A USE CASE IN BLOODSTREAM INFECTIONS AND SEPSIS

The value of fast diagnostics in time-critical infections

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Executive Summary

Key points

- Fast diagnostics have the potential to significantly shorten time to appropriate therapy in time critical infections, but significant barriers to adoption persist.
- This multi-country economic evaluation shows that fast diagnostics for bloodstream infections consistently deliver substantial cost savings and health gains compared to standard diagnostic pathways, even under conservative assumptions.
- To realise these benefits, hospitals must address structural and workflow barriers so fast results translate into faster therapy, alongside broader system reforms to correct the persistent undervaluation of diagnostics.
- Overcoming the underutilisation and undervaluation of diagnostics will require coordinated system-level action, with the G7 countries included in this analysis well-positioned to lead.

Executive summary

Advancing earlier intervention in time-critical infections

Sepsis continues to impose a substantial global burden, with millions of cases and high mortality each year. Patients with bloodstream infections face a considerable risk of rapid deterioration, yet current diagnostic pathways return actionable information only after multiple days. These delays limit clinicians' ability to deliver timely, targeted antimicrobial therapy, which increases mortality risk. Fast diagnostic technologies offer a way to close this gap, but their broader contributions remain undervalued and inconsistently recognised across health systems.

This report addresses this gap through a multi-country economic evaluation examining how fast identification and antimicrobial susceptibility testing can improve outcomes and reduce health system costs for adults hospitalised with bloodstream infections at high risk of progressing to sepsis. The analysis covers seven major health systems (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) and incorporates expert-validated clinical inputs, country-specific cost data, and conservative assumptions. The findings show meaningful health gains, substantial cost savings, and consistent economic dominance of fast diagnostics relative to current standard diagnostic pathways.

Why earlier diagnostic information matters

Conventional diagnostic methods rely on culture-dependent workflows that require two to three days to return definitive results, prolonging time to appropriate therapy and increasing the likelihood of clinical deterioration. Evidence indicates that fast identification and susceptibility testing can significantly shorten this interval, reducing progression from bloodstream infection to sepsis and lowering mortality among patients who do develop sepsis or septic shock.

The clinical consequences of delayed targeted therapy extend into the long term. Survivors face high rates of post-sepsis complications such as cardiovascular, renal, cognitive, and psychological sequelae, each associated with additional care needs and reduced quality of life.

What this study evaluates

This health economic analysis compares standard diagnostic pathways with fast identification and susceptibility testing across Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. A decision tree model captures the effects of faster actionable results on clinical progression, mortality, post-sepsis consequences, quality-adjusted life expectancy, and health system costs. The time horizon spans the index hospitalisation period, and a 12-month follow-up.

Country-specific evidence was drawn from published studies, administrative data, and clinical expert review. In cases where local evidence was unavailable, validated proxy data were used to maintain conservative assumptions. Sensitivity, probabilistic, and scenario analyses were performed to test robustness.

Key findings and their significance

Across all countries, fast diagnostics improve patient outcomes and reduce healthcare costs.

- Faster actionable results reduce sepsis cases, prevent avoidable deaths, and lower the incidence of post-sepsis complications.
- Per patient savings range from several hundred to several thousand euros (or equivalent), reflecting avoided deterioration and reduced long-term care needs.
- At a population level, savings range from tens of millions to several billions annually depending on country size and disease burden.

- Most savings occur during the initial hospitalisation phase, where preventing progression to severe states such as septic shock avoids resource intensive care.

Robustness testing confirms that fast diagnostics remain cost saving across a wide range of assumptions and scenarios, with a high probability of generating both improved health outcomes and cost reductions even under conservative scenarios.

Implications for policy and practice

National strategies addressing infectious diseases and antimicrobial resistance increasingly highlight the role of fast diagnostics. This analysis provides economic evidence to support that emphasis, showing that adopting fast diagnostics can enable earlier intervention, prevent avoidable clinical deterioration, and reduce long-term health system costs. Realising this value will require coordinated action to:

- strengthen evidence on diagnostic impact.
- expand evaluation frameworks to capture full system-wide benefits.
- overhaul current approaches to reimbursement for diagnostics.
- embed fast diagnostics into clinical pathways with clear operational protocols.
- support clinician adoption through education and implementation support.
- bring the patient experience into public and regulatory consciousness.

Conclusions

Fast identification and susceptibility testing offer a timely and effective response to a major gap in sepsis care. By shortening the interval to appropriate therapy, they improve the chance of survival, reduce long term health loss, and generate substantial cost savings. Scaling their use will require updated policy, evaluation approaches, and system level support. As health systems continue to confront the escalating burden of sepsis and antimicrobial resistance, expanding access to fast diagnostics represents a practical and impactful opportunity to improve care and strengthen health system resilience.

1 Introduction

1.1 Sepsis: A worldwide public health priority

Sepsis is a life-threatening condition that arises from a dysregulated immune response to infection (Singer et al., 2016). Without timely and appropriate management, this response can further progress to septic shock, characterised by extremely low blood pressure, multi-organ failure, and elevated mortality risk (Singer et al., 2016).

The World Health Organisation (WHO) recognises sepsis as a major global health threat (WHO, 2024). Beyond in-hospital mortality, it is associated with debilitating long-term health consequences. Sepsis survivors frequently suffer from chronic physical, psychological, and cognitive impacts that diminish quality of life and increase the need for ongoing care (Van Der Slikke et al., 2023). These consequences can lead to a substantial economic burden for patients, the healthcare system and society through time off work and productivity losses, recurrent hospitalisations and long-term rehabilitative care (Sepsis Alliance, 2024).

The global health burden associated with sepsis is substantial, with an estimated 166 million incident cases and 21 million sepsis-related deaths worldwide in 2021 (Gray et al., 2025). Driven by an ageing population, increasing comorbidities, and the rapid spread of antimicrobial resistance (AMR), sepsis remains a major cause of health loss across high-, middle-, and low-income countries (Rudd et al., 2020; Van Der Slikke et al., 2023).

Although fast diagnostics are increasingly recommended in clinical guidelines, their system-level economic value in sepsis management has not been comprehensively assessed across different healthcare settings (Rojas-Garcia et al., 2021). As a result, decision-makers lack robust, comparative evidence to inform access, reimbursement, and implementation strategies. This report was undertaken to address this evidence gap and to support informed adoption of diagnostic innovations within sepsis care pathways.

1.2 Unmet needs in sepsis management

Accurate, timely diagnostics are central in supporting infection management (Gildea et al., 2024) and the prevention of sepsis. To guide selection of appropriate, effective antibiotics for optimal therapy, clinicians require information on the causative organism and its antimicrobial susceptibility. The time-critical nature of sepsis highlights a key limitation of conventional diagnostic methods, which often cannot return results quickly enough to support optimal decision-making when early intervention is needed.

The time interval from sepsis detection to administration of appropriate antibiotics is strongly associated with better patient outcomes. Longer delays markedly increase mortality risk (Van Heuverswyn et al., 2023). Despite remaining the gold standard testing approach, conventional methods require two to three days to deliver definite results (Bauer et al., 2014), delaying time to appropriate therapy.

In response to diagnostic uncertainty, empiric use of broad-spectrum β-lactams active against resistant organisms has increased over time (from 88% to 92% between 2017 and 2021) (Rhee et al., 2024). Yet, nearly 20% of patients with bloodstream infections (BSI) still receive discordant empiric therapy (Kadri et al., 2021a). This highlights the persistent challenge of both discordant empiric therapy and unnecessary broad-spectrum antibiotic use in early sepsis management, reinforcing the need for more timely diagnostic information.

Accurate diagnosis of causative pathogen and susceptibility to treatment is critical. Unsurprisingly, the use of empirical antibiotic therapies that are not supported by subsequent laboratory susceptibility results is associated with significantly higher mortality (Kadri et al., 2021b).

Without fast and accurate diagnosis information, clinicians face the daily dilemma of balancing competing risks: the potentially irreparable consequences of delayed treatment; the heightened morbidity and mortality associated with unnecessary empirical use of broad-spectrum antibiotics and increasing AMR; the possibility that initial empiric therapy may lack activity against the causative pathogen due to resistance; and potentially avoidable antibiotic-associated complications and harms (Prescott and Iwashyna, 2019; Shappell et al., 2025).

1.3 The role of fast diagnostics in time-critical infections

Fast diagnostics have emerged as key enablers for improving sepsis care by reducing time to appropriate treatment. These technologies provide faster, reliable results with the capacity to differentiate a wide range of pathogens (Vasala, Hytönen and Laitinen, 2020). By preventing clinical deterioration during the acute phase and reducing long-term complications, fast diagnostics have the potential to generate substantial health and economic value. Indeed, the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) Study Group for Bloodstream Infections, Endocarditis and Sepsis (ESGBIES) recognises fast identification (ID) and antimicrobial susceptibility testing (AST) as essential tools for targeted management of BSIs (Idelevich et al., 2019), and recent sepsis management guidance from the Surviving Sepsis Campaign suggests that fast diagnostics may help to guide and optimise empirical antimicrobial therapy (Prescott et al., 2026).

BSI and sepsis are closely linked, with up to 69% of septic patients having positive blood cultures (Coburn et al., 2012), and BSIs accounting for approximately 30% of sepsis cases (Timsit et al., 2020). Implementing fast ID/AST in patients with BSIs, particularly those at higher risk of deteriorating to sepsis, can meaningfully shorten time to appropriate treatment and accelerate treatment optimisation. For example, a meta-analysis including nearly 26,000 patients with BSIs across a range of different microorganisms found that fast diagnostics implemented alongside antimicrobial stewardship significantly reduced the odds of mortality by 36% and hospital length of stay by 2.5 days compared with conventional testing methods (Peri et al., 2024). Additional large multicentre analyses reinforce the clinical importance of accelerating susceptibility results to enable earlier appropriate treatment (Cooper et al., 2024; Moon et al., 2024).

Beyond improving patient outcomes and reducing medical resource use, fast diagnostics can enhance workflow efficiency and laboratory operations (Eubank, Long and Perez, 2020). Many diagnostic platforms enable syndromic testing and reduce reliance on traditional culture-dependent workflows, including solid plate-based subculturing processes, thereby lowering manual workload, minimising opportunities for error, and increasing throughput. These features position them as important tools for transforming the management of time-critical infections across emergency, intensive care, and hospital-wide settings. Nevertheless, the extent to which these benefits are fully realised will depend on how effectively existing workflows and organisational structures adapt to support their integration within healthcare systems.

1.4 Report overview

This research evaluates the potential health and economic impacts of adopting fast diagnostic testing for patients with BSI at high risk of developing sepsis. The analysis compares the use of a combined fast ID/AST strategy with standard of care diagnostic testing. Economic evaluation and modelling were undertaken from a healthcare system perspective across seven countries: Canada, France, Germany, Italy, Japan, the UK, and the US.

Methods are detailed in Chapter 2, followed by the presentation and interpretation of the results in Chapters 3 and 4. Chapter 5 explores the broader value of fast diagnostics, barriers to adoption, and the actions required to realise their full benefits. Conclusions are presented in Chapter 6.

2 Methods

This study undertook a multi-country health economic evaluation to assess the clinical and economic impact of implementing fast pathogen identification (ID) and antimicrobial susceptibility testing (AST) for BSI patients at high risk of progressing to sepsis. A decision-analytic modelling framework was developed to compare fast diagnostic strategies with standard of care across seven healthcare systems. The decision problem was structured using the PICO (Population, Intervention, Comparator, Outcome) framework as described below.

2.1 PICO

Population

The analysis focused on adults (≥18 years) hospitalised with confirmed BSIs who were at high risk of developing sepsis[1], with potential progression to septic shock.

Seven different country populations were modelled: Canada, France, Germany, Italy, Japan, the UK, and the US. G7 countries were chosen for being well-positioned to take a leadership role in adopting diagnostics for time-critical infections.

Intervention and Comparator

The intervention comprised a combination of fast diagnostic systems: a fast ID test and a fast AST system. The intervention was technology agnostic, designed to estimate the potential benefits of fast diagnostics generally within the chosen population. Specific diagnostics (or combinations of diagnostics) were not modelled.

The comparator was the standard of care (SOC) diagnostic technology. In Canada, France, Italy, Japan, and the UK, SOC consisted of conventional ID and AST. In Germany and the US, the comparator was a fast ID test combined with conventional AST, in line with prevailing practice.

Both conventional and fast diagnostics rely on microbial culture and were assessed across the full diagnostic pathway: blood culture, Gram staining, ID testing, and AST testing. No additional delays between sequential diagnostic steps were assumed. As such, total time to appropriate treatment was modelled as the sum of turnaround times across all tests.

Outcomes

The model captured four outcome domains:

1. **Sepsis-related outcomes**: cases of sepsis, septic shock, and post-sepsis clinical events.
2. **Mortality outcomes**: in-hospital mortality and post-discharge deaths.
3. **General health outcomes**: quality-adjusted life years (QALYs).

