Introduction
Background
Sacroiliac (SI) joint pain is a relatively common ailment, with these patients comprising 13-35% of all low-back pain (LBP) sufferers.1,2 SI pain is even more common in patients with failed back surgery (FBS). The commonly accepted standard of SI pain diagnosis is an intra-articular injection of local anesthetic.1 This diagnostic technique does not account for pain caused by the extra-articular soft tissue and ligamentous structures of the joint, which may make a significant contribution to pain in this patient population. Extra-articular soft tissues of the SI joint are likely innervated by lateral sacral nerves of S1-3 and the SI joint itself has been shown to be innervated by the same lateral sacral nerves as well as branches of the dorsal rami of L4-5.3

In recent years, there has been a growing interest in radiofrequency ablation (RFA) of lateral sacral nerves and lower lumbar dorsal rami to treat LBP of SI origin. Radiofrequency ablation (RFA) of the lateral sacral nerves and dorsal rami of L4-5 is an increasingly popular treatment for SI pain refractory to conservative treatment and injection therapies.4 Radiofrequency ablation of SI-3 lateral sacral nerves and dorsal rami of L4-5 following dual anesthetic block of the same nerves will provide relief of sacroiliac pain, including patients with a history of Failed Back Syndrome.5

Materials and Methods
Design
Retrospective Chart Review (IRB approved)
Setting
Mercy Hospital Pain Center, Portland, ME. Patient population is primarily residents of Maine with chronic pain of duration ≥3 months.
Participants/Subjects
Study subjects included patients treated by Dr. Terence Gray at Mercy Hospital between August 2013 and June 2014.

All patients receiving RF ablation within the given time period were included in the study.

16 consecutive procedures on 10 patients with a confirmed diagnosis of SI joint pain; 4 patients with Failed Back Syndrome, 6 without a back surgery history.

Results
In 31% of procedures (5/16), patients had a greater than 80% reduction in their NRS pain score 3-6 weeks post-procedure. The six patients without a back surgery history (4/8 procedures successful) appeared more likely to benefit from the procedure than the four previous back surgery patients (1/8 procedures successful), but the difference was not statistically significant (p=0.14).

Conclusions
Procedure success rates are consistent with those of other investigators. Lack of statistical significance of FBS findings could indicate insufficient statistical power due to small sample size, or could indicate there is no difference between groups. While not conclusive, results suggest radiofrequency ablation of the sacroiliac joint may be less effective for patients with failed back surgery than patients without a back surgery history.

Future Directions
Rigorously conducted randomized clinical trials of back surgery patients who experience post-surgery SI pain are required to determine the benefits of RFA in this population.

Acknowledgements
This research was sponsored by the University of New England Center for Excellence in the Neurosciences Research Fellowship and Carmen Pettapiece, D.O. Student Research Fund.

References

Figure 1: Lateral and A-P fluoroscopic images depicting needle placement for injection procedure and ablation procedure.

Figure 5: Cadaveric image of nerve contributions from L4 and L5 to the SI joint.

Table 1: Procedure Experience and Pain Relief for the 10 study patients showing study dates for single and multiple procedures received.

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