



The Natural Place

Med Spa



Workbook for Efficient IV Setup and Therapy at The Natural Place MedSpa

This workbook combines the best practices for IV therapy, vitamin references, and detailed protocols to ensure efficient and safe administration of IV therapies. It is tailored for The Natural Place MedSpa to enhance the skills of practitioners and improve client outcomes.

Section 1: Best Practices for IV Therapy

Preparation and Confidence

1. **Stay Focused and Prepared:** Ensure all materials are ready, and the patient is comfortable. Explain the procedure to reduce anxiety.
2. **Exude Confidence:** A confident demeanor reassures the patient and improves procedural success.
3. **Assess for Needle Phobia:** Use a soothing tone, keep needles out of sight, and consider topical anesthetics for patients with needle anxiety.

Vein Selection and Cannula Insertion

- **Start Distally:** Begin with veins in the hand and work proximally.
- **Feel Rather Than Look:** Trust your fingers to locate veins, especially in challenging cases.
- **Use Appropriate Cannula Sizes:**
 - **14G (Orange):** For massive trauma.
 - **20G (Pink):** Multi-purpose IV for medications and hydration.
 - **22G (Blue):** Ideal for elderly or pediatric patients.
- **Insertion Angle:** Insert the catheter at a 15-30° angle with the bevel up.

Securing the IV Line

- **Proper Taping:** Tape the tubing away from the cannula site to prevent discomfort.
- **Stress Loops:** Use stress loops to prevent accidental yanking of the IV line.

Section 2: Vitamin and Therapy Reference

L-Lysine



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- **Benefits:**
 - Anti-viral properties.
 - Supports osteoporosis treatment.
 - Enhances athletic recovery and lean muscle development.
- **Usage:** Administered via IM or as an IV add-on.

Methylene Blue IV Therapy

- **Benefits:**
 - Reduces inflammation and oxidative stress.
 - Enhances mitochondrial function and glucose metabolism.
- **Protocol:**
 - Standard dose: 1 mg/kg body weight.
 - Administer in 250-500 ml D5W over 45-75 minutes.
 - Contraindications: G6PD deficiency, renal failure, pregnancy, and SSRIs.

NAD Therapy

- **Benefits:**
 - Improves energy, mental clarity, and cellular repair.
 - Reduces cravings for substances like caffeine and nicotine.
- **Protocol:**
 - Standard dose: 500 mg in 500 ml NS over 4 hours.
 - Maximum dose: 1500 mg over 12 hours for specific conditions like opiate withdrawal.

Section 3: Step-by-Step IV Setup

Materials Needed

- IV catheter (22G or 24G recommended for most cases).
- Tourniquet, alcohol swabs, Tegaderm, saline flush.
- IV solution (e.g., D5W, NS) and required nutrients.

Procedure

19. **Preparation:**
 - Wear PPE and ensure all materials are sterile.
 - Confirm the patient's medical history and obtain informed consent.
20. **Vein Selection:**
 - Use a BP cuff or warm compress to dilate veins.
 - For difficult veins, consider vein locators or the multiple-tourniquet technique.
21. **Insertion:**
 - Stabilize the vein and insert the catheter at the correct angle.
 - Look for flashback to confirm vein entry.
22. **Infusion:**
 - Start the IV infusion slowly to monitor for adverse reactions.



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- Adjust the flow rate as needed based on the therapy protocol.
- 23. **Post-Procedure:**
 - Secure the IV line with proper taping.
 - Monitor the patient for any signs of infiltration or adverse reactions.

Section 4: Troubleshooting and Special Considerations

Common Challenges

- **Difficult Veins:** Use warm compresses, gravity, or nitroglycerin ointment to improve visibility.
- **Infiltration:** Stop the infusion immediately, elevate the limb, and restart at a different site.
- **Adverse Reactions:** Have emergency medications like epinephrine and Benadryl on hand.

