



BURDEN OF STERNAL WOUND INFECTIONS FOLLOWING CORONARY ARTERY BYPASS GRAFT PROCEDURE IN SELECT COUNTRIES

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Background & Objective

- Coronary artery bypass graft surgery (CABG) is an established procedure that can greatly improve patient quality of life (QoL).
- Despite antibiotic prophylaxis, post-CABG surgical site infections (SSIs) and sternal wound infections (SWIs) add substantially to healthcare costs.
- We estimated the burden of SSIs in Brazil, Canada, Chile, Mexico, and the United States (US) to provide an opportunity for value-based procurement of technologies which reduce post-CABG SSIs.

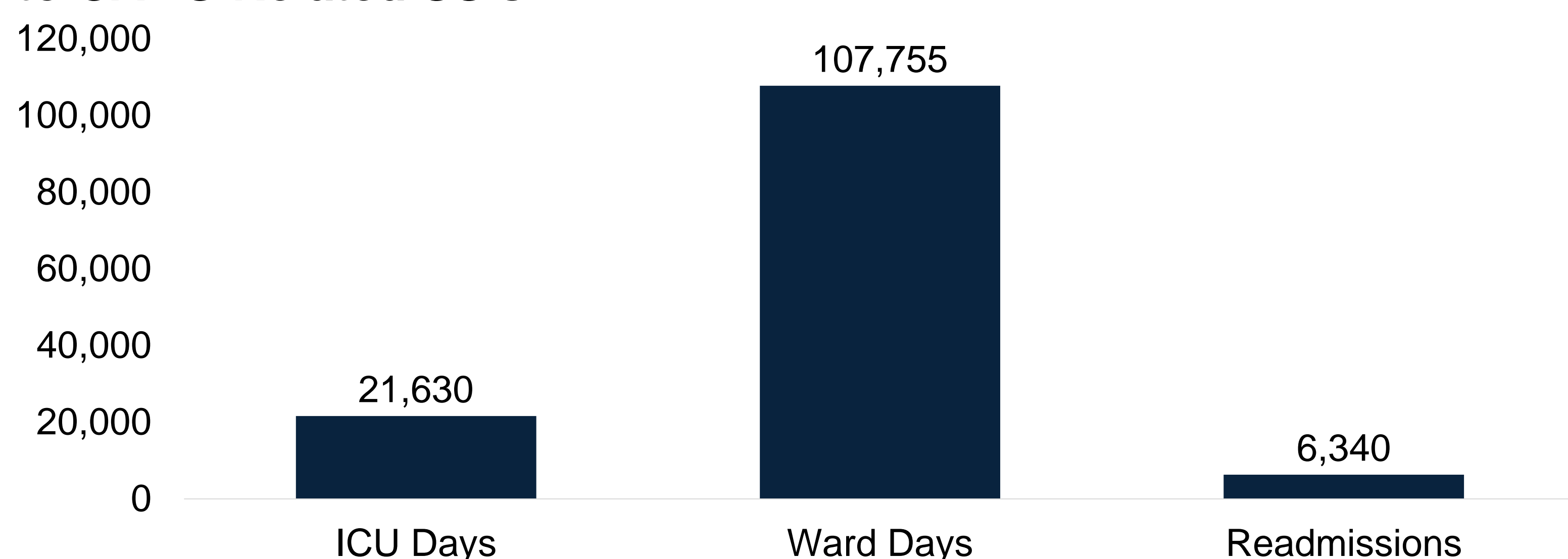
Methods

- A 1-year Markov-model representing the care pathway for CABG was created and populated with data from peer-reviewed literature and national surveillance programs.
- The focus was on the healthcare systems of the Americas with data on CABG and SWIs rates.
- Key parameters included: CABG procedures per year, surgical site infection (SSI) rates, ratio SSIs to SWIs, length of stay, hospital time to treat SWIs, and the cost per day of intensive care unit (ICU) and general ward.
- The model estimated the per country economic burden of CABG-related SSIs.
- Model results were used to calculate the incremental cost change that could be justified by an intervention that reduces cross-contamination risk and associated SSI rates by 1 event per 100 procedures.
- Missing data were imputed based on data from other countries.
- All cost estimates were calculated in 2017 US dollars (USD).

Results

- For the selected countries the burden of CABG-related SSIs included 21,630 additional ICU days, 107,755 additional ward days, and an extra 6,340 hospital readmissions (Figure 1).
- The total cost burden exceeded \$381 million (Figure 2), with a mean cost of a CABG-related SSI for Brazil, Canada, Chile, Mexico, and the US of \$6,123; \$17,606; \$7,325; \$7,733; and \$28,157, respectively (Figure 3).

