

# Post-Operative Outcomes following Outpatient Diabetic Foot Surgery: A 6-Year Retrospective Cohort Study

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## INTRODUCTION

Diabetic forefoot surgical procedures are typically performed in hospital settings due to concerns for sterility, anaesthesia, bleeding and the perceived need for close access to inpatient monitoring and resources.<sup>1,2</sup> There is **limited published evidence** on the outcomes for surgical procedures conducted in office-based outpatient settings.<sup>3,4</sup>

**Objectives:** To evaluate the safety, healing outcomes, complication rates and costs of minor surgical procedures for diabetic foot wounds performed in a single center outpatient wound-care clinic (The Mayer Institute).

## METHODS

**Study Design:** Retrospective cohort study (Jan 2020-Dec 2025).

**Population:** Adults undergoing elective minor forefoot operative procedures to treat significant diabetic foot pathology.

- Indications for procedures: osteomyelitis, gangrene, chronic ulceration. Eligible procedures: toe amputations, Ray resections, Keller arthroplasties, and metatarsal head resections (MTHR).

**Primary Outcome:** time to heal from index procedure (100% wound surface closure); heal rates at 42 days and 1-year.

**Secondary outcomes:** complication rates, i.e. post-operative infection, dehiscence, reintervention, and major amputation.

**Tertiary outcome:** direct procedural costs.

## PROCEDURAL PROTOCOL

Standardized regional anesthetic block (2% xylocaine without epinephrine) and antiseptic (10% chlorhexidine).

**Closure:** Primary (approximated with sutures) or Secondary based on adequacy of tissue available to approximate.

**Adjuncts:** Antibiotic-embedded calcium sulphate beads (86%), negative-pressure wound therapy (8.1%), and nitroglycerin patches (16%).

**Post-operative care:** dressing changes by a home care wound nurse at home every 2 days and strict strict mechanical offloading

**Follow-Up Clinic visits:** at 1, 3, and 6 weeks post-procedure.

## RESULTS

**Time to heal:** 31.9% at 42-day follow-up, **79.9% at 1 year.**

**Complication rate:** Infection **22.5%**, wound dehiscence **28.9%**, reintervention **7.3%**, major amputation **<2%**