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[1] *Patients at "high risk" of developing sepsis include those who are critically ill, have undergone major surgery, live with chronic conditions (e.g., chronic renal failure), have a weakened immune system (e.g., haemato-oncological conditions), those who are frail, or have a history of sepsis or prolonged hospitalisation.*

4. **Economic outcomes**: total healthcare costs from initial hospitalisation to one-year post-discharge.

2.2 Modelling approach, structure and assumptions

A decision tree model was developed to compare costs and health outcomes associated with fast diagnostics versus SOC from a healthcare system perspective. The analysis focused on the consequences of diagnostic-led changes in disease progression and mortality, most notably the reduced time to appropriate therapy.

The model was first developed for France by Houssem Boughazi et al. (2023) and then further refined and adapted for the other countries of interest.

Model structure

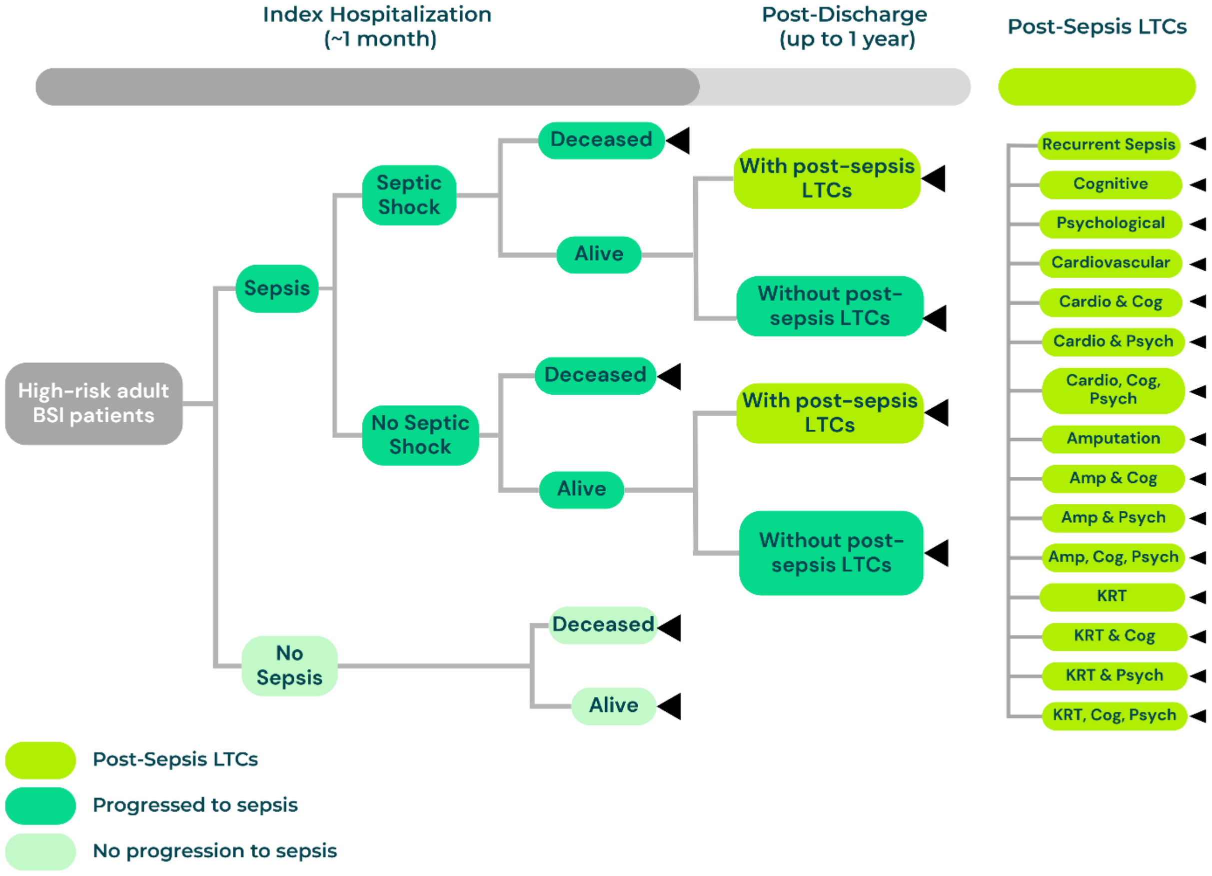
The model reflects the clinical journey of a patient hospitalised with a BSI, capturing both the acute phase and the subsequent year following survival.

Initial hospitalisation: Patients were categorised into three mutually exclusive groups: BSI without sepsis, sepsis without septic shock, and sepsis with septic shock.

One-year post-sepsis: Survivors of sepsis and septic shock were followed for one year and assigned post-sepsis health states, including: no post-sepsis syndrome consequence, recurrent sepsis, amputation, renal failure requiring kidney replacement therapy (KRT), cardiovascular consequences (acute myocardial infarction, stroke), psychological consequences (anxiety, depression, and post-traumatic stress disorder (PTSD)), and cognitive impairment.

The model structure is shown in Figure 1.

Figure 1 Decision-tree structure



BSI: bloodstream infection; **LTC:** Long-term consequence; **Cog:** Cognitive impairment; **Psych:** Psychological consequences; **Cardio:** Cardiovascular consequences; **Amp**: Amputation; **KRT:** Kidney replacement therapy

Intervention effect

Time to appropriate treatment

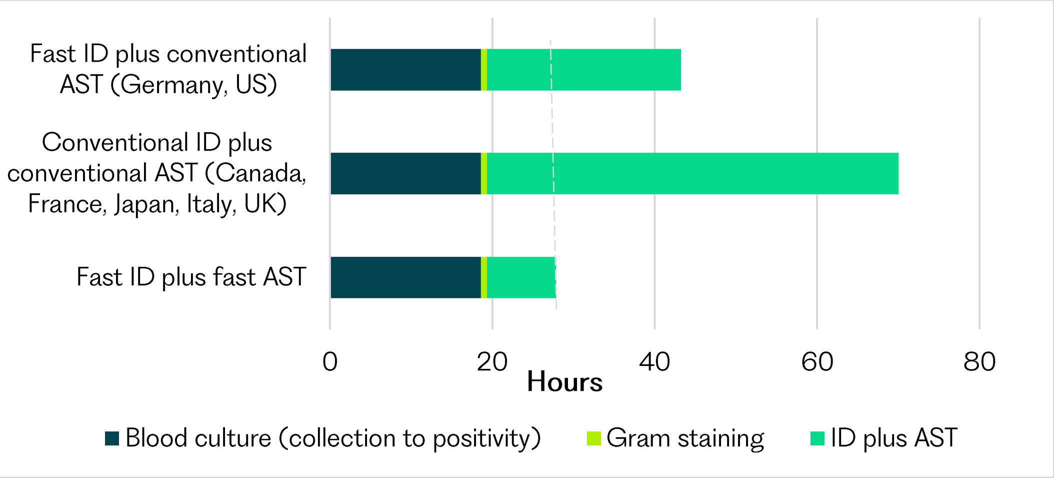
Compared to SOC, fast systems reduce reliance on sequential test processing and bypass conventional solid plate-based subculturing workflows, thereby substantially shortening time to-results (Zhang et al., 2019). However, patient care improves only when diagnostic results are translated into appropriate therapy. Time to appropriate treatment is defined here as the interval between diagnostic testing and initiation of appropriate antibiotic treatment. Time to appropriate treatment is not exclusively determined by time-to-results, as other hospital structural and workflow barriers are a crucial determinant of timely clinical actionability of results. Nevertheless, emerging evidence suggests that faster diagnostic information can meaningfully influence treatment decisions in clinical practice.

For example, a recent retrospective intensive care unit (ICU) study of patients with Gram-negative BSIs found that those managed with fast phenotypic AST were more likely to receive active antimicrobial therapy within 24 hours compared with conventional susceptibility testing (86.5% vs 45.8%) (Rotundo et al., 2026). These findings support the behaviour mechanism assumed in the model whereby faster diagnostic information facilitates earlier treatment optimisation.

Consistent with this mechanism, a key assumption of the model is that hospital structural and workflow barriers can be effectively addressed (e.g. without sampling and transportation delay), such that fast diagnostic results directly translate into reduced time to appropriate treatment. We acknowledge that the extent to which these benefits can be realised will vary depending on the individual hospital context. Barriers to adoption and steps needed for the full potential of fast diagnostics to be realised are discussed further in Chapter 5.

Figure 2 presents the turnaround times of diagnostic steps and time to appropriate treatment across diagnostic pathways.

Figure 2 Comparison of time to appropriate treatment across diagnostic pathways (Peri et al., 2022; Schifman, Meier and Souers, 2015; Yuceel-Timur et al., 2024; Caspar et al., 2024)



AST: antimicrobial susceptibility testing; **ID**: identification

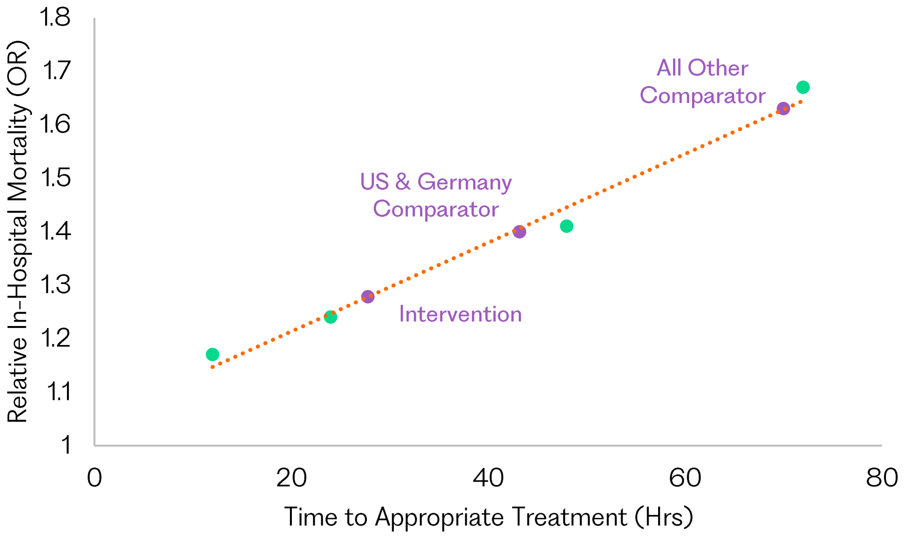
Two intervention effects associated with reduction in time to appropriate treatment were incorporated in the model, based on a pragmatic review of published literature (Peri et al., 2022; Van Heuverswyn et al., 2023). Studies were prioritised for inclusion based on relevance to the decision problem (as specified in the PICO) and model structure.

Reduced progression from BSI to sepsis: Evidence from a meta-analysis of observational studies including more than 25,000 patients found that fast diagnostics, when combined with antimicrobial stewardship programme, are associated with significantly lower likelihood of progression from BSI to sepsis compared with conventional diagnostic methods, corresponding to a 22% relative reduction (Peri et al., 2024).

Reduced mortality: In-hospital mortality among patients with sepsis and septic shock varies according to time to appropriate treatment. Estimates for relative mortality reductions associated with fast diagnostics were derived from a study examining the relationship between time to appropriate treatment and 30-day mortality across time points from 12 to 72 hours (Van Heuverswyn et al., 2023). The relationship identified in the analysis is presented in Figure 3, demonstrating a clear positive association between time to appropriate treatment and mortality that appears roughly linear. Although the form of this association is debated in the literature with some studies suggesting an exponential relationship (Ericson et al., 2022; Seymour et al., 2017), a linear model was adopted here due to the particular relevance of the Van Heuverswyn study to this analysis and because it represents a more conservative model assumption. Average time to appropriate treatment in fast and conventional methods were used to interpolate associated relative reductions in in-hospital mortality based on the relationship in Figure 3. These were then applied to baseline in-hospital mortality estimates from Fleischmann-Struzek et al., (2021) (39.3% for sepsis and 61.7% for septic shock) to derive the relative reductions in baseline mortality achieved with fast diagnostics compared with conventional diagnostic approach. The estimated relative mortality reductions were 15.8% for sepsis and 8.5% for septic shock.

Figure 3

Relationship between time to appropriate treatment and in-hospital mortality (Van Heuverswyn et al., 2023)



Green: Observed data (Van Heuverswyn et al., 2023); Purple: Modelled estimates (linear interpolation)

Diagnostic accuracy

Diagnostic accuracy was assumed to be equivalent across strategies. This assumption is supported by evidence demonstrating high sensitivity and specificity (both >99%) for fast ID tests compared with conventional ID methods, as well as low rates of very major errors (VME) and major errors (ME) for fast AST systems relative to conventional disc diffusion techniques (Penven et al., 2025; Peri et al., 2022; Tibbetts et al., 2022).