Special Populations

- **Elderly and Pediatric Patients:** Use smaller gauge needles (22G or 24G) and stabilize the site to prevent movement.
- **Patients with Dark Skin Tones:** Use a BP cuff or alcohol swab to enhance vein visibility.

Section 5: Client Education

Before the IV

- Hydrate well and eat a light meal to prevent lightheadedness.
- Wear loose clothing for easy access to the arm.

During the IV

- Inform clients about normal sensations (e.g., coolness, metallic taste).
- Encourage minimal movement to prevent dislodging the catheter.

For specific medications or supplements

Many medications and nutritional supplements can cause temporary alterations in taste.

- **Metallic taste:** Certain antibiotics, antidepressants, and blood pressure medications are known to cause a metallic or bitter taste. This sensation usually goes away after the body has absorbed the medication.
- **Vitamin supplements:** Vitamins containing heavy metals like copper, zinc, or chromium can also cause a metallic taste, as can iron or calcium supplements.

After the IV

- Advise clients to stay hydrated and monitor for any redness or swelling at the site.



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- Explain that mild fatigue or nausea may occur as the body adjusts to the therapy.

Section 6: Documentation and Compliance

- Record all procedures, including:
 - Patient assessments and vitals.
 - Lot numbers and expiration dates of solutions.
 - Signed consent forms.
- Report any adverse reactions to the Medical Director immediately.

Section 1: Contraindications for IV Therapy

General Contraindications

4. **Severe Allergies or Anaphylaxis:** History of hypersensitivity to any IV ingredients, including glutathione.
5. **Pregnancy:** Avoid therapies like Methylene Blue IV.
6. **Renal Failure:** Caution with therapies that reduce renal blood flow.
7. **Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency:** Risk of hemolytic anemia with Methylene Blue.
8. **Sulfa Allergy and Asthma:** Avoid glutathione administration.
9. **SSRIs:** Contraindicated for Methylene Blue IV therapy due to serotonin syndrome risk.
10. **Vitamin D and Lipotropic B12:** Never administer intravenously; these are strictly for IM use.

Specific Therapy Contraindications

- **Methylene Blue IV:**
 - Severe hypersensitivity reactions.
 - Renal failure.
 - Pregnancy.
 - SSRIs.
- **Vitamin C IV:**
 - Diabetes patients may experience inaccurate blood sugar readings for up to 8 hours post-infusion.

Section 2: Quick Reference Guide

Cannula Sizes and Uses

Gauge	Color	Recommended Use
14G	Orange	Massive trauma situations.



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Gauge	Color	Recommended Use
16G	Green	Trauma, surgeries, large-volume infusions.
18G	Green	Blood transfusion, large-volume infusions.
20G	Pink	Multi-purpose IV for medications and hydration.
22G	Blue	Chemo infusions, elderly/pediatric patients.
24G	Yellow	Fragile veins, elderly/pediatric patients.

Vitamin Therapy Protocols

Plenish Standard Vitamins Magnesium Chloride, Calcium Gluconate, Thiamine HCl

Riboflavin, Pyridoxine HCl, Niacinamide, Dexpantenol, Cyanocobalamin

Core benefits from key ingredients

Magnesium Chloride

- **Boosts energy production** by helping convert food into usable energy.
- **Reduces fatigue** by supporting the production of ATP, the main energy source for cells.
- **Supports muscle and nerve function** and reduces muscle cramping.
- **Supports cardiovascular health** by helping regulate blood pressure and heart rhythm.



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- **Enhances mood** and can help reduce anxiety.

Calcium Gluconate

- **Maintains strong bones and teeth** by providing a source of elemental calcium.
- **Supports heart health** and helps regulate muscle contraction and nerve function.
- **Corrects calcium deficiencies** and is used to treat conditions like osteoporosis.

B-Complex vitamins

The B-complex, including Thiamine, Riboflavin, Pyridoxine, Niacinamide, Dexpanthenol, and Cyanocobalamin, is vital for cellular metabolism, stress management, and energy production.