**Cost analysis:** Median estimated cost – **CAD \$2,700.**

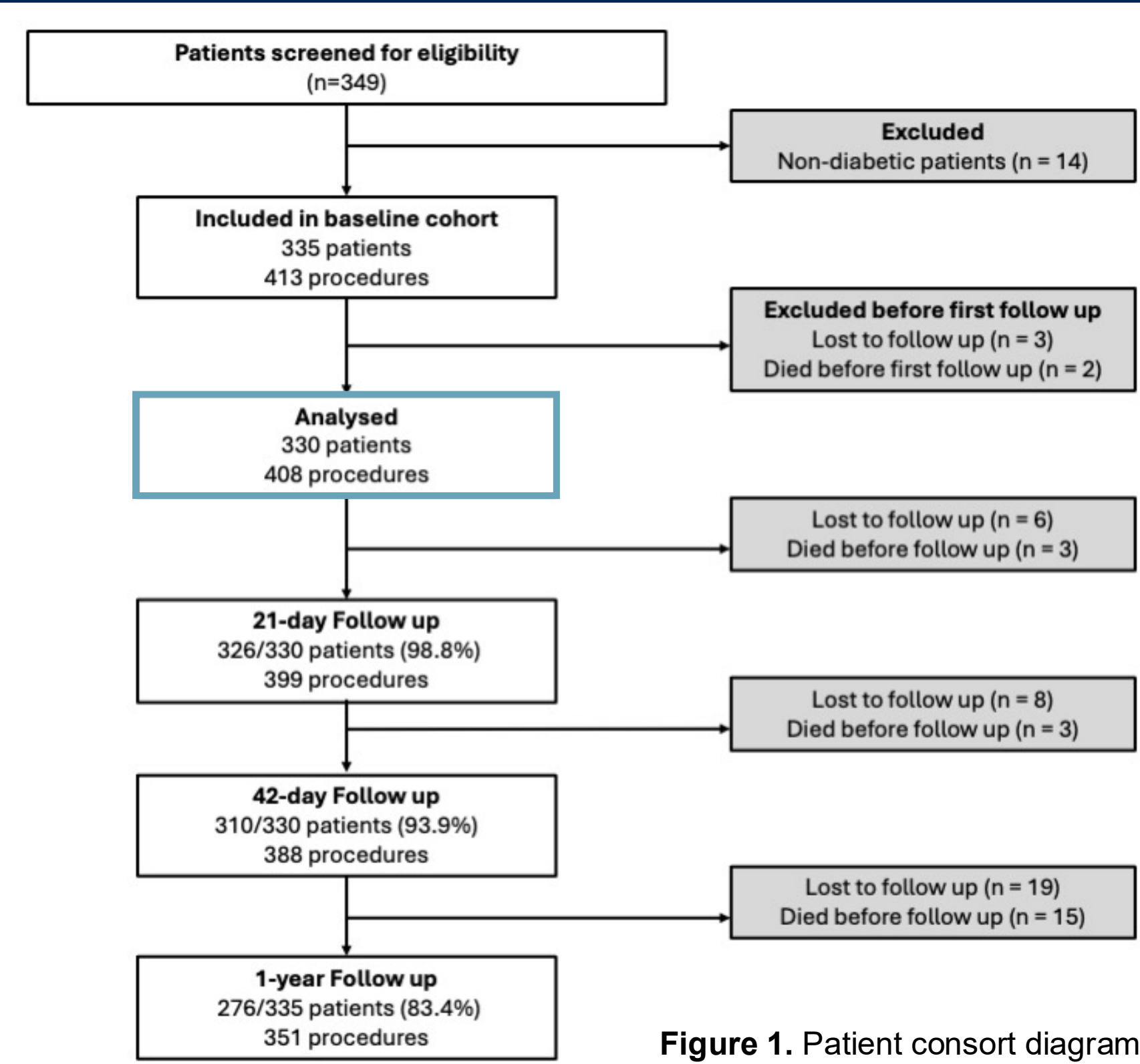


Figure 1. Patient consort diagram.

