

# Administration Case Report: Ankle Fracture

This case report represents the individual experience of Dr John W. Munz, and is intended to demonstrate his methodology for using EXPAREL in patients undergoing ankle fracture surgery.

Pacira BioSciences, Inc. recognizes that there are alternative methodologies for administering local anesthetics, as well as individual patient considerations when selecting the dose for a specific procedure.

EXPAREL is a local anesthetic that produces postsurgical analgesia in patients aged 6 years and older. It is administered via single-dose infiltration. When infiltrated into the surgical site, it produces local analgesia. It may also be infiltrated in the fascial plane to produce regional analgesia as a regional field block. Regional anesthetic techniques to produce regional analgesia include, but are not limited to, transversus abdominis plane (TAP) block, pectoralis (PEC) and serratus anterior plane (SAP) blocks, erector spinae plane (ESP) block, and quadratus lumborum (QL) block. EXPAREL may also be administered in adults as an interscalene brachial plexus nerve block, a sciatic nerve block in the popliteal fossa, and an adductor canal block to produce postsurgical regional analgesia.

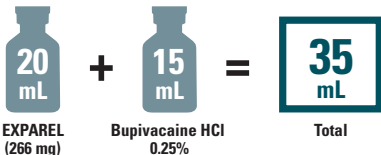
## CASE INFORMATION

<b>Physician Name</b>	John W. Munz, MD
<b>Affiliation</b>	Orthopedic Trauma Surgeon, University of Texas Health and McGovern Medical School Memorial Hermann Hospital, Houston, TX
<b>Surgical Case Performed</b>	Open reduction and internal fixation of right trimalleolar ankle fracture
<b>Inpatient or Outpatient Procedure</b>	Outpatient

## PATIENT CHARACTERISTICS

<b>Gender</b>	Female
<b>Age</b>	36 years
<b>Patient History and Characteristics</b>	Patient presented 9 days prior with a trimalleolar fracture of the right ankle with compromised medial soft tissue due to a fall down the stairs and is returning for surgery. The patient had a history of nausea with opioid medications and requested to avoid taking any opioid medications.

## PROCEDURAL DETAILS

<b>Incision Size</b>	Posterolateral: 15 cm (prone position) Medial: 7 cm (supine position)
<b>Preoperative Analgesics Used</b>	PO acetaminophen 500 mg
<b>Intraoperative Analgesics Used</b>	Fentanyl upon induction of general anesthesia
<b>Dose of EXPAREL and Total Volume Used</b>	 <p>The diagram illustrates the combination of two syringes. The first syringe is labeled '20 mL EXPAREL (266 mg)'. The second syringe is labeled '15 mL Bupivacaine HCl 0.25%'. An equals sign follows, leading to a box labeled '35 mL Total'.</p>

PO=by mouth.

The recommended dose of EXPAREL for infiltration in adults is based on the size of the surgical site, the volume required to cover the area, and individual patient factors that may impact the safety of an amide local anesthetic. The maximum dose of EXPAREL should not exceed 266 mg. The recommended dose of EXPAREL for patients aged 6 to <17 years old is 4 mg/kg, up to a maximum of 266 mg. The recommended dose of EXPAREL in adults for interscalene brachial plexus nerve block, sciatic nerve block in the popliteal fossa, and adductor canal is 133 mg. The recommended dose of EXPAREL in adults for adductor canal block is 133 mg (10 mL) admixed with 50 mg (10 mL) of 0.5% bupivacaine HCl, for a total volume of 20 mL.

EXPAREL can be administered unexpanded (20 mL) or expanded to increase volume up to a total of 300 mL (final concentration of 0.89 mg/mL [ie, 1:14 dilution by volume]) with normal (0.9%) saline or lactated Ringer's solution.

Bupivacaine HCl (which is approved for use in patients aged 12 and older) may be administered immediately before EXPAREL or admixed in the same syringe, as long as the ratio of the milligram dose of bupivacaine HCl to EXPAREL does not exceed 1:2. Admixing may impact the pharmacokinetic and/or physicochemical properties of EXPAREL, and this effect is concentration dependent. The toxic effects of these drugs are additive and their administration should be used with caution, including monitoring for neurological and cardiovascular effects related to local anesthetic systemic toxicity. Other than with bupivacaine, EXPAREL should not be admixed with other drugs prior to administration.