Figure 1. Additional ICU Days, Ward Days, and Readmissions due to CABG Related SSIs

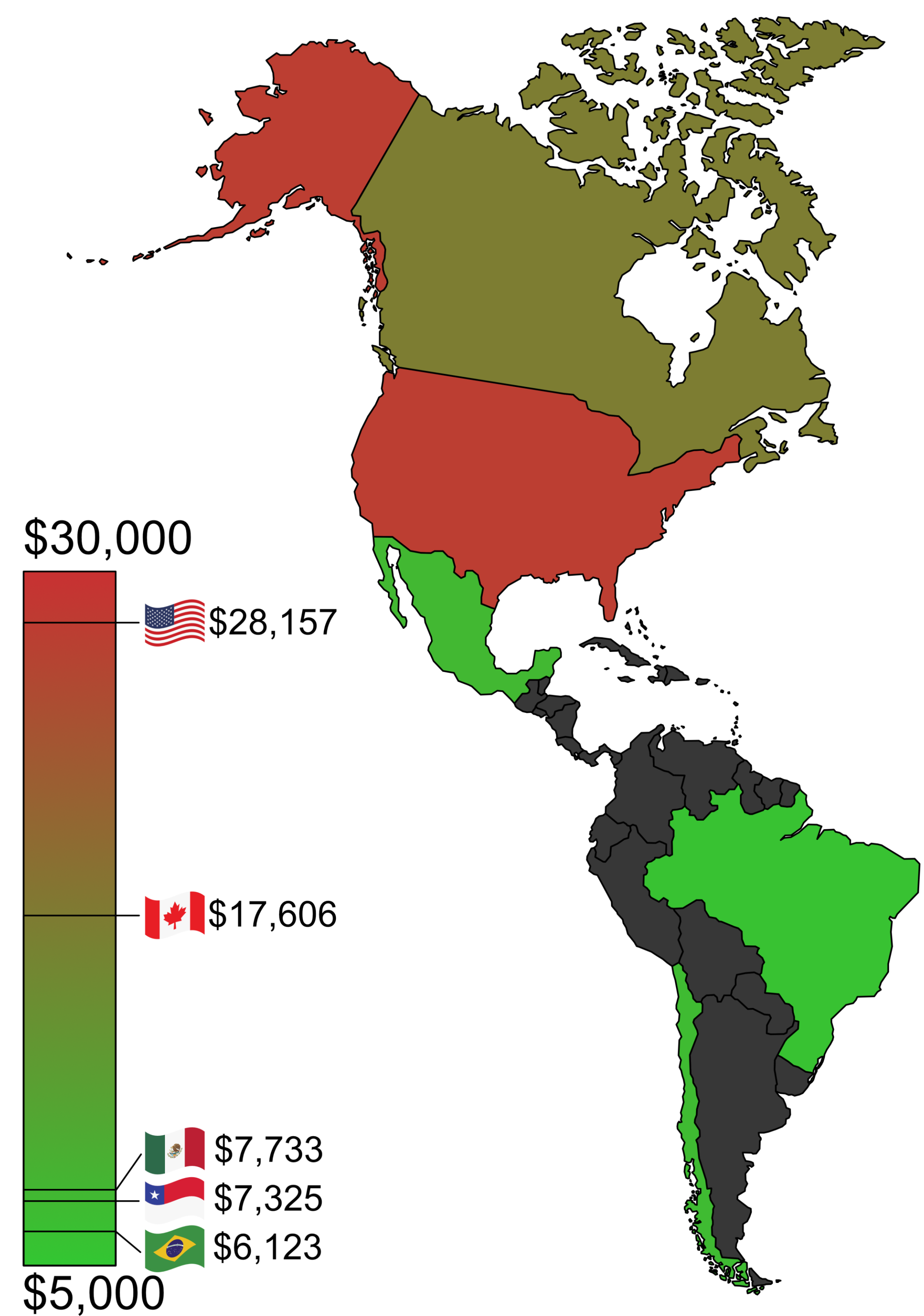


Results (cont.)

Figure 2. Total Estimated Burden of post-CABG SSIs, in Brazil, Canada, Chile, Mexico, and United States of America, USD



Figure 3. Mean expected cost of a post-CABG SSI, USD



Discussion

- In addition to decreasing patient quality of life (QoL), infections after CABG impose a considerable cost on healthcare systems.
- The excess costs were found to be mostly driven by deep SWIs
- Hospital resources as well as costs can be freed up by reducing rates of infection post-CABG.
- A technology that can reduce the rate of SSIs by 1 per 100 procedures could justify an incremental cost of \$50 in Brazil and \$211 in the US.

Conclusion

- The burden of post-CABG SSIs is substantial.
- Incorporating a technology into the broader HAI-prevention bundle that reduces the risk of cross-contamination and associated SSIs may be a cost-effective investment.

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