Post-sepsis consequences

Patients who enter a post-sepsis health state acquire the state at the beginning of the 12-month follow-up and remain in that state for the duration of the year. This is a simplifying assumption to reflect the availability of data. Post-sepsis consequences can occur alone or concurrently. Estimates for the co-occurrence of post-sepsis health states were derived from the 1-12 month post-sepsis data reported in a German cohort study (Fleischmann-Struzek et al., 2021).

2.3 Data collection and validation

The initial French model was informed by published literature and hospital data extracted from the Programme de Medicalisation des Systèmes d'Information (PMSI) database[2]. Targeted searches were conducted to identify country-specific input parameters for the six additional countries.

Where country-specific parameters were unavailable, data-driven assumptions were made by adapting evidence from other settings to local contexts. To ensure accuracy and relevance, clinical experts in each country reviewed and validated all input parameters and key assumptions. Analysis of additional hospital datasets for the additional countries was out of scope of this research.

A summary of key parameters is given in Table 1 with full inputs provided in Table A1 in Appendix A.

Clinical inputs

Clinical inputs were sourced from published literature and were country specific as far as available data allowed. Inputs were primarily derived from observational studies and/or analyses of medical claims databases (Fleischmann-Struzek et al., 2021; Oami et al., 2022; Paoli et al., 2018).

The annual population of hospitalised adults with BSI at high risk of developing sepsis was estimated using a structured stepwise approach. Total annual sepsis cases were first obtained from national hospital data. The proportion of sepsis attributable to BSI was applied to estimate the number of sepsis cases caused by BSI. Using published estimates of the probability of progression from BSI to sepsis, the total annual BSI population was then calculated. Finally, a clinically validated proportion of BSI cases considered at high risk of progression was applied to derive the high-risk BSI population. This approach was applied consistently across countries to ensure comparability, using literature-based estimates and expert validation where country-specific data were unavailable.

Where country-specific data could not be identified, such as for the probability of post-sepsis long term consequences (LTCs), French data were applied to the other countries following consultation with clinical experts. Accordingly, where similar or duplicate parameter values are presented across countries in Table 1, these reflect the application of the French model input. This cross-country application was reviewed and validated by country-specific clinical experts. Experts in all countries apart from Italy considered the application of French clinical data to be appropriate. For Italy, concerns were raised regarding transferability; therefore, an additional scenario analysis using Sicilian data was conducted. The French estimates were retained for the base-case analysis due to substantial regional variation within Italy, which limited the representativeness of region-specific data.

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[2] *Programme de Medicalisation des Systèmes d'Information (PMSI) is the French national hospital discharge database, providing comprehensive data on hospital stays across both public and private care facilities. It contains detailed information on healthcare costs and resource use.*

Table 1 Key model parameters

		CANADA	FRANCE	GERMANY	ITALY	JAPAN	UK	USA
POPULATION & BASELINE BURDEN	Country Population	40m	66m	85m	59m	124m	69m	344m
	Adult patients hospitalized with BSI (per year) at high risk of sepsis	42k	69k	77k	110k	252k	104k	884k
INITIAL HOSPITALISATION — CLINICAL OUTCOMES	Probability of sepsis	26%	44%	43%	44%	66%	44%	43%
	Probability of septic shock	29%	29%	29%	29%	15%	29%	52%
	In-hospital mortality (BSI)	11%	12%	12%	12%	12%	12%	28%
	In-hospital mortality (sepsis)	29%	39%	36%	39%	20%	32%	28%
	In-hospital mortality (septic shock)	49%	62%	59%	62%	37%	50%	46%
INITIAL HOSPITALISATION - COSTS	Cost of BSI	$14k (€8.6k)	€4k	€3k	€4k	¥1.1m (€6.0k)	£8k (€9.2k)	$40k (€33.5k)
	Cost of Sepsis per stay	$23k (€14.1k)	€12k	€15k	€12k	¥3.7m (€20.2k)	£29k (€33.4k)	$61k (€51.1k)
	Cost of Septic Shock per stay	$38k (€23.3k)	€20k	€19k	€20k	¥3.7m (€20.2k)	£48k (€55.3k)	$69k (€57.8k)
POST-SEPSIS — CLINICAL OUTCOMES	Probability of recurrent sepsis	13.3%						
	Probability of cardiovascular consequences	0.8%						
	Probability of renal failure requiring kidney replacement therapy	9.3%						
	Probability of amputation	0.8%						
	Probability of cognitive consequences	18.5%						

	Probability of psychological consequences	17.9%

Notes: Detailed data sources and references underpinning the estimates presented in this table are reported in Appendix A1; Costs are reported in local currency for each country and additionally presented in euros (€) for cross-country comparison.

Resource use and costs

The analysis included direct medical costs associated with the management of modelled clinical events, such as hospitalisation and treatment of LTCs. All costs were converted to a reference year of 2023. The analysis was agnostic to the specific diagnostic technologies used; therefore, the acquisition costs of diagnostics (including SOC testing) and proactive sepsis management programmes were not modelled.

Diagnosis-related group (DRG) tariffs (or equivalent reimbursement mechanisms) were used for informing reimbursement estimates where possible. Where relevant tariffs could not be identified, country-specific resource use data (including hospital length of stay) and associated costs were obtained from published sources and used to estimate reimbursement costs.

Where country-specific costs could not be identified (typically costs related to initial hospitalisation for BSI or septic shock, or rehospitalisation for specific post-sepsis LTCs), cost ratios derived from the French data were applied. These ratios reflected the relative cost of each event compared with sepsis-related hospitalisation costs and were applied to each country's sepsis hospitalisation cost. This approach was validated by the clinical experts on the grounds that the ratios of resource use between sepsis hospitalisation and sepsis-related events are likely to be similar across countries.

LTC costs reflected aggregated costs of hospital readmission, rehabilitation, and ambulatory care where data were available, accrued over the 12-month follow-up period.

To account for the co-occurrence of multiple post-sepsis LTCs, a conservative costing approach was applied. When patients experienced more than one LTC, the costs were assumed not to be fully additive. Instead, the cost of the most resource-intensive LTC was applied in full, with 20% of the costs of each additional concurrent LTC added to reflect the incremental resource use beyond the dominant driving condition.

Formally, for a patient with concurrent LTCs with costs $c_1, c_2, \dots, c_n$, ordered such that $c_{(1)} \geq c_{(2)} \geq \cdots \geq c_{(n)}$, combined post-sepsis costs were calculated as:

$$C_{LTC,combo} = c_{(1)} + 0.2 \sum c(i)$$

This approach was taken because during expert elicitation it was noted that applying condition-specific cost overlap assumptions was not feasible, as empirical evidence quantifying cost interactions between post-sepsis LTCs is lacking. Consequently, this general assumption was adopted to avoid double counting while providing a pragmatic representation of incremental costs. The approach and assumptions were reviewed and validated by clinical experts.

Note that post-sepsis health state definitions and coding practices vary between countries. As a result, cost-saving estimates are not directly comparable across settings.

Utilities

Health state utility values and utility decrements were sourced from the literature. Utilities associated with sepsis and septic shock were derived from studies reporting quality of life during ICU stay, at discharge, and among sepsis survivors with and without post-sepsis consequences up to one year post-discharge (Broulikova et al., 2025; Gardner et al., 2019; Liu et al., 2025). Utility decrement associated with the individual post-sepsis LTCs were obtained from a systematic review of EQ-5D values across chronic diseases (Van Wilder et al., 2019a).

Given the limited availability of comprehensive, country-specific utility values for all health states of interest, a hierarchical approach was applied. Country-specific utility values were used wherever available. For the initial hospitalisation phase, utility values for BSI, sepsis, and septic shock were derived from studies conducted in the Netherlands, Japan and USA, which provided the most relevant and robust estimates for these acute health states. These values were applied consistently across countries in the absence of locally derived alternatives.

For the post-sepsis phase, utility decrement data were only comprehensively available for the UK and the USA. To address this gap, we assumed that utility values would be broadly comparable across countries with similar geographic and healthcare system characteristics. Accordingly, UK utility decrements were applied to France, Germany, and Italy, while US utility decrements were applied to Canada and Japan. These assumptions and the resulting country groupings were reviewed and validated by clinical experts in each setting.

QALYs were calculated by assigning utilities over the relevant periods. The initial hospitalisation phase was assumed to last one month, during which utilities were assigned according to the mutually exclusive health states of BSI, sepsis, or septic shock. The subsequent post-sepsis phase was modelled over 12 months, with baseline utility adjusted for the presence of LTCs through the application of relevant utility decrements.

To account for the co-occurrence of multiple post-sepsis LTCs, a conservative utility approach was applied. When patients experienced more than one LTC, utility decrements were not assumed to be additive. Instead, the largest (most detrimental) utility decrement among the concurrent LTCs was applied to represent the overall post-sepsis health state. This approach was chosen to avoid overstating quality-of-life losses in the absence of evidence quantifying combined utility effects across multiple LTCs. The assumption was reviewed and validated with the experts and reflects a conservative representation of health-related quality-of-life impacts.

2.4 Establishing a maximum price

Because the acquisition and implementation costs of fast diagnostics were not included in the base case, we calculate the maximum fast diagnostic intervention cost per patient at which proactive sepsis management would remain cost-saving and, where applicable, cost-effective. For all countries, a cost-neutral threshold (cost-savings = 0) was applied to identify the maximum intervention cost at which fast ID/AST would remain cost-saving. In addition, explicit or implicit cost-effectiveness thresholds were applied in settings where such are recognised in the literature (UK, Canada, Japan, and the US). All thresholds used are summarised in Table 2.

Table 2 Established cost-effectiveness thresholds

	CANADA	FRANCE	GERMANY	ITALY	JAPAN	UK	USA
Cost neutral	Cost-neutral (cost-savings = 0)						
Cost-effectiveness threshold	$50k	N/A	N/A	N/A	¥5-6m	£25-35k	$50k, $100k, $150k, $200k
Source	(Binder et al., 2022)				(Kitano and Tsuzuki, 2025)	(NICE, 2025)	(ICER, 2019)

Notes: *Cost-effectiveness thresholds are presented in local currencies; US thresholds are based on benchmark ranges cited by the Institute for Clinical and Economic Review (ICER) ($50,000–$200,000 per QALY), where lower values reflect more conservative willingness-to-pay and higher values allow greater flexibility in decision-making; $100k–$200k represents the commonly referenced base-case range.*

2.5 Sensitivity analysis

Both one-way sensitivity analyses and probabilistic sensitivity analyses were conducted, in addition to the scenario analysis using Sicilian data.

One-way analyses

In the one-way sensitivity analysis, key parameters tested were selected to reflect the main structural drivers of the results. They included:

- probabilities governing disease progression during hospitalisation and in-hospital mortality for sepsis and septic shock.
- assumptions related to the effect of the intervention on reducing progression to severe disease and sepsis-related mortality.

The variable ranges were defined using the best available evidence from each source. Where studies reported 95% confidence intervals, these values were used directly as the minimum and maximum inputs. Where confidence intervals were not provided, but standard errors (SE) or sample sizes were available, the SE was calculated (if needed). The corresponding lower and upper bounds were derived using a normal approximation to obtain a 95% uncertainty range. In cases where no measures of statistical uncertainty were available, a standard ± 25% variation around the base-case value was applied. For each country, tornado plots were generated based on changes in cost savings per patient.

Probabilistic analyses

The probabilistic sensitivity analysis varied all model parameters simultaneously, according to published confidence intervals. 10,000 simulations were conducted for each country. Transition probabilities, event relative risks, and utility parameters bounded between 0 and 1 were modelled using beta distributions. Cost parameters, including hospitalisations, ICU care, readmissions, and ambulatory care costs, were modelled using gamma distributions, consistent with their right-skewed, non-negative distribution. Mortality risk ratios and intervention effects on disease progression were modelled using normal distributions, parameterised on the log scale where appropriate to preserve the plausibility of effects. All parameters were sampled simultaneously in repeated Monte Carlo simulations to generate joint uncertainty around the total costs and health outcome.

A full table of all model inputs and the corresponding calculated standard errors is provided in Appendix A (Table A2). Where published confidence intervals, standard errors, or sample sizes were not reported, a conservative assumption of $n = 25$ was applied to derive uncertainty distributions, reflecting greater parameter uncertainty due to limited evidence.

Scenario analysis (Sicily)

Based on feedback from the Italian clinical expert, a scenario analysis was conducted for Italy using region-specific data from Sicily (Pipitò et al., 2024). This analysis applied clinical and cost inputs from the Sicilian study and subsequent cost studies to explore the potential impact of using sub-national evidence. While the clinical expert indicated that Sicilian data are not fully representative of the national Italian context, the scenario analysis was included to provide initial indication of potential variation in results in the absence of national-level evidence.