**Please see Important Safety Information on the last page and refer to accompanying full Prescribing Information, which is also available at [www.EXPARELpro.com](http://www.EXPARELpro.com).**

**INFILTRATION NOTES****ASSESSED THE SIZE OF THE SURGICAL SITE AND DEPTH OF TISSUE, THEN PREPARED INJECTION MATERIALS ACCORDINGLY**

In this procedure, Dr Munz determined a total volume of 35 mL would be needed to cover the surgical site. He admixed 20 mL of EXPAREL<sup>®</sup> (bupivacaine liposome injectable suspension) with 15 mL of 0.25% bupivacaine HCl. Bupivacaine HCl was added to provide short-term local analgesia in the postanesthesia care unit that overlapped with the long-term local analgesia provided by EXPAREL.

**DIVIDED INJECTATE INTO SYRINGES WITH NEEDLE SIZES APPROPRIATE FOR INFILTRATION (23-GAUGE) AND PLANNED WHICH AREAS TO INFILTRATE WITH EACH INJECTION**

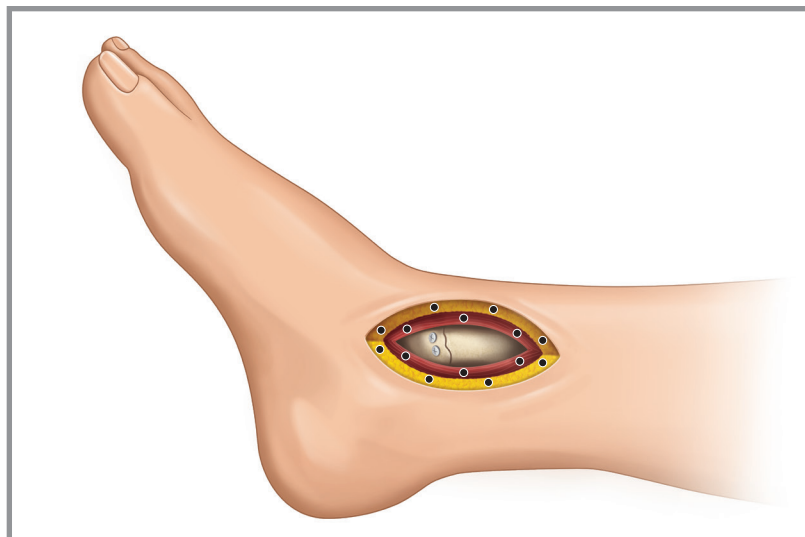
For this procedure, Dr Munz divided the injectate into two 20-mL syringes using 23-gauge needles and infiltrated as follows:



Dr Munz did not use a smaller needle (eg, 27 gauge) due to concerns about shearing of liposomes and the early release of EXPAREL.



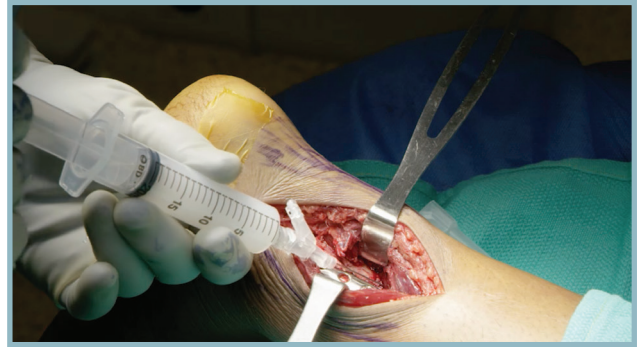
- **Step #1:**  
Posterolateral incision



- **Step #2:**  
Medial incision

**INFILTRATION NOTES (cont)****■ Step #1:**

After completion of the posterolateral approach and fixation, the incision was irrigated and infiltrated with 20 mL of the EXPAREL<sup>®</sup> (bupivacaine liposome injectable suspension) (266 mg/20 mL) injectate. 1 to 2 mL was infiltrated every 1.0 to 1.5 cm into the deepest layers (periosteum, muscular, and dermal layers) and the subcutaneous layers.

**■ Step #2:**

After completion of the medial approach and fixation, the incision was irrigated and infiltrated with 15 mL of the EXPAREL injectate. 1 to 2 mL was infiltrated every 1.0 to 1.5 cm into the deepest layers (periosteum, muscular, and dermal layers) and the subcutaneous layers.