- **Thiamine HCl (Vitamin B1):** Essential for converting nutrients into energy and supporting the nervous system.
- **Riboflavin (Vitamin B2):** Converts food into energy, helps metabolize fats and proteins, and acts as an antioxidant.
- **Pyridoxine HCl (Vitamin B6):** Plays a key role in producing neurotransmitters that regulate mood and energy. It also helps with protein and carbohydrate breakdown.
- **Niacinamide (Vitamin B3):** Supports metabolism, aids in DNA repair, and provides multiple benefits for skin health, including improving texture and reducing inflammation.
- **Dexpanthenol (Vitamin B5):** Crucial for synthesizing coenzyme A, which is essential for fatty acid metabolism and energy conversion. It also supports healthy skin and hair.
- **Cyanocobalamin (Vitamin B12):** Necessary for red blood cell production, healthy nerve function, and DNA synthesis. Low levels can lead to fatigue.

Who might benefit?

This combination of vitamins and minerals is often used to support overall wellness and may be particularly beneficial for individuals experiencing:

- Fatigue and low energy
- Symptoms of a hangover
- Nerve and muscle problems



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- Stress
- Nutrient deficiencies related to certain medical conditions

Amino Acids Arginine HCl , Glutamine , Lysine HCl, Proline

Amino acids for repair and function

- **Arginine HCl:** Helps the body produce nitric oxide, which relaxes blood vessels and improves blood flow. This can benefit heart health and circulation.
- **Glutamine:** The most abundant amino acid in the blood, it is used for energy, particularly in the immune system and gut cells. It also supports nitrogen balance for tissue repair.
- **Lysine HCl:** An essential amino acid used to restore and produce protein hormones. It is involved in collagen formation, calcium absorption, and may have antiviral properties.
- **Proline:** A non-essential amino acid critical for collagen production. It supports tissue repair and wound healing, skin elasticity, and joint health.

- **B1/B6**

- **Pyridoxine HCl (Vitamin B6):** Involved in more than 150 enzymatic reactions in the body. It promotes brain health, helps produce hemoglobin and neurotransmitters, and plays a role in mood regulation.

Cl, Pyridoxine HCl

Thiamine HCl (Vitamin B1): Crucial for changing carbohydrates into energy, it also plays an important role in nerve signal conduction and muscle contraction

- **L-Lysine:**
 - **Benefits:** Anti-viral, supports bone health, enhances athletic recovery.



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- **Dosage:** IM or IV add-on, 1 ml = 100 mg.
- **Methylene Blue:**
 - **Dosage:** 1 mg/kg in 250-500 ml D5W over 45-75 minutes.
 - **Maximum Dose:** 4 mg/kg in 500 ml D5W.
- **NAD Therapy:**
 - **Standard Dose:** 500 mg in 500 ml NS over 4 hours.
 - **Maximum Dose:** 1500 mg over 12 hours for opiate withdrawal.

Section 3: Vein Selection Techniques

Best Practices for Vein Selection

16. **Start Distally:** Begin with veins in the hand and work proximally.
17. **Feel Rather Than Look:** Use fingers to locate veins; tendons may feel similar but can be differentiated by movement.
18. **Use a BP Cuff:** Inflate to appropriate pressure for vein dilation, especially in older patients or those with low BP.
19. **Tourniquet Application:** Place snugly 20-25 cm above the insertion site. Ensure radial pulse is palpable to avoid over-tightening.
20. **Gravity Assistance:** Let the arm dangle to promote venous filling.
21. **Warm Compress:** Apply for 10-20 minutes to dilate veins.
22. **Avoid Slapping:** Instead, flick or tap the vein gently to release histamines and promote dilation.

Special Considerations

- **Pediatric and Elderly Patients:** Use smaller gauge needles (22G or 24G) and stabilize the site to prevent movement.
- **Dark Skin Tones:** Use a BP cuff or alcohol swab to enhance vein visibility.
- **Valves and Bifurcations:** Use the floating technique for veins with valves and access bifurcating veins below the split.

