide recent EGFR.
Dose/Maximum total dose	Contrast to be administered according to patient body weight: 1.5mL per kg Maximum dose should not exceed 150mL.
Frequency of dose/Duration of treatment	Single dose for procedure indicated.

Ioxehol (Omnipaque) 350mg I/mL Solution for Injection (Administer)	
Maximum or minimum treatment period	Single dose for procedure indicated.
Route/Method of Administration	Slow intravenous injection via a flexible intravenous cannula. Iohehol (Omnipaque) 350mg I/mL should be visually inspected for particulate matter, discolouration and integrity of the container prior to use. The product should be drawn into the syringe immediately before use. Vials and bottle are intended for single use only. It is desirable that solutions of contrast media for intravascular use should be at body temperature when injected. Any unused produce or waste material should be disposed of in accordance with local policy.
Quantity to be administered/ supplied	Contrast to be administered according to patient body weight: 1.5ml per kg. Maximum dose should not exceed 150mL.
Potential Adverse Reactions	Refer to the product Summary of Product Characteristics (SmPC) for full details of known adverse effects. The below list details commonly reported adverse effects (>1 in 100) and does not represent all the product's known adverse effects: • Feeling hot/flushed • Feeling of urination • Nausea • Pain • Vomiting • Transient change in respiratory rate/respiratory distress. **Note**: There is a risk of the development of lactic acidosis when iodinated contrast agents are administered to diabetic patients treated with metformin, particularly in those with impaired renal function.

Iohexol (Omnipaque) 350mg I/mL Solution for Injection (Administer)	
	APR's must be aware of the risks, signs and symptoms as well as the treatment for acute systemic toxicity.
Advice	Patient advice leaflet given. • Individuals should be informed that they may experience a metallic taste, hot flush or a sensation of passing urine during administration and that this is normal and transient. • Individuals should be advised to drink plenty of fluid following the procedure if possible. • If relevant advise on the management of injection site/s and any infection control or self-management required. • Individuals should be informed that whilst uncommon, a mild allergic reaction such as a rash, itchiness, feeling hot or cold, runny nose, watery eyes can occur and that they must inform a healthcare professional if they experience these symptoms.
Follow up (If applicable)	Patients must be kept under close observation for 15 minutes following the injection as the majority of severe reactions occur at this time. The patient should remain in the hospital environment for one hour from injection and should return to the mammography department if any symptoms develop. Advise of the possible adverse effects and where to seek advice in the event of a suspected adverse reaction developing.
Storage	Iohexol (Omnipaque) 350mg I/mL has a shelf life of 3 years for both glass and polypropylene bottles. The expiry date is indicated on the label. Iohexol (Omnipaque) 350mg I/mL should be stored at or below 30°C and stored in a lockable cupboard, protected from light.

Lidocaine Hydrochloride 1% w/v Solution For Injection (2mL, 5mL, 10mL And 20mL Ampoules) (Administer)	
Drug Legal Status	POM
Indication	Lidocaine 1% is used in stereotactic and ultrasound core biopsies of indeterminate lesions and in the localisation of a breast abnormality prior to a theatre excision.
Inclusion Criteria	As per criteria listed in main PGD.
Exclusion Criteria	As per criteria listed in main PGD.
Precautions and Special Warnings	Refer to the product Summary of Product Characteristics (SmPC) for full details.
Dose/Maximum total dose	The dose to be administered is dependent on site(s) and proposed size of the biopsy/biopsies; however single doses of lidocaine (for anaesthesia other than spinal) should not exceed 4.5mg/kg (or 200mg) The lowest possible volume should always be used. Maximum of 20mL (200mg) only under this PGD for both single site and multi-focal biopsies.
Frequency of dose/Duration of treatment	Commonly one treatment, but consideration is required when multifocal or bilateral breast biopsies are required.
Maximum or minimum treatment period	N/A
Route/Method of Administration	Lidocaine hydrochloride 1% injection is injected subcutaneously and to deeper tissue (maximum of 20mL (200mg)) directed toward the indeterminate lesion that is to be biopsied. The needle should be inserted subcutaneously and lidocaine hydrochloride 1% injection injected slowly, allowing 1-2 minutes for the injection to take effect. Each injection of lidocaine hydrochloride 1% injection must be preceded by aspiration to ensure needle is not intravascular.

