

# Surgical Site Infection: A Micro-Costing Approach From the Brazilian Private Healthcare System Perspective

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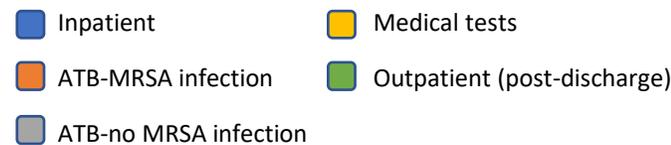
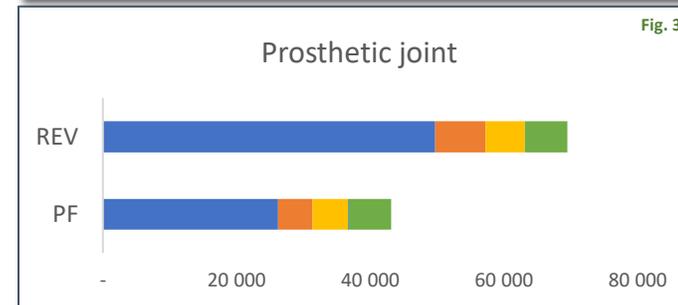
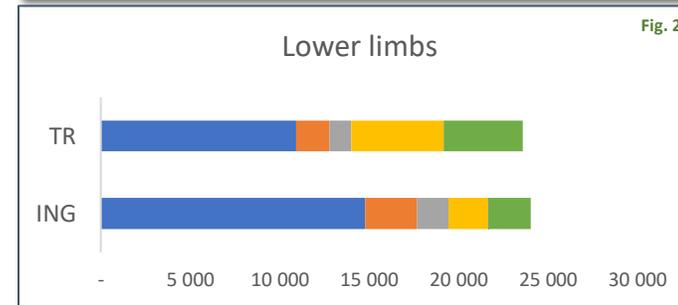
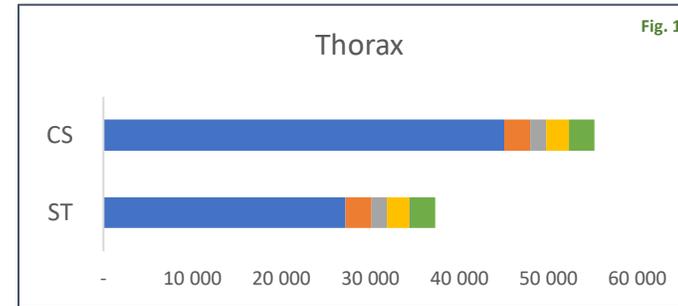
## Background and Aim

- A surgical site infection (SSI) is an infection that occurs after surgery in the part of the body where the surgery took place. SSIs can sometimes be superficial infections involving the skin only. Other surgical site infections are more serious and can involve tissues under the skin, organs, or implanted material.<sup>1</sup>
- Most SSIs can be treated with antibiotics. Sometimes patients with SSIs also need another surgery to treat the infection<sup>1</sup>, causing increased length of stay and readmissions, OR inefficiencies, low patient satisfaction and higher costs.
- SSIs are the third most common type of healthcare-related infection in Brazil, corresponding to 14% to 16% of all nosocomial infections.<sup>2</sup>
- Our objective was to estimate the resource utilization and direct medical costs associated with postoperative infections from the private payer perspective in Brazil.

## Methods

- A literature review was conducted regarding the cost-of-illness of surgical site infections classified as: sternotomy (ST); cardiac surgeries (CS); inguinal incisions (ING); hip, knee, and lower limb trauma (TR); periprosthetic fractures (PF); and revision of hip and knee arthroplasty (REV). No published studies reporting these postoperative costs were found.
- As such, a micro-costing<sup>3</sup> model was constructed. A medical specialist was consulted to validate all procedures.
- For each surgical site, acute procedures related to infectious events were considered and classified as:
  - Inpatient, including daily fees and costs of new surgical procedures, drug treatments, and medical tests.
  - Outpatient (post-discharge), including medical specialist consultations and medical tests.
- Direct medical costs were obtained from Brazilian official price lists [2021 Brazilian Real (BRL) values]. Costs assumed for disposables were based on local prices.

## Results and Conclusion



ATB = antibiotics

- Total costs associated with acute management of surgical site infection around Thorax, Lower limbs or Prosthetic joint were, respectively:
  - 37,268 BRL (ST); 55,189 BRL (CS) (Fig. 1);
  - 24,037 BRL (ING); 23,585 BRL (TR) (Fig. 2);
  - 43,122 BRL (PF); and 69,463 BRL (REV) (Fig. 3).
- Inpatient costs were predominant and mainly driven by daily fees and new surgical procedures in all cases, from 46.3% (TR) up to 81.6% (CS) of total costs.
- The second biggest cost drivers were medical tests in TR and PF, and drug treatment in ST, CS, ING, and REV.
- Outpatient costs represented 7.6%, 5.2%, 9.8%, 18.8%, 14.8%, and 9.2% of total costs for ST, CS, ING, TR, PF, and REV, respectively.
- **In the Brazilian private-pay healthcare setting, direct costs of surgical site infections are relevant, justifying clinical and economic concerns for payers and society. In the future, new studies with primary data collection should be conducted to assess the economic impact of these infections in a real-world environment.**

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