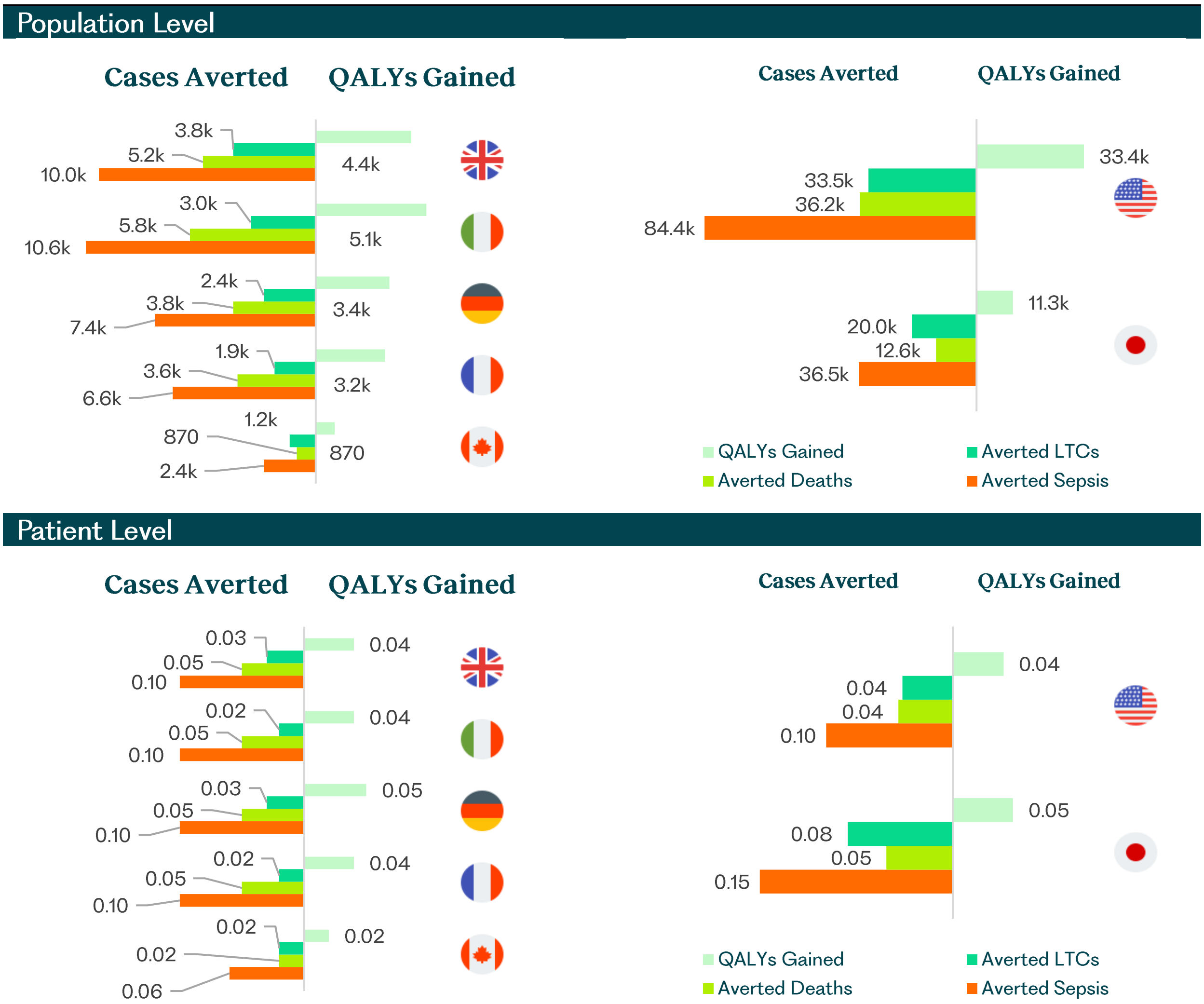
3 Results: The value of fast diagnostics in bloodstream infections and sepsis

3.1 Clinical outcomes

Across all health systems modelled, fast ID/AST was associated with meaningful improvements in clinical and health outcomes relative to the SOC. As shown in Figure 4, the intervention reduced the number of sepsis cases, deaths, and LTCs, with these clinical gains translating into additional QALYs over the 12-month follow-up period.

Table 3 presents the corresponding absolute outcomes under SOC and fast ID/AST.

Figure 4 Cases averted & QALYs gained with fast ID/AST



Note: *Results are centred on the standard of care (SOC) base case. Values represent incremental changes with fast ID, fast AST relative to SOC. Bars to the left indicate cases averted; bars to the right indicate QALYs gained. Countries are grouped by baseline BSI population for comparability: <110k (left panel) and >250k (right panel). Minor differences compared to Table 3 are due to rounding.*
Abbreviations: *QALY: Quality-adjusted life year; LTC: Long-term consequences.*

Table 3 Clinical outcomes of fast ID/AST and SOC (patient and population level)

		CANADA	FRANCE	GERMANY	ITALY	JAPAN	UK	USA
CLINICAL OUTCOMES UNDER SOC (PER PATIENT)	Sepsis cases	0.26	0.44	0.44	0.44	0.66	0.44	0.43
	Deaths	0.20	0.36	0.32	0.36	0.37	0.34	0.31
	Patients with LTCs	0.15	0.19	0.20	0.19	0.42	0.22	0.22
	QALYs gained	0.61	0.50	0.51	0.50	0.48	0.52	0.52
CLINICAL OUTCOMES UNDER FAST ID/AST (PER PATIENT)	Sepsis cases	0.20	0.34	0.34	0.34	0.51	0.34	0.34
	Deaths	0.18	0.31	0.27	0.31	0.32	0.29	0.27
	Patients with LTCs	0.13	0.17	0.17	0.17	0.34	0.19	0.18
	QALYs gained	0.63	0.54	0.56	0.54	0.53	0.56	0.56
CLINICAL OUTCOMES UNDER SOC (POPULATION)	Sepsis cases	11.1k	30.1k	33.5k	48.2k	166.0k	45.6k	383.7k
	Deaths	8.5k	24.7k	24.7k	39.5k	92.1k	35.1k	276.1k
	Patients with LTCs	6.5k	13.3k	15.7k	21.2k	104.9k	23.3k	195.3k
	QALYs gained	26.0k	34.2k	39.4k	54.7k	121.8k	53.9k	460.3k
CLINICAL OUTCOMES UNDER FAST ID/AST (POPULATION)	Sepsis cases	8.7k	23.5k	26.2k	37.6k	129.5k	35.6k	299.3k
	Deaths	7.7k	21.1k	20.9k	33.7k	79.5k	29.9k	239.9k
	Patients with LTCs	5.3k	11.4k	13.3k	18.2k	84.9k	19.5k	161.8k
	QALYs gained	26.9k	37.4k	42.7k	59.8k	133.1k	58.3k	494.0k

3.2 Cost savings

Over the 13-month time horizon (index hospitalisation plus 12-month post-discharge follow-up), implementation of fast ID/AST was associated with consistent cost reductions across all health systems modelled.

Table 4 presents the total costs under the SOC and under fast ID/AST, at both the per-patient and population levels. Across all countries, total costs were lower under fast ID/AST.

Table 4 Costs of fast ID/AST and SOC in local currency (euros)

		CANADA	FRANCE	GERMANY	ITALY	JAPAN	UK	USA
COSTS UNDER SOC	Per-patient cost	$19.1k	€12.5k	€13.2k	€12.5k	¥4.5m	£23.0k	$56.4k
		(€11.8k)				(€24.5k)	(€26.5k)	(€47.4k)
	Population cost	$809m	€857m	€1.0bn	€1.4bn	¥1.1tn	£2.4bn	$49.9bn
		(€502m)				(€6bn)	(€2.8bn)	(€41.9bn)
COSTS UNDER FAST ID/AST	Per-patient cost	$18.1k	€10.8k	€11.2k	€10.8k	¥3.8m	£20.0k	$53.0k
		(€11.3k)				(€20.7k)	(€23.1k)	(€44.5k)
	Population cost	$767m	€745m	€860m	€1.2bn	¥950bn	£2.1bn	$46.9bn
		(€476m)				(€5.2bn)	(€2.4bn)	(€39.4bn)

Costs reported in local currencies were converted to EUR using European Central Bank (ECB) euro foreign exchange reference rates (30 January 2026): 1 EUR = 1.1919 USD; 1 EUR = 1.6120 CAD; 1 EUR = 0.86620 GBP; 1 EUR = 183.59 JPY[3].

Figure 5 illustrates the corresponding incremental costs, showing reductions on both a per-patient basis and at the population level. These savings reflect lower costs during the index hospitalisation as well as reduced downstream healthcare utilisation over the subsequent year.

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[3] *European Central Bank. Euro foreign exchange reference rates.*

Figure 5 Incremental and population level cost savings with fast ID/AST

Note: *Results are centred on the standard of care (SOC) base case. Values represent incremental cost differences with fast ID/AST relative to SOC. Bars reflect population-level cost savings, and the line indicates per-patient cost savings. Countries are grouped by baseline BSI population for comparability: <110k (left panel) and >250k (right panel). Minor differences compared to Table 4 are due to rounding.*

Population level cost savings

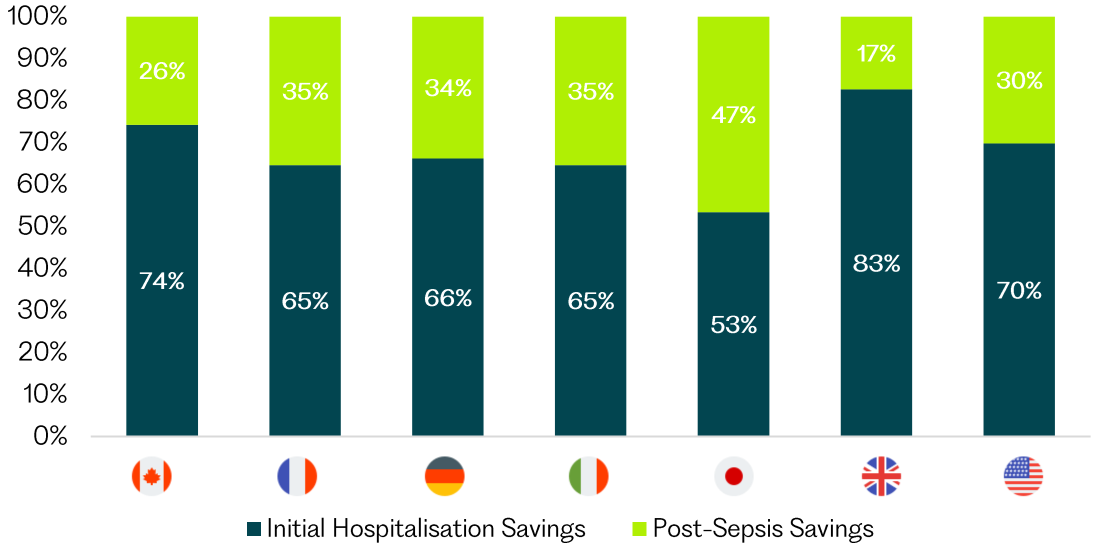
Total cost savings ranged from €26.6 million in Canada to approximately €2.6 billion in the USA. Across all countries, fast ID/AST was associated with substantial total cost savings varying according to country-specific cost structures and the size of the adult BSI population at high risk of progression to sepsis.

Decomposition of total savings by phase of care showed that reduction during the initial hospitalisation phase accounted for most savings across most settings (Figure 6). The share attributable to the initial hospitalisation ranged from 53% in Japan to 83% in the UK, with a similarly high proportion observed in Canada (74%) and the USA (70%). In France, Germany, and Italy, approximately 65-66% of total savings accrued during the initial hospitalisation phase. The remaining share of savings arose from avoided post-sepsis consequences, accounting for 17-47% of total savings across countries and contributing most prominently in Japan.

This indicates that the economic benefits of fast ID/AST are realised immediately during the index hospitalisation, as avoiding progression from BSI to sepsis and septic shock-clinical states which are associated with substantially higher admission costs-generates more immediate cost savings for health systems. At the same time, savings from avoided post-sepsis consequences demonstrate that fast ID/AST has the potential to deliver longer-term cost savings for health systems through reduced downstream morbidity and care needs.

While the magnitude of savings varies across countries, reflecting differences in population size, baseline sepsis burden, and healthcare cost structures, the direction of effect is consistent: fast diagnostics are associated with net cost savings in all countries presented.

Figure 6 Proportion of total cost savings between initial hospitalisation and post-sepsis phases.



Per patient cost savings

Per-patient cost savings (Figure 5) ranged from €627 in Canada to €3.9k per patient in Japan. Intermediate savings were observed in France (€1.6k), Italy (€1.6k), Germany (€2.0k), the USA (€2.9k, and the UK (€3.4k). Despite this heterogeneity in magnitude, fast ID/AST consistently generated net cost savings across all settings, underscoring the robustness of its economic value under country-specific cost and care pathways.

3.3 Cost-effectiveness

Across all countries, fast ID/AST diagnostics were associated with improved health outcomes (Table 3) and net cost savings compared with standard of care (Figure 5). This indicates that fast diagnostics dominate SOC in cost-effectiveness terms (that is, they are cost-saving while improving outcomes), and meaningful incremental cost-effectiveness ratios (ICERs) cannot be calculated.