Section 4: Visual Aids

Vein Locator Tools

- **AccuVein Example:** A transilluminator light or pocket ultrasound can illuminate vein pathways for better visualization.

Common Venipuncture Sites

27. **Dorsal Metacarpal Veins:** Located on the back of the hand.
28. **Cephalic Vein:** Runs along the radial side of the forearm.
29. **Median Cubital Vein:** Found in the antecubital fossa.
30. **Accessory Cephalic Vein:** Branches off the cephalic vein.



Illustrations

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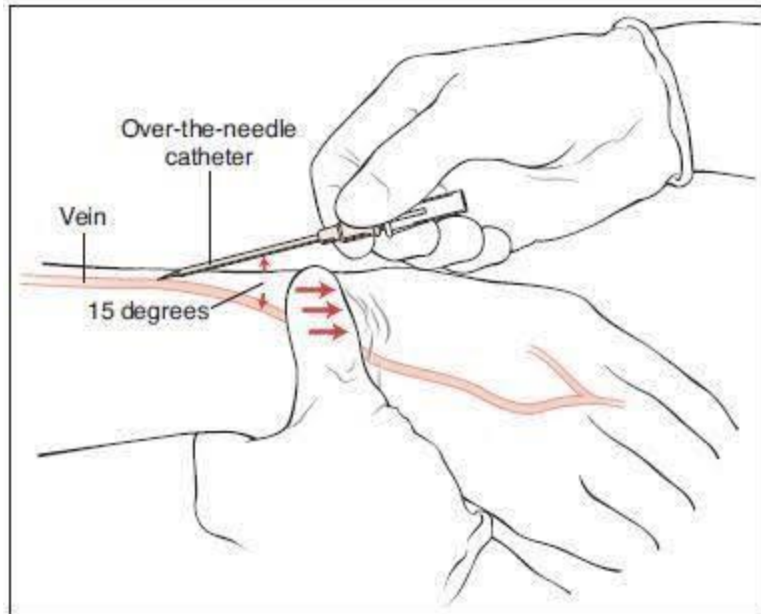


- **Vein Locator Example:** Visual representation of vein pathways using AccuVein.
- **Cannula Insertion Diagram:** Step-by-step guide showing proper insertion angle (15-30°) and bevel orientation.



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Section 5: Troubleshooting and Adverse Reactions

Common Challenges

- 34. **Infiltration:** Stop infusion, elevate the limb, and restart at a different site.
- 35. **Resistance During Insertion:** Discontinue if resistance is felt to avoid vein injury.
- 36. **Adverse Reactions:**
 - **Mild:** Administer Benadryl 50 mg IM or IV push.
 - **Moderate:** Administer Epinephrine via EpiPen and follow emergency protocols.
 - **Severe:** Dial 911 and monitor vitals closely.

Section 6: Client Education

Before the IV

- Hydrate well and eat a light meal to prevent lightheadedness.
- Wear loose clothing for easy access to the arm.

During the IV

- Inform clients about normal sensations (e.g., coolness, metallic taste).
- Encourage minimal movement to prevent dislodging the catheter.

After the IV



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- Advise clients to stay hydrated and monitor for redness or swelling at the site.
- Explain that mild fatigue or nausea may occur as the body adjusts to the therapy.

What Are the Side Effects of Infusion Therapy?

Infusion therapy is an effective treatment, but like any medical procedure, it can come with potential side effects. These effects vary based on the medication type, your medical history, and the conditions being treated. Most side effects are mild and temporary, but some may require medical attention.

Common Side Effects

- **Fatigue:** It's normal to feel tired after treatment as your body adjusts to the medication.
- **Nausea or upset stomach:** Certain therapies can affect the digestive system.
- **Changes in blood pressure:** Some treatments may cause low or high blood pressure, leading to dizziness or lightheadedness.
- **Allergic reactions:** This could include itching, rash, or, in more serious cases, difficulty breathing.
- **Heart rate fluctuations:** Some medications can temporarily speed up or slow down your heart rate.