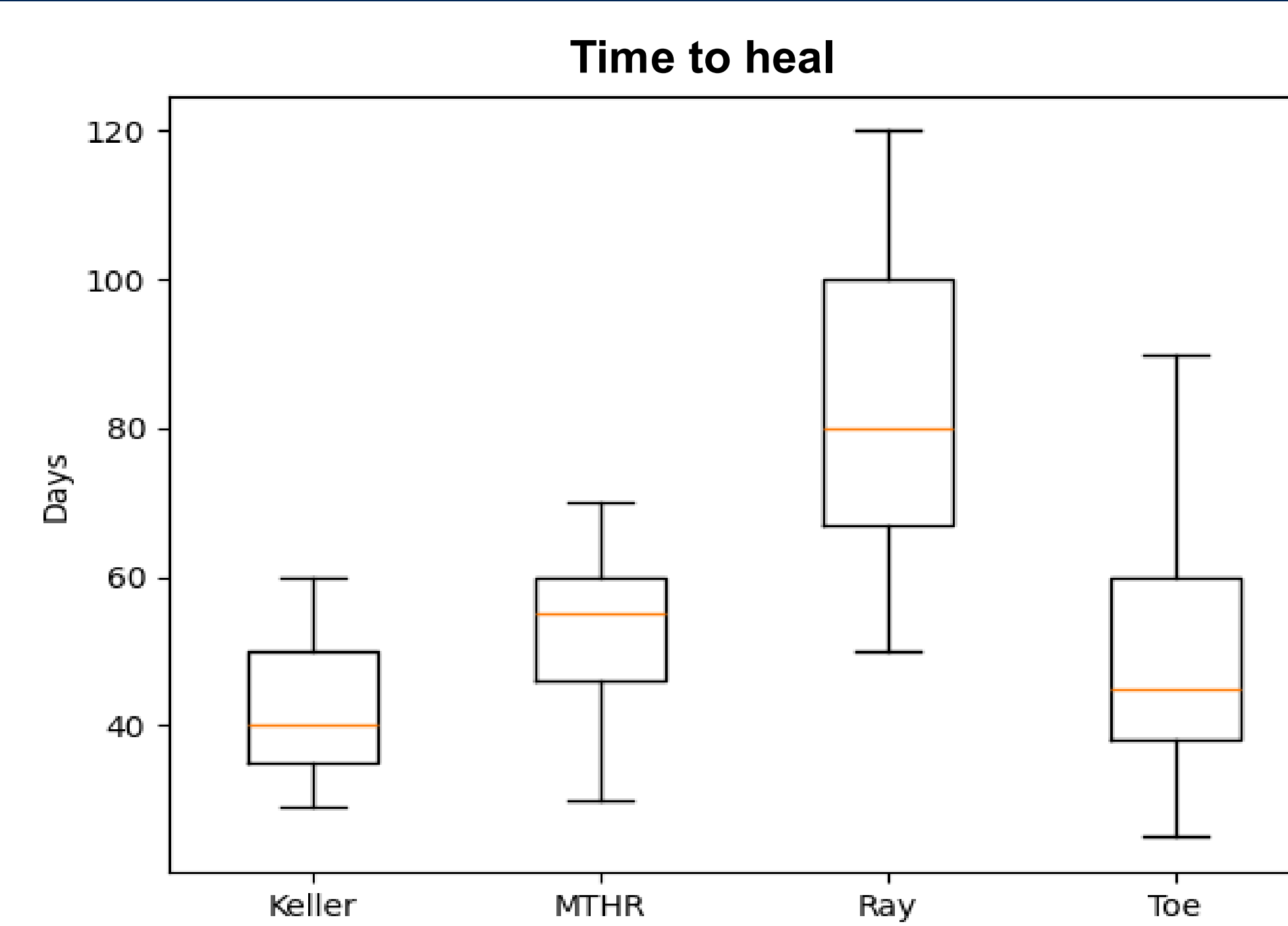


Figure 2. Median time (in orange) to wound healing with interquartile range by procedure type; whiskers represent 1.5× the interquartile range.