Table 5 reports the implied maximum intervention cost per patient at which fast ID/AST would remain either cost-neutral or cost-effective under typical cost-specific decision thresholds. These values correspond directly to the estimated per-patient cost savings in each setting and therefore represent the break-even price at which fast ID/AST would generate no net budget impact.

Table 5 Maximum intervention cost per patient

	THRESHOLD	CANADA	FRANCE	GERMANY	ITALY	JAPAN	UK	USA
MAXIMUM INTERVENTION COST (PER PATIENT)	Cost-Neutral (Cost savings = 0)	$1.0k (€620)	€1.6k	€2.0k	€1.6k	¥708k (€3.9k)	£3.0k (€3.4k)	$3.5k (€2.9k)
	Cost-Effective	$2.0k (€1.2k)	N/A	N/A	N/A	¥930k (€5.1k)	£4.1k (€4.7k)	$5.4k, $7.3k, $9.2k, $11.1k (€4.6k, €6.2k, €7.8k, €9.4k)

Note: ICER thresholds: Canada $50k, Japan ¥5-6m; UK £25-35k, USA $50k, $100k, $150k, and $200k. See Table 2.
ICER: incremental cost-effectiveness ratio

3.4 Sensitivity analysis

One-way analyses

Results from the country-level sensitivity analyses show that while uncertainty in key inputs can lead to substantial variation in the magnitude of estimated cost savings, the overall conclusions remain stable across a wide variation of assumptions.

Across all countries, model outcomes were most sensitive to:

- Acute in-hospital cost parameters, in particular in-hospital BSI and sepsis costs. For example, changes to sepsis admission costs in France within plausible ranges produced deviations of approximately €1,800 per patient relative to the base case; however, both low- and high-cost scenarios remained cost saving. In Japan, where acute care costs are higher compared to France, sensitivity to these parameters was more pronounced; variations in sepsis costs within the specified ranges resulted in swings of nearly €8,400 per patient, with both low-and high-cost scenarios still demonstrating cost savings for the patient.

- The intervention effect, representing the impact of fast ID/AST on accelerating time to appropriate therapy (i.e., reducing progression from BSI to sepsis). When this parameter was varied across its published confidence interval (4% to 37%, compared with a 22% base-case value), all countries except France and Italy remained cost-saving. In France and Italy, applying the lower bound of the CI removed the cost-saving advantage, resulting in a small net cost of €28 and €42 per patient respectively. Under the upper-bound scenario (37%), savings increased to approximately €3,000 per patient for both countries. By contrast, uncertainty in post-sepsis consequences and longer-term outcomes had only a limited effect on results across countries.

While changes in parameter inputs influenced the size of the estimated savings, except for the one example noted above, they did not change the overall finding that fast ID/AST reduces costs by preventing patients from progressing to more severe and expensive infection states. Even under conservative assumptions, the economic benefits are clear. Overall, these findings show that the cost-saving nature of fast ID/AST is maintained across a wide range of plausible assumptions, supporting confidence in the robustness of the economic conclusions despite uncertainty in individual inputs.

Full results for each country are given in Figure B1 in the Appendix.

Probabilistic analyses

The probabilistic sensitivity analysis results are summarised in Figure 7, which shows the proportion of simulations that were cost-saving, cost-effective, or neither across all countries.

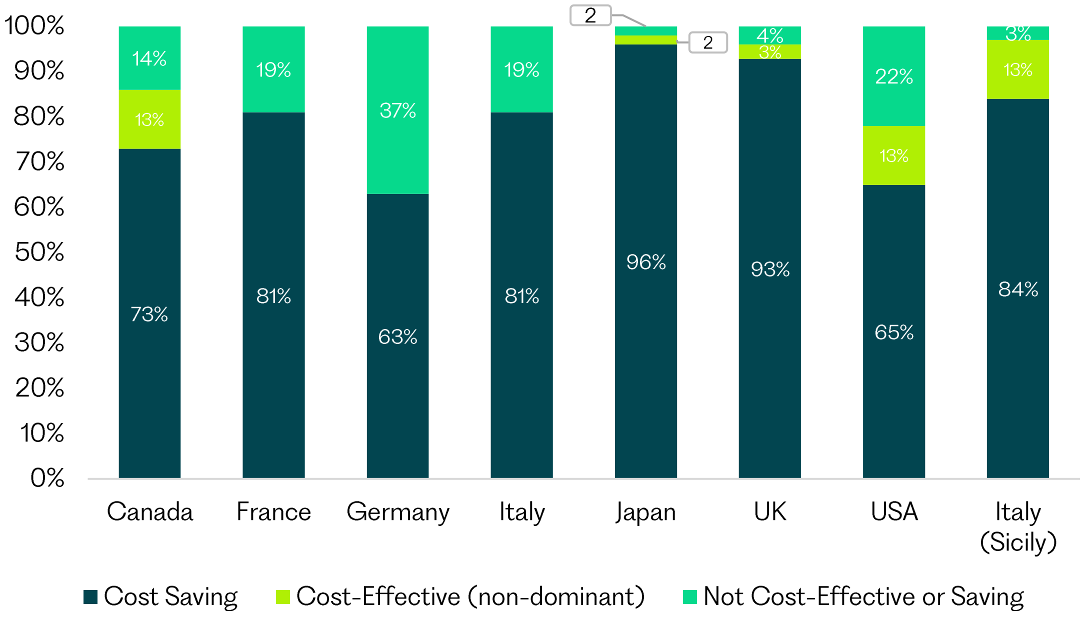
Across the settings, the intervention was cost saving in the majority of simulations, ranging from 63% in Germany to 96% in Japan.

The share of simulations that were neither cost saving nor cost effective was consistently small, ranging from 2% to 37%, indicating a relatively low probability that fast ID/AST would fail to demonstrate economic value under uncertainty across all settings.

Cost-effectiveness planes illustrating the joint distribution of incremental costs and QALYs for each country are shown in Figure B2 in the appendix.

Figure 7

Probability of fast ID/AST being cost saving or cost effective under simulation.



Sicily scenario analysis

The direction of results and economic conclusions were consistent between the Italy base case analysis and the Sicily scenario analysis (see Table 6). Patients in the Sicily scenario experience a higher baseline burden of sepsis cases (0.58 vs 0.44 per patient), and introduction of fast ID/AST resulted in greater number of sepsis cases averted per patient compared with the base case (0.13 vs. 0.10). Per-patient cost savings were of a similar order of magnitude in both settings (€1.6k in base case vs. €1.1k in Sicily). With savings in each case driven primarily by reductions in the index hospitalisation phase. Overall, these findings demonstrate that the economic value of fast ID/AST remains robust when applied at a sub-national level, even in settings with varying baseline disease burden and cost inputs.

Table 6 Scenario analysis: Italy base case vs Sicily-specific inputs

		ITALY (BASE CASE)	ITALY (SICILY)
CLINICAL OUTCOMES UNDER SOC (PER PATIENT)	Sepsis cases	0.44	0.58
	Deaths	0.36	0.37
	Post-sepsis consequence	0.19	0.30
	QALYs gained	0.50	0.47
INCREMENTAL CLINICAL OUTCOMES WITH FAST ID/AST	Avoided sepsis cases	0.10	0.13
	Avoided deaths	0.05	0.05
	Patients avoiding post-sepsis consequence	0.02	0.05
	QALYs gained	0.04	0.05
COST (PER PERSON) UNDER SOC	Initial hospitalisation phase	€8.3k	€6.4k
	One-year post-discharge	€4.1k	€2.2k
	Total	**€12.5k**	**€8.6k**
SAVINGS (PER PERSON) WITH FAST ID/AST	Initial hospitalisation phase	€1.0k	€710
	One-year post-discharge	€580	€400
	Total	**€1.6k**	**€1.1k**

4 Reflections on analyses and results

4.1 Interpretation of key findings

The analysis presented here suggests that fast ID/AST generate meaningful reductions in costs and substantial improvements in health outcomes compared to SOC, demonstrated across all seven countries. Fast ID/AST are therefore dominant in cost-effectiveness terms, subject to the price of the intervention itself not exceeding the cost-savings.

The improvements are achieved through shortening time to appropriate treatment and reducing the number of BSI patients progressing to sepsis and septic shock. In the longer term, fewer patients are projected to experience long-term complications related to sepsis, resulting in further savings in readmission and long-term management of these conditions.

4.2 Cross-country variations in results

Although the overall direction of results is consistent, the magnitude of cost savings varies substantially across the countries included in this analysis. These differences reflect variation in population characteristics and health system structures, indicating that the value of rapid diagnostics is not uniform across settings.

At the individual level, drivers of differences in magnitude of benefit include differences in sepsis progression rates (higher in Japan due to an older population) and the costs of acute care avoided (greater in the United States). At the country-level, variation is magnified by the size of the high-risk BSI population.

Other sources of variation may stem from differences in how sepsis and BSI cases are identified and recorded, with levels of under-recognition or under-coding likely to vary between countries (Liu et al., 2022).

These differences mean cross-country comparisons should be interpreted with caution.

4.3 Limitations of the analysis

The analysis suffers from various limitations, most of which suggest the impact of fast ID/AST has been underestimated in this analysis:

- The analysis focuses on a 13-month time horizon, capturing acute outcomes and short-term post-discharge consequences. While this reflects the period during which most of the sepsis-related cost and health losses occur, earlier intervention will also reduce the longer-term burden of post-sepsis syndrome and recurrent complications. These additional benefits fall outside of the current time horizon and therefore are not fully reflected in the results. The analysis therefore likely underestimates the long-term savings attributable to fast ID/AST.

- The evaluation adopts a healthcare systems perspective, aligning with decision-making contexts across the countries. Broader societal effects-such as productivity impacts, caregiver burden, and the wider value of fast ID/AST for population health in the context of antimicrobial resistance (AMR) were not quantified. On the latter, fast tests may have important implications for AMR as set out in OHE's ***STRIDES diagnostic value framework*** (Fong et al., 2025). Once again, as these pathways favour fast diagnostics, the results presented here represent a conservative estimate of their full value.

- Generally clinical evidence is limited, and key clinical parameters are often estimated using a limited range of studies. Furthermore, country specific evidence for several inputs was limited. As a result, some parameters required the use of proxy values and/or data extrapolated from similar settings, with these alternative inputs validated by local clinical experts. This introduced meaningful uncertainty in country-level estimates, particularly where differences in epidemiology, care pathways, and resource use may not be fully reflected in available data. The sensitivity analyses were undertaken to capture this uncertainty and demonstrate that the overall directional conclusions remain consistent across plausible ranges.

- The relationship between time to appropriate treatment and mortality was modelled using a linear interpolation based on four published data points (Van Heuverswyn et al., 2023). Due to limited empirical evidence describing the form of this relationship, the model estimates the odds ratio for in-hospital mortality at the assumed time to appropriate treatment values for fast ID/AST (27.8 hours) and standard of care (70 hours in all countries, but 43.2 hours in the US and Germany). This simplification introduces uncertainty, as the true effect of delayed appropriate therapy may not be linear across the full range. The linear approach likely represents a conservative estimate, and the actual mortality impact — particularly among patients with sepsis or septic shock, may be understated in the model as a result, once again suggesting the cost savings and health gains may be underestimated.

- Finally, the model uses a static structure and does not incorporate dynamic interactions such as behavioural responses, operational constraints, or long-term changes in AMR patterns resulting from altered antibiotic use (e.g., reduced selection pressure or stewardship-related prescribing changes). These elements were outside the scope of this analysis but may be relevant considerations for future work.

5

Realising the full value of fast diagnostics

This analysis demonstrates that fast ID combined with fast AST testing can generate substantial clinical and economic value across diverse healthcare systems. For the first time, to our knowledge, a multi-country health economic model explicitly quantifies key value drivers of fast AST in the context of sepsis care, linking reductions in time to appropriate treatment to downstream impacts on mortality, long-term consequences and healthcare costs. The results consistently show meaningful reductions in death, sepsis progression, and post-sepsis morbidity, alongside cost savings and favourable cost-effectiveness across settings. These findings support the case for broader adoption of fast ID combined with fast AST as a mechanism to improve care pathways for patients with BSIs at high risk of developing sepsis.

5.1

Broader value drivers beyond turnaround time

Within the model, the primary driver of value of fast diagnostics is the reduction in time to appropriate treatment, which translates into value in the form of improved clinical outcomes and reduced costs. While faster turnaround time represents a major value driver, fast diagnostics offer benefits that extend beyond speed. These additional value drivers were beyond the scope of the model but remain important when considering real-world implementation, broader health system impact, and mitigation of AMR. Wider drivers of value include:

- **Broad pathogen and antibiotic coverage:** Modern fast diagnostic platforms can identify multiple pathogens and detect resistance mechanisms within a single assay, enabling syndromic testing approaches (Vasala, Hytönen and Laitinen, 2020). In addition, fast phenotypic AST systems provide timely, actionable data across a broad range of antibiotics, allowing clinicians to optimise, escalate, or de-escalate therapy in diverse BSI contexts. This combined breadth of organism ID and antibiotic coverage enhances robustness in the face of evolving pathogen profiles and resistance patterns.

