# Surgical sutures

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## Introduction

Leaper *et al* [1] presented a model that compared antimicrobial surgical sutures (absorbable sutures impregnated with triclosan, TCS) with standard care, absorbable sutures with no antimicrobial impregnation (NCS). The model was evaluated in three scenarios:

- clean wounds;
- clean-contaminated wounds;
- contaminated and dirty wounds

## Scenario 1: clean wounds

### The model

The decision tree defined by Leaper *et al* [1] is shown in figure 1. The model had six input variables: the probability of an SSI with NCS, the risk ratio of an SSI with TCS compared with NCS, cost of TCS, cost of NCS, number of sutures per surgical procedure and cost of an admission with diagnosis of infection. The uncertainties in the estimates of the variables were described by distributions with hyperparameters (Table 1).

Table 1: Model inputs

| Description | Units | Distribution | Mean | Q2.5 | Q97.5 |
|---|---|---|---|---|---|
| Excess cost SSI | GBP | Ga(6,500) | 3000 | 1101 | 5834 |
| P(SSI \| NCS) | P | Be(653,6465) | 0.09174 | 0.08514 | 0.09855 |
| RR(SSI \| TCS) | RR | LN(-0.407,0.118) | 0.67 | 0.5284 | 0.8379 |
| VICRYL plus pack | GBP | Ga(100,0.036) | 3.63 | 2.954 | 4.375 |
| Sutures per procedure | n | Ga(200,0.01) | 2 | 1.732 | 2.287 |
| VICRYL pack | GBP | Ga(100,0.029) | 2.88 | 2.343 | 3.471 |

### Results

**Base case**

Base case is shown in the table below.

| Suture | Cost |
|---|---|
| Antimicrobial | 191.7 |

| Suture | Cost |
| --- | --- |
| Standard | 281 |

**Univariate sensitivity**

Tornado chart is shown in figure 2.

**PSA**

PSA results are shown in Figure 3.

# References

1       Leaper DJ, Edmiston Jr CE, Holy CE. Meta-analysis of the potential economic impact following introduction of absorbable antimicrobial sutures. *BJS (British Journal of Surgery)* 2017;**104**:e134–44. doi:10.1002/bjs.10443
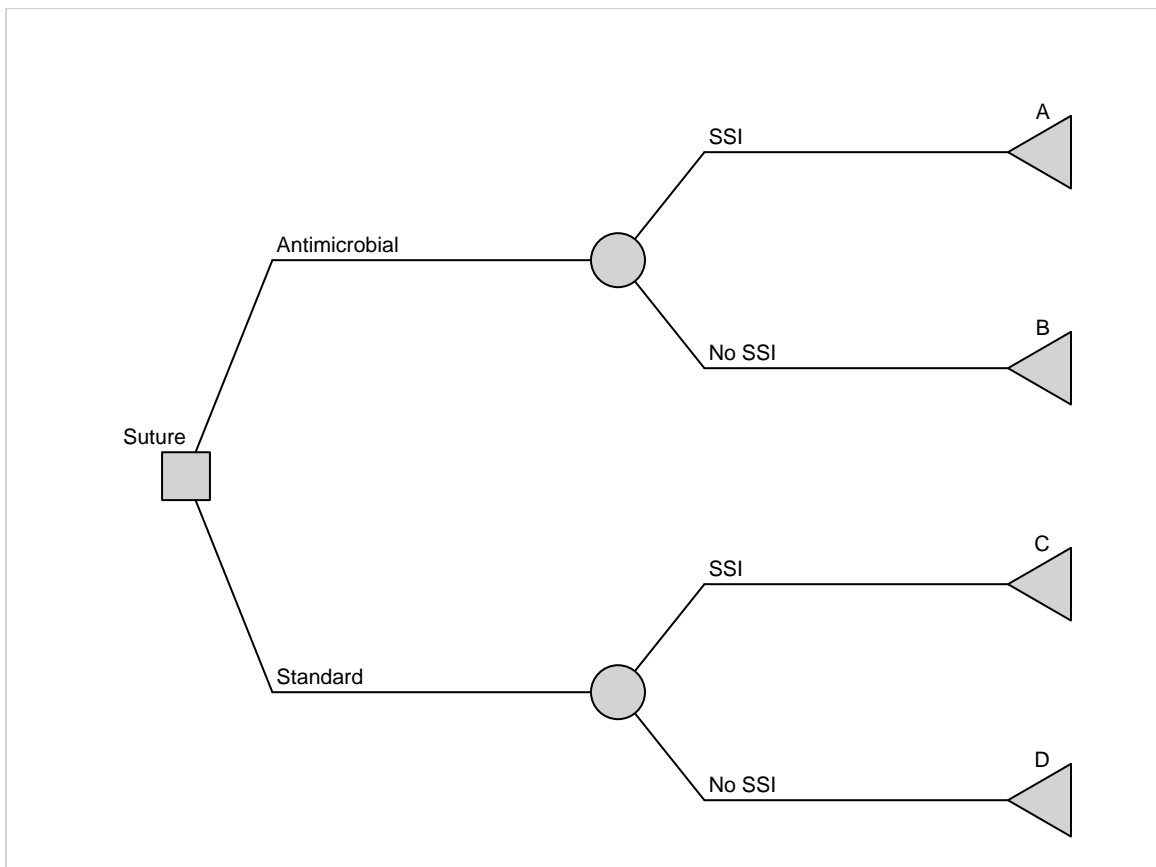
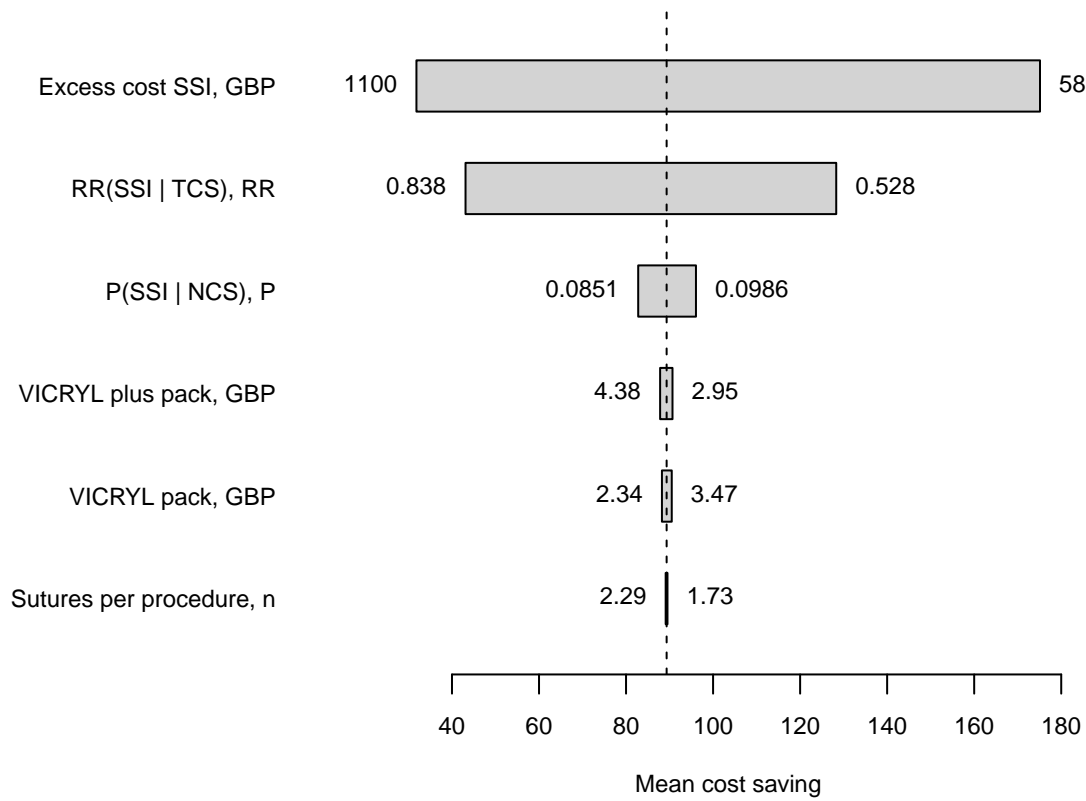Figure 1: Decision tree for all scenarios.