What can I help with next?

hard poke references and lack of water, not to come over that hurdle

Overcoming Hard Pokes and Dehydration Challenges in IV Therapy

This section provides actionable strategies to address difficulties in vein access due to dehydration or challenging vein conditions, ensuring successful IV therapy administration.

Challenges with Hard Pokes and Dehydration

0. **Hard Pokes:** Veins that are difficult to access due to scarring, rolling, or fragility.
1. **Dehydration:** Dehydrated patients often have collapsed or less visible veins, making venipuncture challenging.

Strategies to Overcome Hard Pokes

Vein Selection Techniques

2. **Feel Rather Than Look:**
 - Use your fingers to palpate veins instead of relying solely on visual cues. Veins that are not visible may still be palpable.
 - Differentiate veins from tendons by palpating through a range of motion.
3. **Start Distally:**
 - Begin with veins in the hand and work proximally. Avoid starting at the most proximal point to preserve other potential sites.
4. **Use a BP Cuff Instead of a Tourniquet:**



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- Inflate the cuff to appropriate pressure to dilate veins evenly, especially for older patients or those with low blood pressure.
- 5. **Warm Compress:**
 - Apply a warm, moist compress for 10-20 minutes to dilate veins and make them more visible.
- 6. **Flick or Tap the Vein:**
 - Flick the vein gently with your thumb and second finger to release histamines and promote dilation. Avoid slapping, as it can cause vein contraction.
- 7. **Nitroglycerin Ointment:**
 - Apply nitroglycerin ointment to the site for 1-2 minutes to dilate small veins. Remove the ointment before final disinfection.
- 8. **Use Vein Locator Tools:**
 - Devices like transilluminator lights or pocket ultrasound machines can illuminate vein pathways for better visualization.

Insertion Techniques

- 9. **Stabilize the Vein:**
 - Pull the skin taut below the entry site to support the vein and reduce pain during insertion.
- 10. **Bevel Up:**
 - Ensure the bevel of the needle faces upward for smoother entry.
- 11. **Angle of Insertion:**
 - Insert the catheter at a 15-30° angle over the skin.
- 12. **Twirl the Catheter Hub:**
 - Use a slight rotating motion to overcome mild obstructions or frictional resistance.

Strategies to Address Dehydration

Pre-Treatment Preparation

- 13. **Hydration Before IV:**
 - Encourage patients to drink water before their appointment. Hydrated veins are firmer and easier to access.
- 14. **Gravity Assistance:**
 - Let the patient's arm dangle to promote venous filling.
- 15. **Movement:**
 - Ask the patient to clench and unclench their fist to compress distal veins and distend them.

During Treatment

- 16. **Use Larger Veins:**
 - For hypovolemic patients, target larger veins as smaller ones collapse more quickly.
- 17. **Multiple-Tourniquet Technique:**
 - Apply two or three tourniquets at different points on the arm to make collateral veins appear.
- 18. **Slow Infusion Start:**
 - Begin the IV infusion slowly to monitor for adverse reactions and prevent vein blowouts.



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Visual Options

Common Venipuncture Sites

19. **Dorsal Metacarpal Veins:** Located on the back of the hand.
20. **Cephalic Vein:** Runs along the radial side of the forearm.
21. **Median Cubital Vein:** Found in the antecubital fossa.
22. **Accessory Cephalic Vein:** Branches off the cephalic vein.

Illustrations

- **Vein Locator Example:** Visual representation of vein pathways using tools like AccuVein.
- **Cannula Insertion Diagram:** Step-by-step guide showing proper insertion angle and bevel orientation.

Troubleshooting

25. **Resistance During Insertion:**
 - If resistance is felt, discontinue insertion to avoid vein injury.
26. **Infiltration:**
 - Stop infusion immediately, elevate the limb, and restart at a different site.
27. **Adverse Reactions:**
 - Have emergency medications like epinephrine and Benadryl on hand.