- **Operational efficiency:** Certain diagnostic panels can identify polymicrobial infections, reducing the need for repeated testing and lowering dependence on culture-dependent workflows (Zhang et al., 2019). Novel molecular assays are compatible with a variety of specimen types and, in some cases, capable of identifying pathogens directly from samples without preliminary culture (Idelevich and Becker, 2019). These features have the potential to streamline laboratory operations by reducing manual workload, minimising opportunities for error, and increasing throughput.

- **Clinical integration and usability:** Operational usability is central to the real-world value of fast diagnostics. Simplified procedures, reduced hands-on time, automated processing, and structured reporting formats support integration into clinical workflows, reduce operator dependency, and enhance the clinical interpretation and actionability of results (Kaprou et al., 2021; Zhang et al., 2019).

Together, these value drivers demonstrate that fast diagnostics provide multi-dimensional benefits that complement their speed. Notably, these benefits may be more pronounced in settings with high AMR prevalence, where empirical therapy may be less effective (Peralta et al., 2007). While interlinked, each value driver contributes to the broader value of diagnostics in AMR mitigation, also reflected in the ***STRIDES AMR diagnostic value framework*** (Fong et al. 2025).

5.2 Barriers to value recognition and adoption

Key barriers to recognising the value of diagnostic technologies, including fast diagnostics, include the following:

- **Health technology assessment (HTA) and evaluation challenges:** Diagnostics are often not subject to any formal HTA process. Where diagnostic-specific frameworks are utilised, they tend to focus narrowly on functionality attributes such as analytical accuracy and short-term clinical utility, particularly in relation to disease prognosis. Moreover, these processes typically focus on individual tests rather than combinations used within a defined care pathway. Consequently, these frameworks fail to capture the full value of diagnostics, including operational efficiencies, system-level benefits, and long-term population impacts such as AMR mitigation. The omission of these broader and often "hidden" value elements, combined with difficulties in attributing downstream clinical benefits, results in health gains frequently being credited to subsequent antibiotic treatments alone, while diagnostics are primarily viewed as a cost rather than an investment (Wellcome Trust, 2016). These challenges may be particularly pronounced in countries without dedicated diagnostic assessment programmes.

- **Reimbursement and funding limitations:** Under existing reimbursement models diagnostics are often perceived as add-on costs rather than value-generating investments. Cases of BSIs and sepsis predominantly occur in inpatient settings and are reimbursed through bundled payment mechanisms such as DRGs (Sand and Kuqi, 2023). Within these structures, funding for diagnostics is typically based on acquisition costs or absorbed into fixed tariffs, which do not reflect the broader health system value of fast diagnostics (Wellcome Trust, 2016). As a result, innovative diagnostics may appear as a financial burden within reimbursement models despite their potential to avert immediate and downstream costs (as shown in Figure 6).

- **Misaligned incentives on adoption:** Clinical adoption is further constrained by misaligned incentives across the healthcare system. Diagnostic costs are typically borne by hospital laboratories, while many of the resulting benefits such as reduced post-discharge care costs accrue to other parts of the system. Such financial silos mean that procurement decisions often rely on laboratory budgets rather than system-level value assessments, resulting in underinvestment despite clinical and economic benefits.

- **Integration within healthcare systems:** Infrastructure is often insufficient to support integration into clinical and antimicrobial stewardship workflows, and there is substantial variability in hospital readiness to adopt new diagnostic pathways. Structural and workflow barriers, such as microbiology-clinical interfaces, delayed communication of susceptibility results, and misalignment between diagnostic turnaround times and antibiotic decision points, can further restrict effective implementation. In some healthcare settings, laboratory services do not operate continuously, limiting access diagnostic support outside standard operating hours. Where services are not consistently available, fast ID/AST results may not translate into immediate clinical decision-making, constraining real-world utilisation and influencing perceptions of value (CSIMC, 2025).

Clearly, demonstrating the broader system-level value of fast diagnostics and working to address the interrelated structural, operational, and behavioural challenges will be essential to realising the full value of fast diagnostics in routine clinical practice. This research provides a starting point by demonstrating the value of fast diagnostics to patients and the healthcare system via cost-effectiveness analysis, demonstrating how this could be completed within HTA. Elsewhere, we are continuing research into the wider population health benefits of diagnostics in the context of AMR. Taken together, these pieces of research will demonstrate the true value of diagnostics in the context of AMR.

5.3 Steps to realising full value

Despite these systemic challenges, national policy initiatives increasingly recognise the importance of fast diagnostics, particularly in the context of strengthening antimicrobial stewardship and addressing AMR:

- The UK and the US AMR action plans highlight fast testing in supporting timely, targeted antibiotic use (CARB, 2022; gov.uk, 2024).
- Germany's Antimicrobial Resistance Strategy (DART 2030) sets an ambition to reduce sepsis-related mortality by 30% and calls for earlier detection supported by clinical guidelines that incorporate fast diagnostic tools (Federal Government of Germany, 2024).
- France's 2024-2034 AMR roadmap emphasising fast testing as essential for ensuring appropriate antibiotic prescribing and encourages continued research and development in diagnostic innovation (gouv.fr, 2024). Recent guidance on sepsis management also recommends the use of fast testing in cases of high-risk, multidrug-resistant infections (HAS, 2025).
- Japan's National Action Plan on AMR (2023-2027) promotes the development of fast and simplified diagnostics, including point-of-care testing, to support pathogen ID, resistance detection, stewardship, and containment measures (MHLW, 2023).

These policy commitments signal a growing consensus that diagnostics will play a foundational role in reshaping infection management.

Realising the full value of fast diagnostics will require several enabling conditions alongside coordinated action across the healthcare system. Actions must include:

- **Strengthening evidence generation**, including outcomes that capture faster turnaround times, improved treatment optimisation, and population-level AMR impacts, where relevant
- **Expanding full value assessment to diagnostics, including long-term system-wide health and economic value**. This will equip decision makers with the evidence required to prioritise appropriate reimbursement and utilisation of diagnostics.
- **Overhauling current approaches to reimbursement for diagnostics** to overcome misaligned incentives which risk discouraging the use of diagnostics.
- **Integrating fast diagnostics within clinical pathways and protocols**, supported by operational readiness. In some contexts, this may require care pathways supported by continuous access to diagnostic services. Without this, fast diagnostic results may not consistently translate into immediate treatment decisions, limiting real-world value realisation (CSIMC, 2025).
- **Supporting clinician adoption** through education, implementation support and behaviour change initiatives.
- **Engaging patient advocates** and patient advocacy organisations to bring the patient experience into public and regulatory consciousness.

Collectively, these actions provide a pathway for health systems to unlock the full value of fast diagnostics, translating technological innovation into improved outcomes for patients, strengthened population health, and more efficient and sustainable healthcare delivery.

6 Conclusions

This research provides an example of how fast diagnostics address a critical unmet need by enabling earlier intervention in time-critical infections. In this analysis, fast ID and AST generate meaningful improvements in sepsis outcomes and reductions in healthcare costs across seven countries, even when assessed over a short one-year time horizon and excluding benefits relating to AMR. In addition to these clinical and economic impacts, fast diagnostics also have the potential to enhance hospital workflow efficiency and laboratory operations by reducing manual workload, minimising opportunities for error, and increasing throughput. These operational benefits represent an important source of value that is rarely captured explicitly in HTA and reimbursement decision-making.

Beyond this specific case study, BSI, sepsis, and AMR continue to present major global health challenges, for which fast diagnostics may deliver substantial value across a broad spectrum of infectious disease settings. A growing evidence base indicates that these technologies can be cost-effective, and in some cases cost saving, across a range of healthcare settings (Mponponsuo et al., 2022; Pliakos et al., 2018; Salvador et al., 2022). However, routine adoption remains constrained by structural and financial barriers, limiting the extent to which health systems can realise the clinical, economic, and operational benefits associated with timely and optimised treatment decisions (Eubank, Long and Perez, 2020).

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Appendix

A. Extended inputs with references Table

Table A1 Full table of inputs with references

	Canada		France		Germany		Italy		Italy (Sicily)		Japan		UK		USA	
Inputs	Value	Source	Value	Source	Value	Source	Value	Source	Value	Source	Value	Source	Value	Source	Value	Source
Population																
Country population	40m	(UNDESA, 2025)	66m	(UNDESA, 2025)	85m	(UNDESA, 2025)	59m	(UNDESA, 2025)	4.8m	(World Population Review, 2024)	124m	(UNDESA, 2025)	69m	(UNDESA, 2025)	344m	(UNDESA, 2025)
Adults hospitalised BSI	42k	Calculation, (Verway et al., 2022.)	69k	(PMSI, 2023)	76k	Calculation, (Fleischmann-Struzek et al., 2021)	110k	Calculation, (Bordino et al., 2021)	3.1k	Calculation, (Bordino et al., 2021)	250k	Calculation, (Imaeda et al., 2021)	104k	Calculation, (Public Health England (PHE), 2019)	880k	Calculation, (Paoli et al., 2018)
Transition probabilities																
BSI to Sepsis	26%	(Bai et al., 2024)	44%	(Fleischmann-Struzek et al., 2021)	44%	(Fleischmann-Struzek et al., 2021)	44%	(Fleischmann-Struzek et al., 2021)	58%	(Pipitò et al., 2024)	67%	(Imaeda et al., 2021)	44%	(Fleischmann-Struzek et al., 2021)	43%	(Paoli et al., 2018)
BSI to No Sepsis	74%	Calculated	56%	Calculated	56%	Calculated	56%	Calculated	42%	Calculated	33%	Calculated	56%	Calculated	57%	Calculated
BSI to Death	11%	(LAUPLAND et al., 2016)	12%	(Fleischmann-Struzek et al., 2021)	12%	(Fleischmann-Struzek et al., 2021)	12%	(Fleischmann-Struzek et al., 2021)	12%	(Fleischmann-Struzek et al., 2021)	15%	(Fleischmann-Struzek et al., 2021)	12%	(Fleischmann-Struzek et al., 2021)	14%	(Paoli et al., 2018)
BSI to Alive	89%	Calculated	88%	Calculated	88%	Calculated	88%	Calculated	88%	Calculated	85%	Calculated	88%	Calculated	86%	Calculated
Sepsis to Septic Shock	29%	(Fleischmann-Struzek et al., 2021)	29%	(Fleischmann-Struzek et al., 2021)	29%	(Fleischmann-Struzek et al., 2021)	29%	(Fleischmann-Struzek et al., 2021)	42%	(Pipitò et al., 2024)	15%	(Imaeda et al., 2021)	29%	(Fleischmann-Struzek et al., 2021)	52%	(Paoli et al., 2018)
Sepsis - No Shock	71%	Calculated	71%	Calculated	71%	Calculated	71%	Calculated	58%	Calculated	85%	Calculated	71%	Calculated	48%	Calculated
Sepsis No Shock to Death	19%	(Garland et al., 2024)	39%	(Fleischmann-Struzek et al., 2021)	36%	(Fleischmann-Struzek et al., 2021)	39%	(Fleischmann-Struzek et al., 2021)	14%	(Pipitò et al., 2024)	20%	(Imaeda et al., 2021)	32%	(Shankar-Hari et al., 2020)	28%	(Paoli et al., 2018)
Septic Shock to Death	45%	(Laupland et al., 2004)	62%	(Fleischmann-Struzek et al., 2021)	59%	(Fleischmann-Struzek et al., 2021)	62%	(Fleischmann-Struzek et al., 2021)	67%	(Pipitò et al., 2024)	37%	(Imaeda et al., 2021)	50%	(Shankar-Hari et al., 2020)	46%	(Paoli et al., 2018)
Sepsis No Shock to Alive	81%	Calculated	61%	Calculated	64%	Calculated	61%	Calculated	86%	Calculated	80%	Calculated	68%	Calculated	72%	Calculated
Septic Shock to Alive	55%	Calculated	38%	Calculated	41%	Calculated	38%	Calculated	33%	Calculated	64%	Calculated	50%	Calculated	54%	Calculated
Long-Term consequence probabilities																

