INTRODUCTION

- Surgical bleeding, particularly traumatic bleeding, is frequently associated with increased mortality, morbidity and economic burdens.
- Hepatic surgical procedures are associated with significant risk for bleeding that can be particularly problematic due to diffuse, parenchymal bleeding.
- Limitations of currently available hemostatic devices lack of efficacy on first attempt, lack of options in the presence of diffuse bleeding, and are associated with complications (i.e., retroperitoneal and bronchial hematoma formation, need for rigid endoscopy, and a flexible pedi sheath component [proven rigid endoscopy complications]).
- The clinical benefits of EVARREST have been demonstrated in several randomized controlled trials (RCTs).
- Literature suggests that more efficacious hemostats may offset hospital resources and effort required for management.

OBJECTIVE

- A utility was conducted to estimate the 5-day cost impact of EVARREST vs. standard of care (SOC) in parenchymal bleeding during elective hepatic surgery from the Germany hospital perspective.

METHODS

Design

- A decision model was developed to quantify the 5-day cost impact of EVARREST versus SOC, from a German hospital perspective.
- The model can accommodate various institutional scenarios; however, for the purpose of the analysis, 100% EVARREST update is compared to 100% SOC update.
- The model framework is outlined in Figure 1.

Model Inputs and Analyses

- Key resources included in the model analyses were collected from a multi-center RCT comparing the clinical and economic efficacy of EVARREST versus SOC in parenchymal bleeding during elective hepatic surgery.
- The costs of resources were derived from the pivotal clinical trial (i.e., Argon beam vs. EVARREST patch) and the primary analysis included all re-treatment for persistent haemorrhage in patients with significant hemostasis benefit of 50% or more.
- Model inputs are outlined in Table 1.
- Model outputs are outlined in Table 2.

RESULTS

Secondary Analysis

- Secondary analyses predicted further resource savings with EVARREST leading to cost-savings (-€175 per patient) when including additional hospital resources (hospital stay and ventilator use) (Table 2).
- One-way sensitivity analyses varying costs of all the inputs by ±20% suggested that the acquisition cost of EVARREST and the running time costs were shown in both the primary and secondary analyses and hospital length of stay was also a driver in the secondary analysis (Figure 2).
- Results of the primary and secondary analyses were consistent for all sensitivity analyses.
- When costs were adjusted by ±20% in the secondary analysis, all of the results were still cost savings (Figure 3).

DISCUSSION AND CONCLUSIONS

- The primary analysis predicted that EVARREST reduction in hospital length of stay (LOS) may result in a 3-day cost savings in hepatic parenchymal bleeding compared with SOC in German hospital settings, while resource utilization varies widely according to surgical bleeding or hepatic surgery.
- Results were robust to additional abstractions in sensitivity analyses.
- Key limitations of the current analysis include:
  - Differences in resource use may occur even after patients reported in RCTs.
  - Ability to implement EVARREST may vary across the region and may reduce the cost-effectiveness.
  - Additional analyses were not performed on a clinical trial that did not assess cost impact of less than 50%.

REFERENCES