Section 1: Vein-Finding Techniques

Best Practices for Locating Veins

28. **Start Distally:**
 - Begin with veins in the hand and work proximally. Avoid starting at the most proximal point to preserve other potential sites.
29. **Feel Rather Than Look:**
 - Use your fingers to palpate veins instead of relying solely on visual cues. Veins that are not visible may still be palpable.
 - Differentiate veins from tendons by palpating through a range of motion.
30. **Use Gravity:**
 - Let the patient's arm dangle to promote venous filling. Gravity slows venous return and distends veins, making them easier to locate.
31. **Warm Compress:**
 - Apply a warm, moist compress for 10-20 minutes to dilate veins and make them more visible.
32. **Flick or Tap the Vein:**
 - Flick the vein gently with your thumb and second finger to release histamines and promote dilation. Avoid slapping, as it can cause vein contraction.
33. **Use Vein Locator Tools:**
 - Devices like transilluminator lights or pocket ultrasound machines can illuminate vein pathways for better visualization.
34. **BP Cuff Instead of Tourniquet:**



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- Inflate the cuff to appropriate pressure to dilate veins evenly, especially for older patients or those with low blood pressure.

Section 2: Overcoming Dehydration Challenges

Pre-Treatment Preparation

35. **Hydration Before IV:**
 - Encourage patients to drink water before their appointment. Hydrated veins are firmer and easier to access.
36. **Movement:**
 - Ask the patient to clench and unclench their fist to compress distal veins and distend them.

During Treatment

37. **Use Larger Veins:**
 - For hypovolemic patients, target larger veins as smaller ones collapse more quickly.
38. **Multiple-Tourniquet Technique:**
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Section 3: Visual Aids

Common Venipuncture Sites

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Illustrations

- **Vein Locator Example:** Visual representation of vein pathways using tools like AccuVein.
- **Cannula Insertion Diagram:** Step-by-step guide showing proper insertion angle (15-30°) and bevel orientation.

Section 4: Glossary

Key Terms

46. **Cannula:** A tube inserted into the body for fluid delivery or removal.
47. **Tourniquet:** A device used to compress veins and make them more visible.
48. **Flashback:** The appearance of blood in the catheter chamber, indicating vein entry.
49. **Infiltration:** Leakage of IV fluid into surrounding tissues due to dislodged catheter.



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50. **Nitroglycerin Ointment:** A topical agent used to dilate small veins.

Section 5: References

Visual References

51. **AccuVein Locator:** Example of vein visualization technology.
52. **Cannula Gauges:**
- **14G (Orange):** Massive trauma situations.
 - **20G (Pink):** Multi-purpose IV for medications and hydration.
 - **22G (Blue):** Ideal for elderly or pediatric patients.

Protocol References

53. **Hydration Tips:**
- Encourage water intake before IV therapy.
 - Use warm compresses and gravity to improve vein visibility.
54. **Vein Selection Techniques:**
- Start distally and work proximally.
 - Use BP cuffs for even compression.

Section 6: Workbook Exercises

Skill Validation Checklist

55. **Peripheral IV Catheter Insertion:**
- Assess vein condition and select appropriate gauge size.
 - Demonstrate proper insertion angle and technique.
56. **Troubleshooting:**
- Practice identifying infiltration and resolving complications.
 - Use vein locators and palpation techniques in simulated scenarios.

Section 1: Preserved vs. Non-Preserved Vials

Definitions

- **Preserved Vials:** Contain preservatives to prevent microbial growth, allowing for multiple uses. These are typically labeled as "multi-dose vials."
- **Non-Preserved Vials:** Do not contain preservatives and are intended for single use only. These are labeled as "single-dose vials."

Safety Guidelines

59. **Preserved Vials:**
- Safe for multiple uses within 28 days after the first puncture.