Recurrent Sepsis	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)	13%	(Pandolfi et al., 2022)
Cog	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)	19%	(Fleischmann-Struzek et al., 2021)
Psych	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)	18%	(Fleischmann-Struzek et al., 2021)
Cardio	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)	1%	(Shao et al., 2019)
Amp	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)	1%	(Oh and Song, 2021)
KRT	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)	9%	(Peters et al., 2018)
Cog + Psych	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)	0.2%	Calculated - (Fleischmann-Struzek et al., 2021)
Cardio + Psych	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)
Cardio + Cog	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)
Cardio + Cog + Psych	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Shao et al., 2019) + (Fleischmann-Struzek et al., 2021)
Amp + Psych	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)
Amp + Cog	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	1%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)
Amp + Cog + Psych	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)	0.03%	Calculated - (Oh and Song, 2021) + (Fleischmann-Struzek et al., 2021)
KRT + Psych	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	10%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)
KRT + Cog	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	7%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)
KRT + Psych + Cog	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)	0.3%	Calculated - (Peters et al., 2018) + (Fleischmann-Struzek et al., 2021)
Readmission rate by long-term consequence																
Recurrent sepsis	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	30%	EVA	39%	EVA	80%	EVA
Cog	39%	(PMSI, 2023)	39%	(PMSI, 2023)	39%	(PMSI, 2023)	39%	(PMSI, 2023)	39%	(PMSI, 2023)	39%	(PMSI, 2023)	39%	(PMSI, 2023)	39%	(PMSI, 2023)

Psych	30%	(PMSI, 2023)	30%	(PMSI, 2023)	30%	(PMSI, 2023)	30%	(PMSI, 2023)	30%	(PMSI, 2023)	30%	(PMSI, 2023)	30%	(PMSI, 2023)	30%	(PMSI, 2023)
Cardio	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	90%	EVA	50%	EVA	80%	EVA
Amp	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	80%	EVA	50%	EVA	80%	EVA
KRT	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	5%	EVA	39%	EVA	0%	EVA
Cog + Psych	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA
Cardio + Psych	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	90%	EVA	50%	EVA	80%	EVA
Cardio + Cog	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	90%	EVA	50%	EVA	80%	EVA
Cardio + Cog + Psych	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA
Amp + Psych	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	80%	EVA	50%	EVA	80%	EVA
Amp + Cog	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	80%	EVA	50%	EVA	80%	EVA
Amp + Cog + Psych	100%	EVA	100%	EVA	80%	EVA	100%	EVA	100%	EVA	80%	EVA	50%	EVA	80%	EVA
KRT + Psych	30%	(PMSI, 2023) +EVA	30%	(PMSI, 2023) +EVA	30%	(PMSI, 2023) +EVA	30%	(PMSI, 2023) +EVA	30%	(PMSI, 2023) +EVA	30%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	30%	(PMSI, 2023) +EVA
KRT + Cog	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA
KRT + Psych + Cog	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA	39%	(PMSI, 2023) +EVA
Care rate																
Recurrent sepsis ambulant	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Cog ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Psychl ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Cardio ambulant	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Amp ambulant	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
KRT ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Cog + Psych ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Cardio + Psych ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Cardio + Cog ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Cardio + Cog + Psych ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Amp + Psych ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Amp + Cog ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Amp + Cog + Psych ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
KRT + Psych ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
KRT + Cog ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
KRT + Psych + Cog ambulant	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA	50%	EVA
Recurrent sepsis rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Cognitive rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Psych rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Cardio rehab	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA
Amp rehab	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA
KRT rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Cog + Psych rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Cardio + Psych rehab	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA
Cardio + Cog rehab	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA
Cardio + Cog + Psych rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
Amp + Psych rehab	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA
Amp + Cog	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA
Amp + Cog + Psych rehab	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA	100%	EVA

KRT + Psych rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
KRT + Cog rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
KRT + Psych + Cog rehab	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA	0%	EVA
1-year death rate																
Recurrent sepsis	40%	Calculated based on HR	40%	Calculated based on HR	40%	Calculated based on HR	40%	Calculated based on HR	40%	Calculated based on HR	40%	Calculated based on HR	40%	Calculated based on HR	40%	Calculated based on HR
Other long-term consequences	19.6%	Calculated based on HR	19.6%	Calculated based on HR	19.6%	Calculated based on HR	19.6%	Calculated based on HR	19.6%	Calculated based on HR	37%	Calculated based on HR	37%	Calculated based on HR	19.6%	Calculated based on HR
General population[4]	2.6%	(Statistics Canada, 2025)	2.1%	INED, France[4]	1.2%	(Destatis, 2021)	2.1%	EVA[5] (INED, France)	2.1%	EVA[5] (INED, France)	1.19%	SBJ, 2021	1.2%	ONS, (2022)	1.3%	CDC, (2023)
High-risk BSI	0.9%	Calculated based on HR	7.2%	Calculated based on HR	3.6%	Calculated based on HR	7.2%	Calculated based on HR	7.2%	Calculated based on HR	7.2%	Calculated based on HR	7.2%	Calculated based on HR	7.2%	Calculated based on HR
Utilities																
General population utility	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)	0.904	(Gautier et al., 2023)
Disutility treated population	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)	0.120	(Geessink et al., 2017)
Utility baseline treated population	0.784	Calculated	0.784	Calculated	0.784	Calculated	0.784	Calculated	0.784	Calculated	0.784	Calculated	0.784	Calculated	0.784	Calculated
Disutility sepsis survivors	0.000	EVA	0.000	EVA	0.000	EVA	0.000	EVA	0.000	EVA	0.000	EVA	0.000	EVA	0.000	EVA
Disutility recurrent sepsis	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)	0.150	(Koster-Brouwer et al., 2016)
Disutility Cog	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)	0.020	(Van Wilder et al., 2019b)
Disutility Psych	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)
Disutility Cardio	0.121	(Wu et al., 2019)	0.121	(Wu et al, 2019)	0.121	(Wu et al, 2019)	0.121	(Wu et al, 2019)	0.121	(Wu et al, 2019)	0.121	(Wu et al, 2019)	0.121	(Wu et al, 2019)	0.121	(Wu et al, 2019)
Disutility Amp	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)
Disutility KRT	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)
Disutility Cog + Psych	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)
Disutility Cardio + Psych	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)
Disutility Cardio + Cog	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)	0.121	(Wu et al., 2019)
Disutility Cardio + Psych + Cog	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)
Disutility Amp + Cog	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)	0.234	(Ernstsson et al., 2022)
Disutility Amp + Psych	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)
Disutility Amp + Cog + Psych	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)	0.244	(Calsavara et al., 2021)
Disutility KRT + Cog	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)
Disutility KRT + Psych	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)
Disutility KRT + Cog + Psych	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)	0.420	(Van Wilder et al., 2019b)
Mortality/Hazard ratios																
Hazard ratio BSI	1.10	(Bai et al., 2024)	3.34	(Gilmour and Ramage-Morin, 2021)	3.34	(Gilmour and Ramage-Morin, 2021)	3.34	(Gilmour and Ramage-Morin, 2021)	3.34	(Gilmour and Ramage-Morin, 2021)	3.34	(Gilmour and Ramage-Morin, 2021)	3.34	(Gilmour and Ramage-Morin, 2021)	3.34	(Gilmour and Ramage-Morin, 2021)

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[4] *Age-adjusted mortality was calculated using population life-table mortality data from national statistical agencies, including the Institut national d'études démographiques (INED) in France, Statistics Canada, the Federal Statistical Office of Germany (Destatis), the Office for National Statistics (ONS) in the United Kingdom, the Statistics Bureau of Japan, and the National Center for Health Statistics (NCHS) at the U.S. Centers for Disease Control and Prevention. Age-specific mortality rates were weighted according to the age distribution of the modelled population to derive an overall age-adjusted estimate used in the analysis*

[5] *Used the age-adjusted mortality estimate derived using data from INED, France. This value was applied following expert validation confirming its appropriateness.*

Hazard ratio of recurrent sepsis	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)	5.6	(Pandolfi et al., 2022)
Hazard ratio of LTCs	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)	2.7	(Pandolfi et al., 2022)
BSI	$ 14,298	(Patient Cost Estimator | CIHI, 2025)	€ 3,557	(PMSI, 2023)	€ 2,762	(DRG, 2025)	€ 3,557	(PMSI, 2023)	€ 3,176	(Ministero della Salute, 2025)	¥1,093,085	(Oami et al., 2022b)	£ 8,459	(Hex et al., 2017)	$ 39,336	(Paoli et al., 2018)
Sepsis	$ 22,863	(Patient Cost Estimator | CIHI, 2025)	€ 12,057	(PMSI, 2023)	€ 14,728	(DRG, 2025)	€ 12,057	(PMSI, 2023)	€ 7,629	(Pipitò et al., 2024)	¥3,704,867	(Oami et al., 2022b)	£ 28,671	(Hex et al., 2017)	$ 60,672	(Paoli et al., 2018)
Septic shock	$ 37,953	(Patient Cost Estimator | CIHI, 2025)	€ 20,327	(PMSI, 2023)	€ 19,377	(DRG, 2025)	€ 20,327	(PMSI, 2023)	€ 10,279	(Pipitò et al., 2024)	¥3,704,867	(Oami et al., 2022b)	£ 48,336	(Hex et al., 2017)	$ 68,671	(Paoli et al., 2018)
Recurrent sepsis	$ 17,395	(Patient Cost Estimator | CIHI, 2025)	€ 17,894	(PMSI, 2023)	€ 25,570	Calculated from (Schmidt et al., 2022) according to french ratios	€ 17,894	(PMSI, 2023)	€ 7,629	(Pipitò et al., 2024)	¥5,498,478	Converted currency France values (PMSI, 2023)	£ 42,551	Applied ratios from French values (PMSI, 2023)	$ 44,087	(Chang, Tseng and Shapiro, 2015)
Cog	$ 13,601	(Patient Cost Estimator | CIHI, 2025)	€ 10,032	(PMSI, 2023)	€ 14,336	Calculated from (Schmidt et al., 2022) according to french ratios	€ 10,032	(PMSI, 2023)	€2,611	(Ministero della Salute, 2025)	¥3,082,525	Converted currency France values (PMSI, 2023)	£ 23,855	Applied ratios from French values (PMSI, 2023)	$ 14,917	(DRG_National Average Payment Table_Update.fm, 2021)
Psych	$ 11,262	(Patient Cost Estimator | CIHI, 2025)	€ 12,990	(PMSI, 2023)	€ 18,8563	Calculated from (Schmidt et al., 2022) according to french ratios	€ 12,990	(PMSI, 2023)	€3,146	(Ministero della Salute, 2025)	¥3,991,654	Converted currency France values (PMSI, 2023)	£ 30,890	Applied ratios from French values (PMSI, 2023)	$ 8,437	(DRG_National Average Payment Table_Update.fm, 2021)
Cardio	$ 10,942	(Patient Cost Estimator | CIHI, 2025)	€ 11,165	(PMSI, 2023)	€ 15,954	Calculated from (Schmidt et al., 2022) according to french ratios	€ 11,165	(PMSI, 2023)	€2,220	(Ministero della Salute, 2025)	¥3,430,666	Converted currency France values (PMSI, 2023)	£ 26,549	Applied ratios from French values (PMSI, 2023)	$ 10,854	(DRG_National Average Payment Table_Update.fm, 2021)
Amp	$ 39,364	(Patient Cost Estimator | CIHI, 2025)	€ 17,355	(PMSI, 2023)	€ 24,799	Calculated from (Schmidt et al., 2022) according to french ratios	€ 17,355	(PMSI, 2023)	€1,554	(Ministero della Salute, 2025)	¥5,332,719	Converted currency France values (PMSI, 2023)	£ 41,268	Applied ratios from French values (PMSI, 2023)	$ 19,027	(DRG_National Average Payment Table_Update.fm, 2021)
KRT	$ 11,396	(Patient Cost Estimator | CIHI, 2025)	€ 12,616	(PMSI, 2023)	€ 18,027	Calculated from (Schmidt et al., 2022) according to french ratios	€ 12,616	(PMSI, 2023)	€1,381	(Ministero della Salute, 2025)	¥3,876,516	Converted currency France values (PMSI, 2023)	£ 29,999	Applied ratios from French values (PMSI, 2023)	$ 5,989	(DRG_National Average Payment Table_Update.fm, 2021)
Cardio + Psych	$ 13,450	Calculated	€ 15,223	Calculated	€ 21,754	Calculated	€ 15,223	Calculated	€3590	Calculated	¥4,677,787	Calculated	£ 36,200	Calculated	$ 12,541	Calculated
Amp + Psych	$ 41,616	Calculated	€ 19,953	Calculated	€ 28,512	Calculated	€ 19,953	Calculated	€3457	Calculated	¥6,131,049	Calculated	£ 47446	Calculated	$ 20714	Calculated
KRT + Psych	$ 13,648	Calculated	€ 14,640	Calculated	€ 20,921	Calculated	€ 14,640	Calculated	€3422	Calculated	¥4,498,734	Calculated	£ 34814	Calculated	$ 7,517	Calculated
Cardio + Cog	$ 15,789	Calculated	€ 12,805	Calculated	€ 18,300	Calculated	€ 12,805	Calculated	€2949	Calculated	¥3,934,973	Calculated	£ 30451	Calculated	$ 17,087	Calculated
Amp + Cog	$ 42,084	Calculated	€ 19,361	Calculated	€ 27,667	Calculated	€ 19,361	Calculated	€2816	Calculated	¥5,949,223	Calculated	£ 46039	Calculated	$ 22,010	Calculated
KRT + Cog	$ 15,880	Calculated	€ 13,674	Calculated	€ 19,540	Calculated	€ 13,674	Calculated	€2781	Calculated	¥4,201780	Calculated	£ 32516	Calculated	$ 15,293	Calculated
Cardio + Psych + Cog	$ 18,042	Calculated	€ 17,230	Calculated	€ 24,621	Calculated	€ 17,230	Calculated	€4112	Calculated	¥5,294,292	Calculated	£ 40971	Calculated	$ 18,775	Calculated
Amp + Psych + Cog	$ 44,337	Calculated	€ 21,959	Calculated	€ 31,379	Calculated	€ 21,959	Calculated	€3979	Calculated	¥6,747,555	Calculated	£ 52,217	Calculated	$ 23698	Calculated