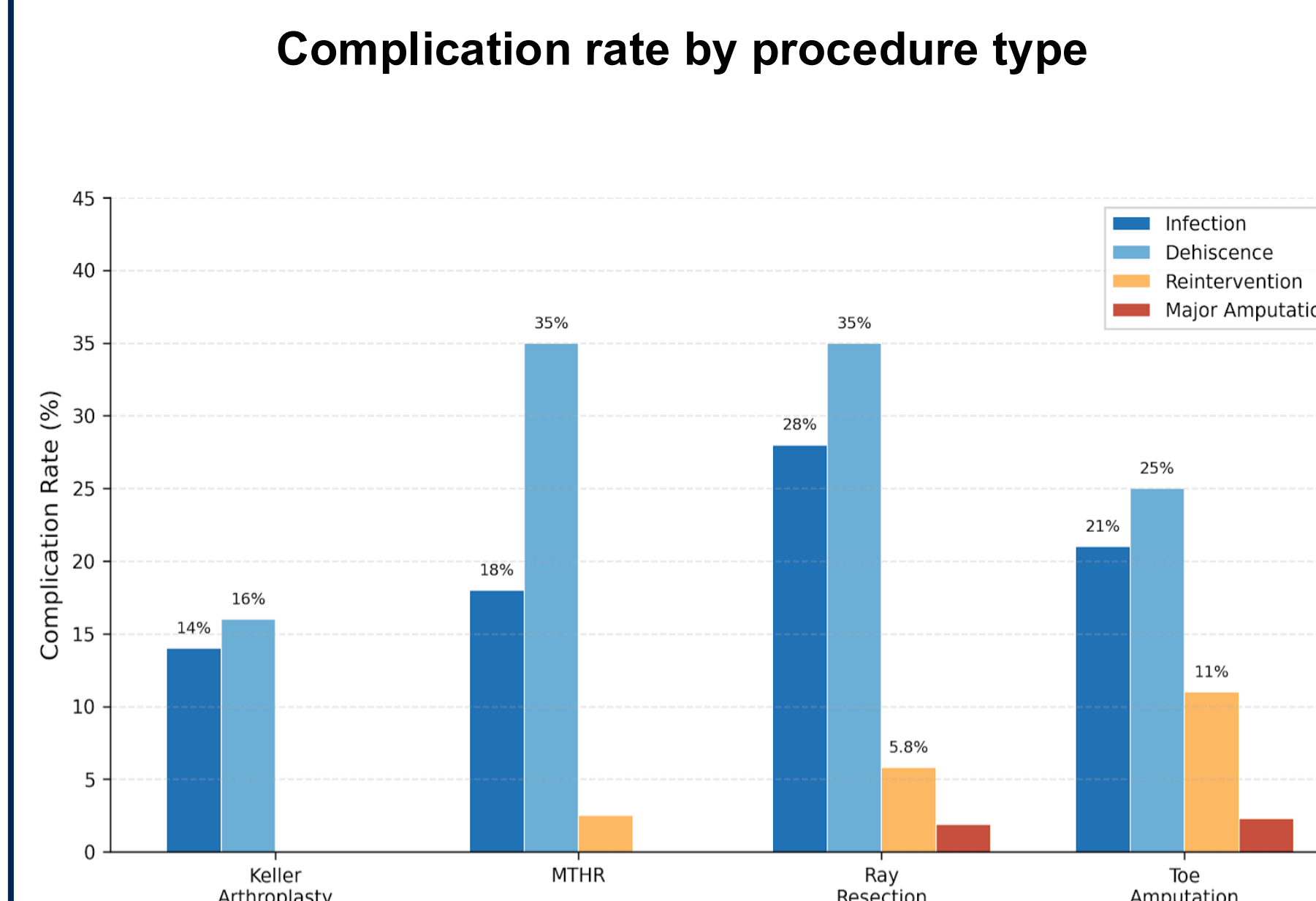


Figure 3. Grouped bar chart of the proportion of cases with postoperative infection, wound dehiscence, reintervention, and major amputation for each procedure type.

