

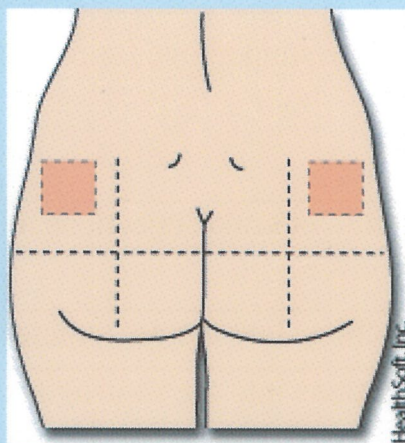
## Introduction

While spending time on placements I have witnessed many intramuscular (IM) injections into the dorsogluteal site, yet in nursing school we are taught to use the ventrogluteal site. I decided to look into the research surrounding both techniques: in order to come up with an evidence-based recommendation for nurses.

I developed a research question to help me do this: Which intramuscular injection site is the most effective for medication uptake and has the least risk factors for use: the dorsogluteal or the ventrogluteal site?

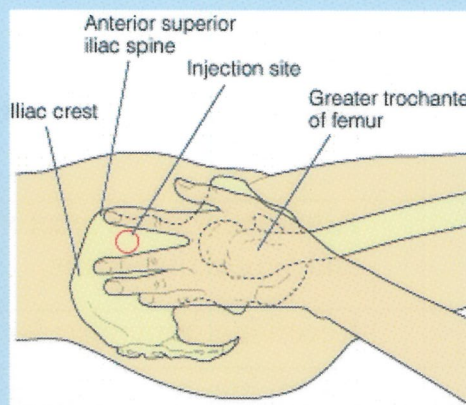
### Dorsogluteal site

Located in the upper outer quadrant of the buttock. It is located by dividing the buttocks into quarters using imaginary vertical and horizontal lines (Cocoman & Murray, 2008). This can be further broken down to the upper outer quadrant of the upper outer quadrant (Small, 2004).



### Ventrogluteal site

Located by placing the palm on the ball of the hipbone (great trochanter) with the thumb facing the groin. The index finger is placed on the patient's anterior superior iliac spine with the middle finger located dorsally toward but below the iliac crest.



The 'V' shape should be formed between the index and third finger; this is the landmark for the injection site (Cocoman & Murray, 2010).

- 99% of nurses in NZ have used this site before (Meyer & Floyd, 2007).
- 71% of nurses prefer the dorsogluteal site (Walsh & Brophy, 2011).
- Relies on visual cues for location meaning the site of injection becomes variable (Hesby & Nicoll, 2002).
- This site can be problematic due to the presence of major nerves (specifically the sciatic nerve) and blood vessels (Cocoman & Murray, 2010).
- The dorsogluteal site has a thicker layer of subcutaneous tissue compared to the ventrogluteal site (Cocoman & Murray, 2010; Colville et al., 2006).

- Only 9% of nurses in NZ report having ever used the ventrogluteal site (Meyer & Floyd, 2007).
- Relies on physical landmarks, making injections into the ventrogluteal site more accurate (Hesby & Nicoll, 2002).
- This site has an absence of major blood vessels and nerves (Cocoman & Murray, 2010).
- The ventrogluteal site has a greater thickness of muscle and a smaller layer of subcutaneous tissue (Cocoman & Murray, 2010; Colville et al., 2006).
- This site was developed in response to increasing complications relating to the dorsogluteal site (Cocoman & Murray, 2008).

## Literature Review

Colville et al., (2006) studied fifty patients who received IM injections along with 1ml of air into the dorsogluteal site. CT scans were conducted to determine the position of the air bubble. The study found that only 32% of the patients received injections into the muscle. Zaybek, Gunes, Tamsel, Khorshid, & Eser (2007) conducted a study on 119 obese patients (BMI greater than 24.9). The fat thickness was measured by ultrasound over the dorsogluteal IM injection site. The study found that only 2% of females and 63% of males would receive a true IM injection.

Rates of obesity across developed and developing countries are resulting in thicker subcutaneous fat layers. This means fewer injections are reaching muscle. In response to this Colville et al., (2006) recommends the use of longer needles, especially in female patients.

**Barriers to evidence based practice:** Nurses report unfamiliarity with locating the ventrogluteal site and reluctance to change from a technique they are comfortable with (Cocoman & Murray, 2008, Meyer & Floyd, 2007).

### Conclusion

Patient outcomes are improved by 28% when evidence based practice is utilised (Ammouri et al., 2014). The literature reviewed is in favour of using the ventrogluteal site over the dorsogluteal because it has least risk factors for use and a higher success rate for placement of medication into muscle.

### Recommendations

- Educate health professionals on how to correctly locate the ventrogluteal site.
- Provide education around matching a patient's BMI to an appropriate administration site and needle length.
- Bridging the 'theory-practice' gap by providing time to study, learn and practice.

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**Research Question:**

Which intramuscular injection site is the most effective for medication uptake and has the least risk factors for use: the dorsogluteal or the ventrogluteal site?

**PECOT model:**

I have used the PECOT model to assist in establishing the review question above for this literature review, as described by Whitehead and Schneider (2013).

Population	Adult individuals receiving intramuscular injections into the dorsogluteal and ventrogluteal site.
Exposure	Receiving intramuscular injections into the dorsogluteal site.
Comparison/ control	Receiving intramuscular injections into the ventrogluteal site.
Outcome	To determine the best site for medication to be administered via intramuscular injections with the least risk factors and the best absorption of medications.
Time	Time is not applicable to this review.

**Rationale for Poster:**

I decided to present my literature review in the form of a poster for various reasons.

Patient outcomes are improved by 28% when evidence based practice is utilised (Ammouri et al., 2014). Ammouri et al., (2014) also found that one of the biggest barriers to evidence based practice was the lack of time for research and lack of resources for implementation. This is supported in a study by Luyt et al., (2011) where nurses reported they would feel more comfortable implementing evidence based practice if they received time for training, learning and mentoring by an experienced nurse.

By creating a poster I am hoping to create a quick, visual representation of the evidence for intramuscular injections. I hope that this poster becomes a resource that health professionals can refer to and pick out relevant information from. Creating a poster is a way of reaching more health professionals and hopefully starting a conversation about traditional versus evidence based practice, and change the way of thinking from 'that's how we've always done it' to 'this is what evidence and research shows is best practice'.

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