Lidocaine Hydrochloride 1% w/v Solution For Injection (2mL, 5mL, 10mL And 20mL Ampoules) (Administer)	
Quantity to be administered/ supplied	The dose to be administered will vary according to site(s) and size of biopsy/biopsies, but must never exceed 20mL (200mg) under this PGD.
Potential Adverse Reactions	Refer to the product Summary of Product Characteristics (SmPC) for full details of known adverse effects. The below list details reported adverse effects and does not represent all the product's known adverse effects: Adverse effects are rare and usually the result of excessively high blood concentration due to inadvertent intravascular injection, excessive dosage, rapid absorption or occasionally due to hypersensitivity. Side effects include nervousness, dizziness, confusion, respiratory depression, convulsions, hypotension and bradycardia. Systemic toxicity reactions can occur and the first symptoms of toxicity are usually, circumoral paraesthesia, numbness of the tongue, light headedness, hyperacusis, tinnitus and visual disturbances. APR's must be aware of the risks, signs and symptoms as well as the treatment for acute systemic toxicity.
Advice	Patient advice leaflet given.
Follow up (If applicable)	Individuals should not leave if they are feeling unwell without speaking to the Advanced Practitioner Radiographer first. If necessary, a Radiologist should be contacted for advice.
Storage	Store in a locked cupboard below 25ºC, protected from light.

Lidocaine (Xylocaine) 1% w/v with Adrenaline (Epinephrine) 1:200,000 Solution For Injection (20mL) (Administer)	
Legal Status	POM
Indication	Lidocaine (Xylocaine) 1% with adrenaline is used to anaesthetise deeper tissue prior to a large volume vacuum assisted biopsy.
Inclusion Criteria	As per criteria listed in main PGD.
Exclusion Criteria	As per criteria listed in main PGD.
Precautions and Special Warnings	Refer to the product Summary of Product Characteristics (SmPC) for full details. Formulations of lidocaine containing parabens should be avoided in patients allergic to ester local anaesthetics or their metabolite PABA. Lidocaine with adrenaline should not be given intravenously
Dose/Maximum total dose	The dose to be administered is dependent on site(s) and proposed size of the biopsy/biopsies, however a maximum of 15mL should not be exceeded in a single biopsy. Injected to deeper tissue in approximately 3mL increments. The lowest possible volume should always be used. Maximum of 15mL only allowed under this PGD for single site biopsies.
Frequency of dose/Duration of treatment	Commonly one treatment, but consideration is required when multifocal or bilateral breast biopsies are required.
Maximum or minimum treatment period	N/A
Route/Method of Administration	Lidocaine 1% with adrenaline injection is injected to deeper tissue in approximately 3mL increments (maximum of 15mL per individual) directed toward the indeterminate lesion that is to be biopsied.

Lidocaine (Xylocaine) 1% w/v with Adrenaline (Epinephrine) 1:200,000 Solution For Injection (20mL) (Administer)	
	The needle should be inserted and Lidocaine1% with adrenaline injected slowly, allowing 1-2 minutes for the injection to take effect. Each injection of Lidocaine1% with adrenaline injection must be preceded by aspiration to ensure needle is not intravascular.
Quantity to be administered/ supplied	Injected to breast tissue in approximately 3mL increments to a maximum of 15mL. The quantity to be administered will vary according to site(s) and size of biopsy/biopsies, but must never exceed 15mL under this PGD.
Potential Adverse Reactions	Refer to the product Summary of Product Characteristics (SmPC) for full details of known adverse effects. The below list details reported adverse effects and does not represent all the product's known adverse effects: Adverse effects are rare and usually the result of excessively high blood concentration due to inadvertent intravascular injection, excessive dosage, rapid absorption or occasionally due to hypersensitivity. Side effects include paraesthesia, dizziness, bradycardia, hypotension, hypertension, nausea and vomiting. Systemic toxicity reactions can occur and the first symptoms of toxicity are usually, circumoral paraesthesia, numbness of the tongue, light headedness, hyperacusis, tinnitus and visual disturbances. See SmPC for further information. APR's must be aware of the risks, signs and symptoms as well as the treatment for acute systemic toxicity.
Advice	Patient advice leaflet given.
Follow up (If applicable)	Individuals should not leave if they are feeling unwell without speaking to the Advanced Practitioner Radiographer first. If necessary, a Radiologist should be contacted for advice.
Storage	Storage between +2°C and +8°C. Do not freeze. The product must be discarded if frozen.