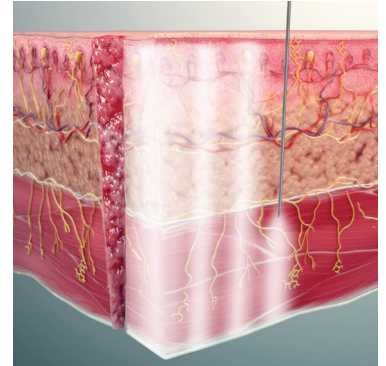


Slowly inject as the needle is withdrawn to create a column of medication, ensuring analgesic coverage throughout all layers.

## INFILTRATION NOTES (cont)

### PROPER TECHNIQUE IS CRUCIAL FOR ANALGESIC COVERAGE

Dr Munz infiltrated EXPAREL<sup>®</sup> (bupivacaine liposome injectable suspension) into all tissue layers using a moving needle technique. With a moving needle technique, the injections were spread in a fanlike pattern and occurred as the needle was both inserted and withdrawn to maximize the coverage area. This technique was systematically and meticulously repeated at each injection site, with overlapping diffusion of EXPAREL to ensure there were no gaps in analgesic coverage.



Watch Dr Munz infiltrate with EXPAREL at [www.EXPARELpro.com](http://www.EXPARELpro.com)

#### Indication

EXPAREL<sup>®</sup> (bupivacaine liposome injectable suspension) is indicated to produce postsurgical local analgesia via infiltration in patients aged 6 years and older and regional analgesia in adults via an interscalene brachial plexus nerve block, sciatic nerve block in the popliteal fossa, and an adductor canal block. Safety and efficacy have not been established in other nerve blocks.

#### Important Safety Information

EXPAREL is contraindicated in obstetrical paracervical block anesthesia.

Adverse reactions reported in adults with an incidence greater than or equal to 10% following EXPAREL administration via infiltration were nausea, constipation, and vomiting; adverse reactions reported in adults with an incidence greater than or equal to 10% following EXPAREL administration via nerve block were nausea, pyrexia, headache, and constipation.

Adverse reactions with an incidence greater than or equal to 10% following EXPAREL administration via infiltration in pediatric patients six to less than 17 years of age were nausea, vomiting, constipation, hypotension, anemia, muscle twitching, vision blurred, pruritus, and tachycardia.

Do not admix lidocaine or other non-bupivacaine local anesthetics with EXPAREL. EXPAREL may be administered at least 20 minutes or more following local administration of lidocaine.

EXPAREL is not recommended to be used in the following patient populations: patients <6 years old for infiltration, patients younger than 18 years old for nerve blocks, and/or pregnant patients.

Because amide-type local anesthetics, such as bupivacaine, are metabolized by the liver, EXPAREL should be used cautiously in patients with hepatic disease.

#### Warnings and Precautions Specific to EXPAREL

Avoid additional use of local anesthetics within 96 hours following administration of EXPAREL.

EXPAREL is not recommended for the following types or routes of administration: epidural, intrathecal, regional nerve blocks **other than interscalene brachial plexus nerve block, sciatic nerve block in the popliteal fossa, and adductor canal block**, or intravascular or intra-articular use.

The potential sensory and/or motor loss with EXPAREL is temporary and varies in degree and duration depending on the site of injection and dosage administered and may last for up to 5 days, as seen in clinical trials.

#### Warnings and Precautions for Bupivacaine-Containing Products

**Central Nervous System (CNS) Reactions:** There have been reports of adverse neurologic reactions with the use of local anesthetics. These include persistent anesthesia and paresthesia. CNS reactions are characterized by excitation and/or depression.

**Cardiovascular System Reactions:** Toxic blood concentrations depress cardiac conductivity and excitability, which may lead to dysrhythmias, sometimes leading to death.

**Allergic Reactions:** Allergic-type reactions (eg, anaphylaxis and angioedema) are rare and may occur as a result of hypersensitivity to the local anesthetic or to other formulation ingredients.

**Chondrolysis:** There have been reports of chondrolysis (mostly in the shoulder joint) following intra-articular infusion of local anesthetics, which is an unapproved use.

**Methemoglobinemia:** Cases of methemoglobinemia have been reported with local anesthetic use.

**Disclosure:** Dr Munz is a paid consultant for Pacira BioSciences, Inc.

**Full Prescribing Information is available at [www.EXPARELpro.com](http://www.EXPARELpro.com).  
For more information, please visit [www.EXPARELpro.com](http://www.EXPARELpro.com) or call 1-855-793-9727.**