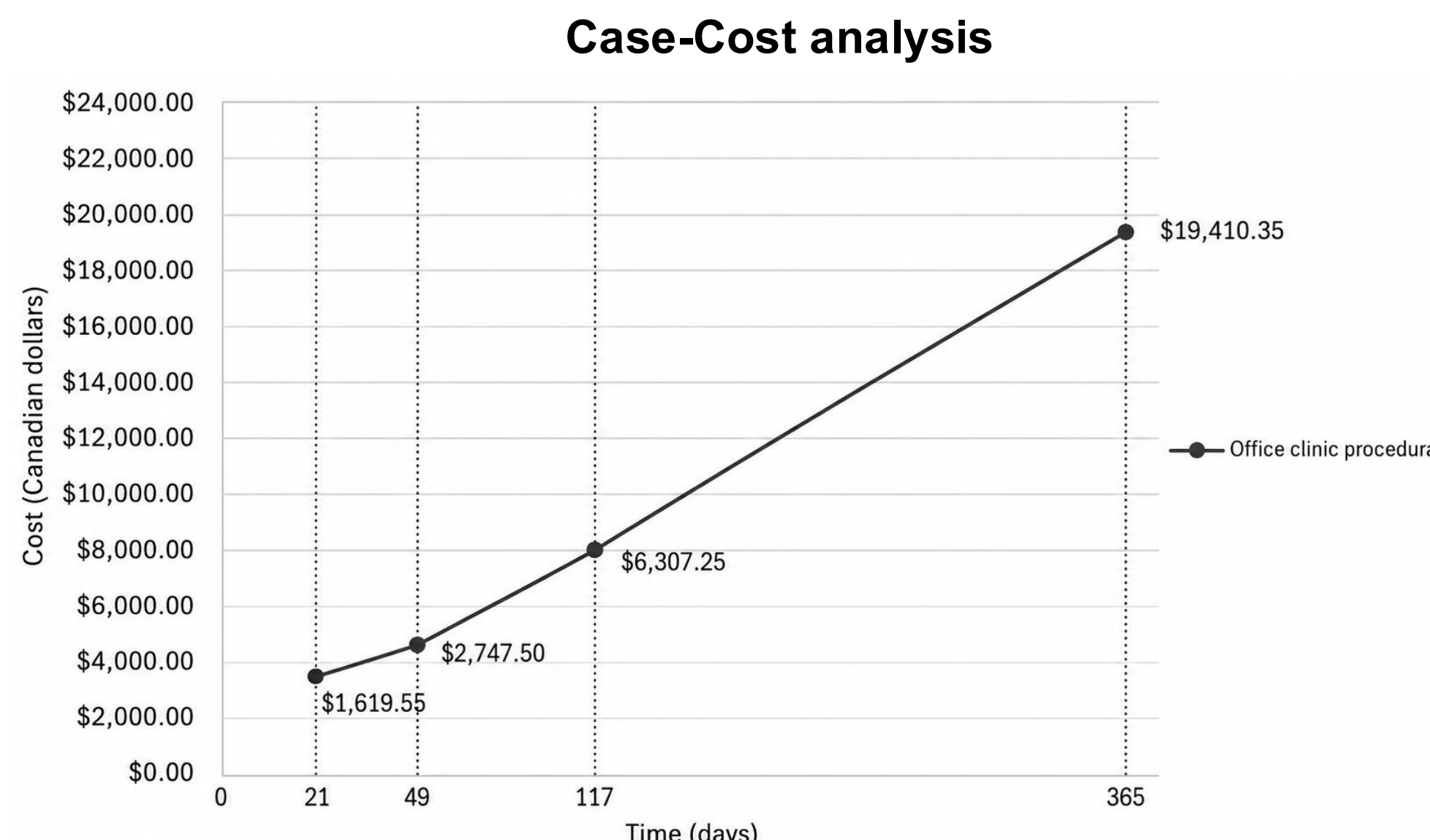