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- Must be refrigerated after opening.
 - Always use a sterile needle and syringe for each withdrawal to prevent contamination.
60. **Non-Preserved Vials:**
- Use immediately after opening.
 - Discard any unused portion to avoid contamination.

When to Use

- **IV Therapy:** Both preserved and non-preserved vials can be used, depending on the protocol. Always follow the manufacturer's instructions.
- **IM Therapy:** Preserved vials are preferred for multiple injections over time. Non-preserved vials are ideal for single-use injections.

Who Can Receive These Injections

- **Eligibility:**
 - Patients without allergies to the vial components.
 - Patients with no contraindications such as asthma or sulfa allergies (for glutathione).
 - Pregnant patients should avoid certain therapies like Methylene Blue.

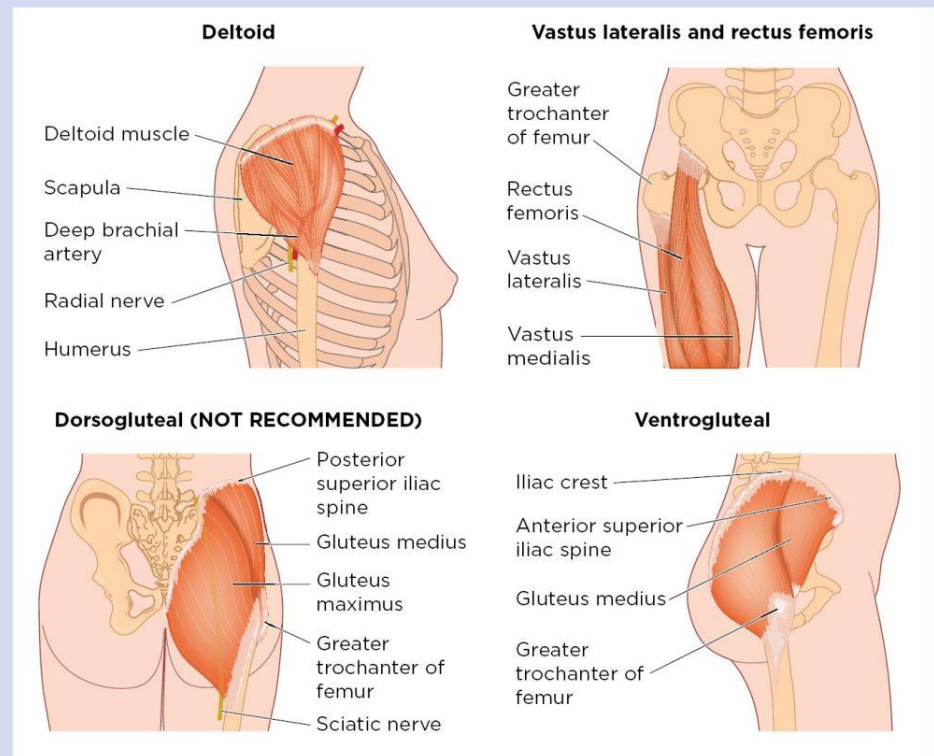
Section 2: IM Injection Techniques



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Fig 1. Sites for intramuscular injection



Injection Sites

64. **Deltoid Muscle (Upper Arm):**
 - Locate the acromion process (bony top of the shoulder).
 - Measure 2-3 finger widths below the acromion.
 - Inject into the thickest part of the muscle.
65. **Ventrogluteal Muscle (Hip):**
 - Place the palm on the greater trochanter (hip bone).
 - Point the index finger toward the anterior superior iliac spine.
 - Spread the middle finger back along the iliac crest to form a "V."
 - Inject into the center of the "V."
66. **Dorsogluteal Muscle (Buttocks):**
 - Divide the buttock into four quadrants.
 - Inject into the upper outer quadrant to avoid the sciatic nerve.
67. **Vastus Lateralis Muscle (Thigh):**
 - Divide the thigh into thirds.
 - Inject into the middle third on the outer side of the thigh.