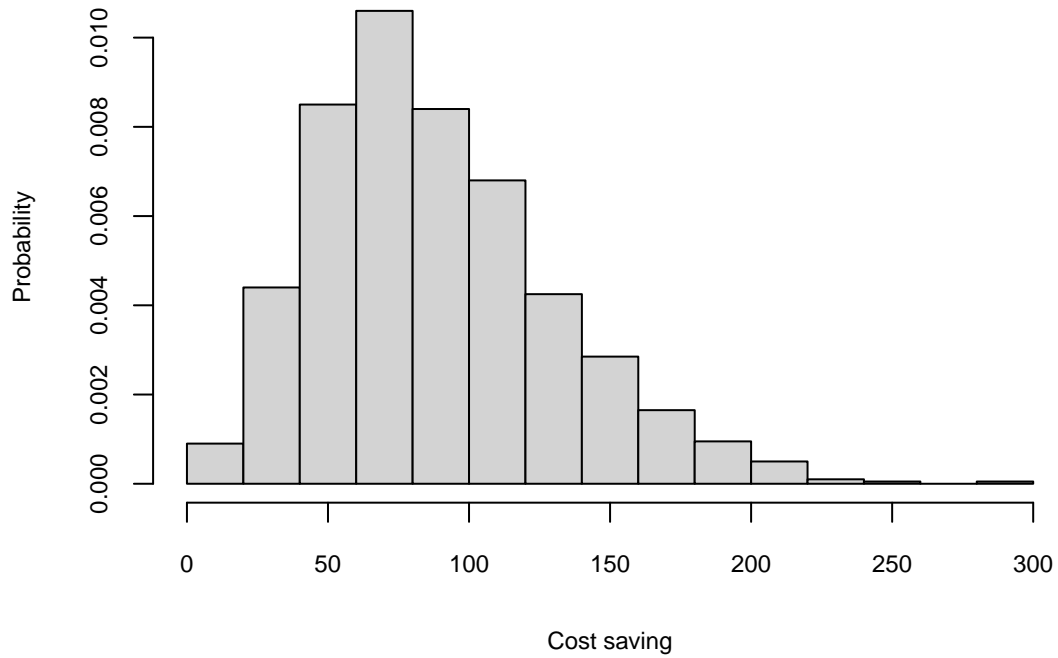Figure 2: Tornado chart showing mean cost savings per procedure.



Figure 3: PSA results.