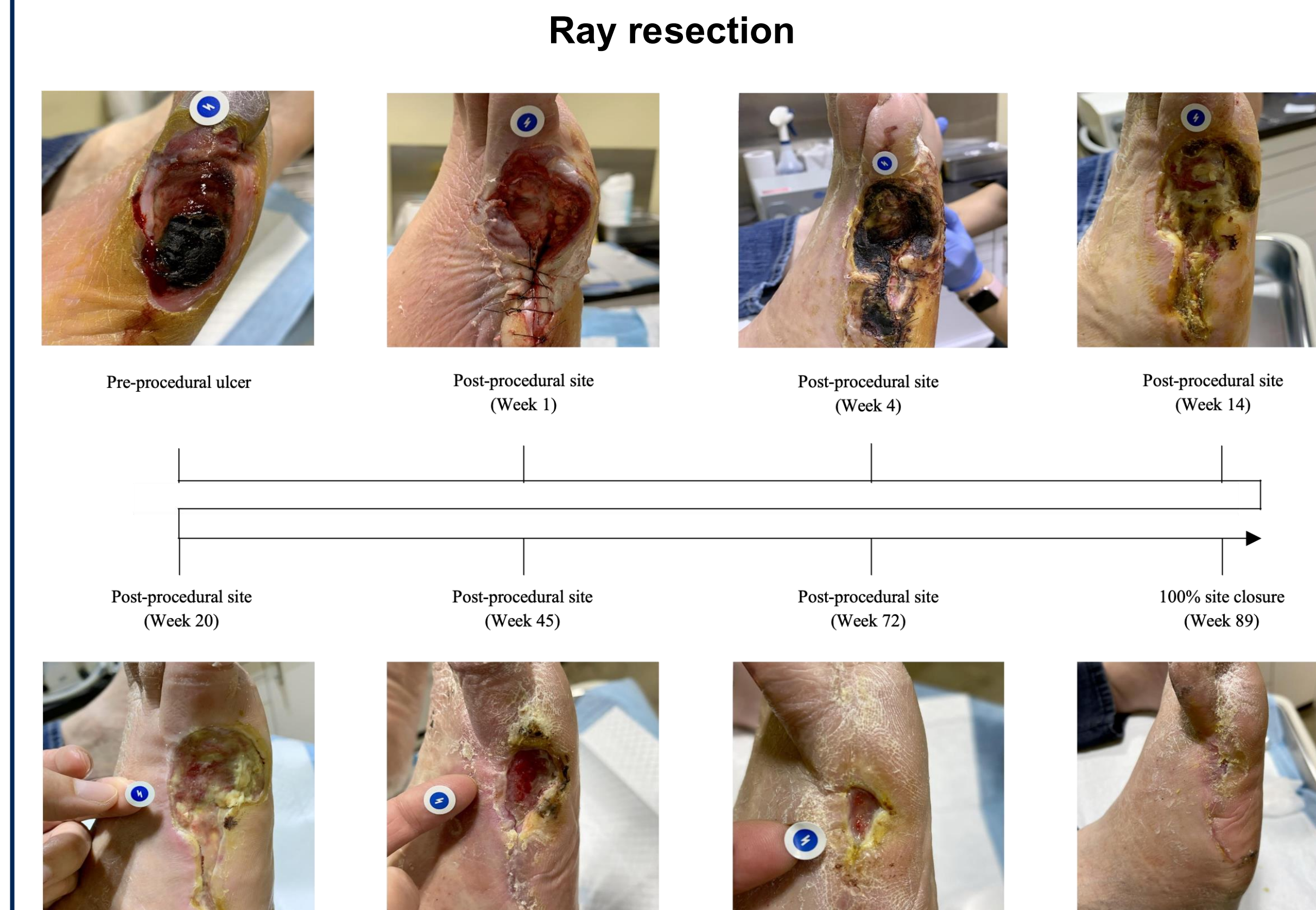


