THE BURDEN OF STERNAL WOUND INFECTIONS (SWI) FOLLOWING CORONARY ARTERY BYPASS GRAFT (CABG) SURGERY WITHIN THE MEDICARE PATIENT POPULATION

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BACKGROUND
• Although antibiotic prophylaxis is used almost ubiquitously after CABG, the incidence of SWI in the USA is reported to be between 1 and 4%.1
• The majority of CABG patients are Medicare beneficiaries.2
• The Centers for Medicare and Medicaid Services (CMS) stopped reimbursing costs for SWI following CABG procedures in 2008.
• In financial year 2015 the Hospital-Acquired Condition (HAC) Reduction Program was introduced.

• Mandated by the Affordable Care Act, this program requires that CMS reduce Hospital-Associated Condition (HACs) by 40% by 2016.
• SWIs following CABG were added to this program in FY 2016.
• Medicare bundle payments for CABG through 90-days post-discharge are anticipated to negatively impact 72% of hospitals due to care costs for complications.
• Today hospitals have to absorb costs incurred in the treatment of SWIs, making optimized CABG SWI prophylaxis a high priority for hospital care.

OBJECTIVE
• To quantify the burden of SWIs following CABG in the Medicare population.
• To understand the potential impact of improved SWI prophylaxis regimens.

METHODS
• A literature review identified publications presenting the incidence of SWIs (superficial and deep), the time required to treat SWIs, and the costs of providing post-CABG care.

• Approximate 55.3 million Medicare beneficiaries3
• Approximately 98,434 isolated CABG procedures per year.6
• The SWI rate was reported to be between 1 and 4%.8
• To be conservative, an SWI rate of 2.5% at 30 days is taken, 20% of which are DSWI (Fig. 1).

RESULTS
Literature review findings
• Approximately 55.3 million Medicare beneficiaries3
• Approximately 98,434 isolated CABG procedures per year.6
• The SWI rate was reported to be between 1 and 4%.8
• To be conservative, an SWI rate of 2.5% at 30 days is taken, 20% of which are DSWI (Fig. 1).

Resource expenditure
• ICU cost per day: $2,536
• GW cost per day: $2,357
• Days to treat superficial SSI: 13.3
• Days to treat deep SSI: 24

Fig. 1 Model parameters and results

An additional 21,443 GW days.
Over 1,000 readmissions.
At higher end estimates, SWI could be costing providers $115.0 million per year.

Modelled resource expenditure

Hospital stay
Costs
4,443 ICU days
21,443 GW days
$68.5 million to $115.0 million

Implications of a SWI rate reduction
• Assuming an 18.8% reduction of SWI rates at 30 days, providers could save between $12.6 million and $26.8 million ($271 per procedure) at the higher end of estimates.
• At a $6 incremental cost, single-patient-use ECG could represent a 45-fold return on investment.

CONCLUSIONS
• SWIs after CABG in the Medicare population come at considerable cost to providers.
• Preventing SWIs has advantages for both patients and providers.
• Investment in interventions designed to reduce cross-contamination could be cost-effective.

Fig. 2 Potential savings based on a hypothetical reduction of the SWI rate

REFERENCES
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15. Research funded by Cardinal Health

DISCLOSURE
RS is the owner and MB is an employee of Coreva Scientific, which received consultancy fees for this work, JL is an employee of Cardinal Health.