Injection Procedure



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68. Preparation:

- Wash hands and wear gloves.
- Clean the injection site with an alcohol swab.

69. Injection:

- Use a 23G or 25G needle for water-soluble products.
- Insert the needle at a 90° angle.
- Aspirate to check for blood return (optional based on protocol).
- Inject the medication slowly.

70. Post-Injection:

- Withdraw the needle and apply pressure with gauze.
- Dispose of the needle in a sharps container.

Section 3: Visual References

Illustrations

71. Injection Sites:

- Diagrams of the deltoid, ventrogluteal, dorsogluteal, and vastus lateralis muscles.

72. Vein Selection for IV Therapy:

- Visuals of common venipuncture sites (e.g., dorsal metacarpal veins, cephalic vein, median cubital vein).

73. Preserved vs. Non-Preserved Vials:

- Images showing vial labels and storage instructions.

Section 4: Glossary

- **Aseptic Technique:** A method to prevent contamination by pathogens.
- **Cannula:** A tube inserted into the body for fluid delivery or removal.
- **Flashback:** The appearance of blood in the catheter chamber, indicating vein entry.
- **Tourniquet:** A device used to compress veins and make them more visible.

Section 5: Workbook Exercises

Skill Validation Checklist

78. IV Therapy:

- Practice vein selection and catheter insertion.
- Demonstrate proper handling of preserved and non-preserved vials.

79. IM Therapy:

- Identify injection sites on a mannequin or diagram.
- Perform mock injections using proper technique.

○ Preserved Vials:

- Safe for multiple uses within 28 days after opening.
- Store in the refrigerator after first use.
- Use a sterile needle and syringe for each withdrawal.

○ Non-Preserved Vials:



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- Use immediately after opening.
- Discard any unused portion.

When to Use

- **IV Therapy:** Both preserved and non-preserved vials can be used.
- **IM Therapy:** Preserved vials are preferred for multiple injections; non-preserved vials are ideal for single-use injections.

Section 3: IM Injection Techniques

Injection Sites

84. **Deltoid Muscle (Upper Arm):**
 - Locate the acromion process.
 - Measure 2-3 finger widths below the acromion.
 - Inject into the thickest part of the muscle.
85. **Ventrogluteal Muscle (Hip):**
 - Place the palm on the greater trochanter.
 - Point the index finger toward the anterior superior iliac spine.
 - Spread the middle finger back along the iliac crest to form a "V."
 - Inject into the center of the "V."
86. **Dorsogluteal Muscle (Buttocks):**
 - Divide the buttock into four quadrants.
 - Inject into the upper outer quadrant.
87. **Vastus Lateralis Muscle (Thigh):**
 - Divide the thigh into thirds.
 - Inject into the middle third on the outer side of the thigh.

Injection Procedure

88. **Preparation:**
 - Wash hands and wear gloves.
 - Clean the injection site with an alcohol swab.
89. **Injection:**
 - Use a 23G or 25G needle for water-soluble products.
 - Insert the needle at a 90° angle.
 - Aspirate to check for blood return (optional).
 - Inject the medication slowly.
90. **Post-Injection:**
 - Withdraw the needle and apply pressure with gauze.
 - Dispose of the needle in a sharps container.

Common Diagrams of the deltoid, ventrogluteal, dorsogluteal, and vastus lateralis muscles.

- instructions.



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Section 6: Glossary

- **Aseptic Technique:** A method to prevent contamination.
- **Cannula:** A tube inserted into the body for fluid delivery or removal.
- **Flashback:** Blood in the catheter chamber, indicating vein entry.
- **Tourniquet:** A device used to compress veins.

Section 7: Workbook Exercises

Skill Validation Checklist

- 96. **IV Therapy:**
 - Practice vein selection and catheter insertion.
 - Demonstrate proper handling of preserved and non-preserved vials.
- 97. **IM Therapy:**
 - Identify injection sites on a mannequin or diagram.
 - Perform mock injections using proper technique.