Figure 4. Estimated direct procedural cost over healing time. Estimated total direct cost per patient at the first quartile (21 days), median (49 days), and third quartile (117 days) of healing time, as well as projected total direct cost at 1-year. Shown for overall procedures.



**Healing Timelines:** illustrating representative patients in ray resection and metatarsal head resection procedural cohorts, from pre-procedural presentation through to 100% wound closure. Time points are labelled in weeks; blue markers indicate fixed wound reference points used for serial measurement. All photographs were released with consent from each respective patient.

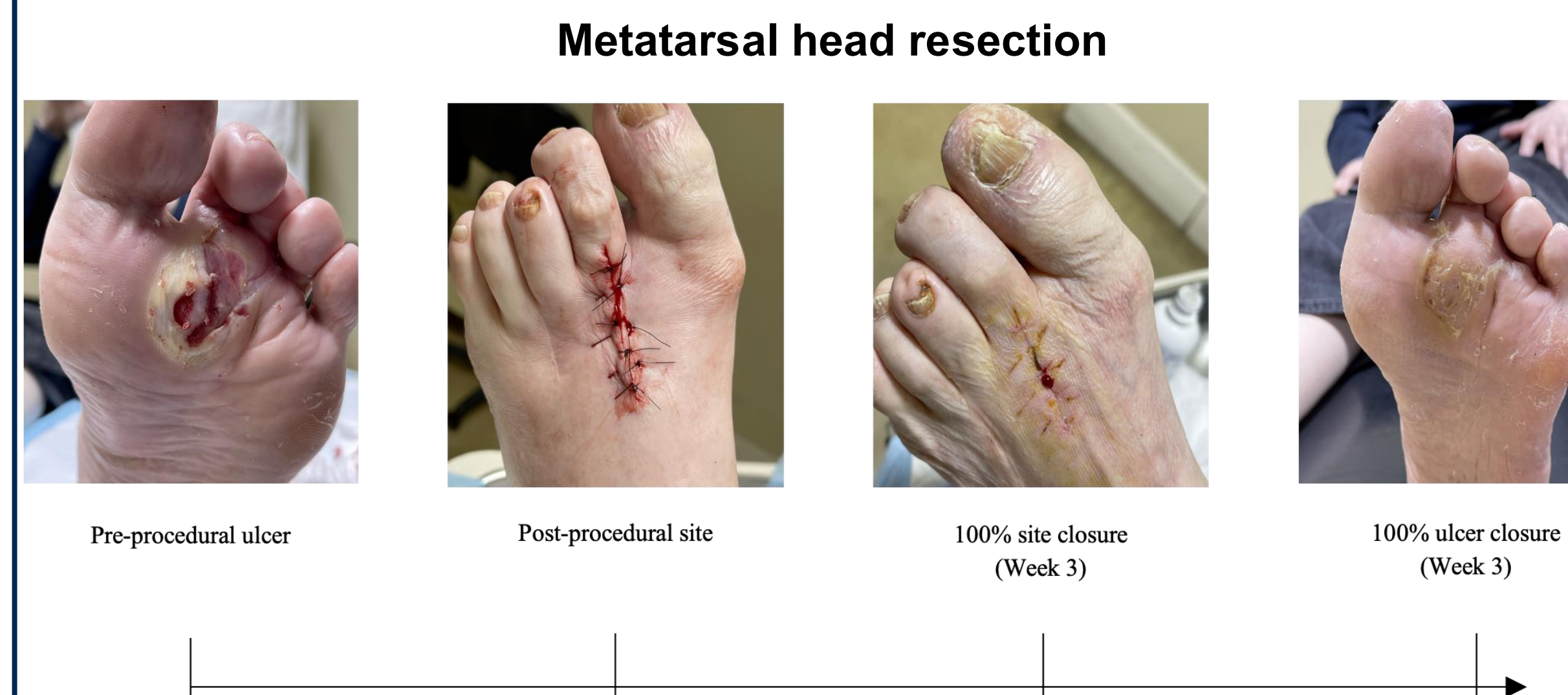


Figure 6. Postoperative healing timeline (total 3 weeks) for patient following resection of left 2<sup>nd</sup> metatarsal head. Photos also include wound (recurrent plantar ulceration) at index procedure and at 100% closure (total 3 weeks).

## DISCUSSION

- The healing and post-operative complication rates following office-based outpatient forefoot surgeries for diabetic foot wounds in this study are comparable to those reported following inpatient procedures.<sup>3,4</sup> The structured, close outpatient follow-up care model of the clinic may partially explain the observed outcomes in this study.
- The direct costs of CAD \$2700 estimated in this study may be cost saving, when compared to reported inpatient costs of of **CAD \$22,000 per diabetic-foot hospitalization.**<sup>5,6</sup>

## CONCLUSIONS

This study provides evidence that outpatient surgical pathways are at least as safe with favourable outcomes, and may be an important systems-level strategy to improve timely access to limb-preservation procedures while reducing healthcare expenditures. This has important implications given that poor outcomes for diabetic foot disease disproportionately affect individuals of lower socioeconomic status.<sup>7,8,9</sup> Future prospective multicentre studies with hospital-based comparators and formal cost-effectiveness analyses are needed.

## ACKNOWLEDGEMENTS

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