KRT + Psych + Cog	$ 18,133	Calculated	€ 17,520	Calculated	€ 25035	Calculated	€ 17,520	Calculated	€ 3944	Calculated	¥5,383,462	Calculated	£ 41,661	Calculated	$ 17,802	Calculated
Cog	$ -		€ -		€ -		€ -		€ -		¥ -		£ -		$ -	
Psych	$ -		€		€		€		€ -		¥ -		£ 884	(NHS England (NHSE), 2025)	$ -	
Cardio	$ 3,153	Applied ratio from France values (Spieler and de Pouvourville, 2007)	€ 1,901	(Spieler and de Pouvourville, 2007)	€ 1,901	(Spieler and de Pouvourville, 2007)	€ 1,901	(Spieler and de Pouvourville, 2007)	€1,900	(Spieler and de Pouvourville, 2007)	¥350,433	Converted currency France values (Spieler and de Pouvourville, 2007)	£ 639	NHS England (NHSE), 2025)	$ 2,597	Applied ratio from France values (Spieler and de Pouvourville, 2007)
Amp	$ 13,696	Applied ratio from France values (Stouka et al., 2021)	€ 8,297	(Stouka et al., 2021)	€ 8,297	(Stouka et al., 2021)	€ 8297	(Stouka et al., 2021)	€8297	(Stouka et al., 2021)	¥1,529,757	Converted currency France values (Stouka et al., 2021)	£ 520	NHS England (NHSE), 2025)	$ 11,336	Applied ratio from France values (Stouka et al., 2021)
KRT	$ -		€ -		€ -		€ -		€ -		¥ -		£ 95	NHS England (NHSE), 2025)	$ -	
Cardio + Psych	$ 3,153	Calculated	€ 1,901	Calculated	€ 1,901	Calculated	€ 1,901	Calculated	€1901	Calculated	¥350,433	Calculated	£ 1,012	Calculated	$ 2,597	Calculated
Amp + Psych	$ 13,696	Calculated	€ 8,297	Calculated	€ 8,297	Calculated	€ 8,297	Calculated	€8297	Calculated	¥1,529,757	Calculated	£ 1,116	Calculated	$ 11,335	Calculated
KRT + Psych	$ -		€ -		€ -		€ -		€ -		¥ -		£ 1,135		$ -	
Cardio + Cog	$ 3,153	Calculated	€ 1,901	Calculated	€ 1,901	Calculated	€ 1,901	Calculated	€1,900	Calculated	¥350,433	Calculated	£ 638	Calculated	$ 2,597	Calculated
Amp + Cog	$ 13,696	Calculated	€ 8,297	Calculated	€ 8,297	Calculated	€ 8,297	Calculated	€8297	Calculated	¥1,529,757	Calculated	£ 520	Calculated	$ 11,335	Calculated
KRT + Cog	$ -		€ -		€ -		€ -		€ -		¥ -		£ 95		$ -	
Cardio + Psych + Cog	$ 3,153	Calculated	€ 1,901	Calculated	€ 1,901	Calculated	€ 1,901	Calculated	€1,900	Calculated	¥350,433	Calculated	£ 1,012	Calculated	$ 2,597	Calculated
Amp + Psych + Cog	$ 13,696	Calculated	€ 8,297	Calculated	€ 8,297	Calculated	€ 8,297	Calculated	€8297	Calculated	¥1,529,757	Calculated	£ 988	Calculated	$ 11,336	Calculated
KRT + Psych + Cog	$ -		€ -		€ -		€ -		€ -		¥ -		£ 903	NHS England (NHSE), 2025)	$ -	
Cog	$ -		€ -		€ -		€ -		€ -		¥ -		£ -		$ 1,067	(Leibson et al., 2015)
Psych	$ 2,373	Applied ratio from France values	€ 600	(Service-Public.fr, 2026)	€ 600	(Service-Public.fr, 2026)	€ 600	(Service-Public.fr, 2026)	€600	(Service-Public.fr, 2026)	¥110,623	Converted currency France values	£ 2,373	(Hex et al., 2017)	$ 2,384	(Shirneshan et al., 2013)
Cardio	$ -		€ -		€ -		€ -		€ -		¥ -		£ -		$	
Amp	$ -		€ -		€ -		€ -		€ -		¥ -		£ 1,215	(Hex et al., 2017)	$ -	
KRT	$ 1,269	Applied ratio from France values	€ 82,861	(Rostoker, 2022)	€ 82,861	(Rostoker, 2022)	€ 82,861	(Rostoker, 2022)	€ 30,021	(Pani and Capasso, 2022)	¥15,277,322	Converted currency France values (Rostoker, 2022)	£ 1,269	(Hex et al., 2017)	$ 103,072	Used France estimate, uprated TO USA. (EVA)
Psych + Cog	$ 2,373	Calculated	€ 600	Calculated	€ 600	Calculated	€ 600	Calculated	€600	Calculated	¥110,623	Calculated	£ 2,373	Calculated	$ 2,598	Calculated
Cardio + Psych	$ 2,373	Calculated	€ 600	Calculated	€ 600	Calculated	€ 600	Calculated	€600	Calculated	¥110,623	Calculated	£ 2,373	Calculated	$ 2,384	Calculated
Amp + Psych	$ 2,373	Calculated	€ 600	Calculated	€ 600	Calculated	€ 600	Calculated	€600	Calculated	¥110,623	Calculated	£ 2,616	Calculated	$ 2,384	Calculated
KRT + Psych	$ 2,627	Calculated	€ 82,981	Calculated	€ 82,981	Calculated	€ 82,981	Calculated	€ 30,142	Calculated	¥15,299,447	Calculated	£ 2,627	Calculated	$ 103,549	Calculated
Cardio + Cog	$ -		€ -		€ -		€ -		€0		¥ -		£ -		$ 1,067	Calculated
Amp + Cog	$ -		€ -		€ -		€ -		€0		¥ -		£ 1,215		$ 1,067	
KRT + Cog	$ 1,269	Calculated	€ 82,981	Calculated	€ 82,981	Calculated	€ 82,981	Calculated	€ 30,021	Calculated	¥15,299,447	Calculated	£ 1,269	Calculated	$ 103,285	Calculated

Cardio + Psych + Cog	$ 2,373	Calculated	€ 600	Calculated	€ 600	Calculated	€ 600	Calculated	€600	Calculated	¥110,623	Calculated	£ 2,373	Calculated	$ 2,598	Calculated
Amp + Psych + Cog	$ 2,373	Calculated	€ 600	Calculated	€ 600	Calculated	€ 600	Calculated	€600	Calculated	¥110,623	Calculated	£ 2,616	Calculated	$ 2,598	Calculated
KRT + Psych + Cog	$ 2,627	Calculated	€ 82,981	Calculated	€ 82,981	Calculated	€ 82,981	Calculated	€ 30,142	Calculated	¥15,299,447	Calculated	£ 2,627	Calculated	$ 103,762	Calculated

Abbreviations: *BSI = bloodstream infection; SOC = standard of care; COG = cognitive impairment; PSYCH = psychological impairment; CARDIO = cardiovascular disease; AMP = amputation; KRT = kidney replacement therapy; TAT = time to appropriate therapy; EVA: Expert Validated Assumption; LTC: Long-term Consequence.*
Notes: 1*. Methodology for calculating combination LTC costs outlined in section 2.3;* ***2.*** *The inputs presented in this table are applied to both the standard of care (SOC) and the fast ID/AST diagnostic pathways. The exception is for parameters directly affected by the intervention, specifically progression from BSI to sepsis and mortality associated with sepsis and septic shock. These parameters are calculated separately according to the methodology described in Section 2.2 Intervention Effect.* ***3.*** *Where "Calculated" is listed under the source, this refers to parameters relating to long-term consequence (LTC) health states. In these cases, the underlying inputs are drawn from the individual sources listed for the relevant parameters, and the methodology used to derive the combined estimates is described in Section 2.3.*

Table A2 Full list of model inputs with standard deviation used in sensitivity analysis.

	USA		**Canada**		**France**		**Japan**		**Italy**		**Italy *Sicily***		**Germany**		**UK**	
	Dist.	**Mean [SE]**	**Dist.**	**Mean [SE]**	**Dist.**	**Mean [SE]**	**Dist.**	**Mean [SE]**	**Dist.**	**Mean [SE]**	**Dist.**	**Mean [SE]**	**Dist.**	**Mean [SE]**	**Dist.**	**Mean [SE]**
BSI																
→ DEATH (FAST ID/AST)	β	0.138 [SE:0.0006]	β	0.106 [SE:0.01]	β	0.123 [SE:0.009]	β	0.123 [SE:0.009]	β	0.123 [SE:0.009]	β	0.123 [SE:0.009]	β	0.123 [SE:0.009]	β	0.123 [SE:0.009]
→ DEATH (SOC)	β	0.138 [SE:0.0006]	β	0.106 [SE:0.01]	β	0.123 [SE:0.0009]	β	0.123 [SE:0.0009]	β	0.123 [SE:0.0009]	β	0.123 [SE:0.0009]	β	0.123 [SE:0.0009]	β	0.123 [SE:0.0009]
→ SEPSIS (SOC)	β	0.434 [SE:0.004]	β	0.262 [SE:0.001]	β	0.438 [SE:0.001]	β	0.658 [SE:0.09]	β	0.438 [SE:0.00]	β	0.580 [SE:0.004]	β	0.438 [SE:0.001]	β	0.438 [SE:0.001]
SEPSIS																
→ SEPTIC SHOCK (SOC)	β	0.523 [SE:0.002]	β	0.294 [SE:0.002]	β	0.294 [SE:0.002]	β	0.147 [SE:0.07]	β	0.294 [SE:0.00]	β	0.420 [SE:0.004]	β	0.294 [SE:0.002]	β	0.294 [SE:0.002]
→ RS	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.00]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]
→ COG	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.00]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]
→ PSYCH	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]
→ CARDIO	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]
→ AMP	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]
→ KRT	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]

→ RS (SOC)	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]
→ COG (SOC)	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]
→ PSYCH (SOC)	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]
→ CARDIO (SOC)	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]
→ AMP (SOC)	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]
→ KRT (SOC)	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]
→ COG + PSYCH	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]	β	0.00200 [SE:0.006]
→ CARDIO + PSYCH	β	0.00820 [SE:0.0006]	β	0.00820 [SE:0.0006]	β	0.00820 [SE:0.00006]	β	0.00820 [SE:0.00006]	β	0.00820 [SE:0.00006]	β	0.00820 [SE:0.00006]	β	0.00820 [SE:0.0006]	β	0.00820 [SE:0.00006]
→ CARDIO + COG	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.00006]
→ CARDIO + PSYCH + COG	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.00001]
→ AMP + PSYCH	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.00007]
→ AMP + COG	β	0.00640 [SE:0.0006]	β	0.00640 [SE:0.0006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.0006]	β	0.00640 [SE:0.00006]
→ AMP + COG + PSYCH	β	0.000300 [SE:0.0001]	β	0.000300 [SE:0.0001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.00001]
→ KRT + PSYCH	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]
→ KRT + COG	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]
→ KRT + PSYCH + COG	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]
→ COG + PSYCH (SOC)	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]
→ CARDIO + PSYCH (SOC)	β	0.00820 [SE:0.0007]	β	0.00820 [SE:0.0007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.0007]	β	0.00820 [SE:0.00007]
→ CARDIO + COG (SOC)	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.00006]
→ CARDIO + PSYCH + COG (SOC)	β	0.000300 [SE:0.0001]	β	0.000300 [SE:0.0001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.00001]
→ AMP + PSYCH (SOC)	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.00007]

→ AMP + COG (SOC)	β	0.00640 [SE:0.0006]	β	0.00640 [SE:0.0006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.0006]	β	0.00640 [SE:0.00006]
→ AMP + COG + PSYCH (SOC)	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.0000]	β	0.000300 [SE:0.00001]
→ KRT + PSYCH (SOC)	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]
→ KRT + COG (SOC)	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]
→ KRT + PSYCH + COG (SOC)	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]
→ DEATH	β	0.307 [SE:0.09]	β	0.187 [SE:0.006]	β	0.394 [SE:0.002]	β	0.200 [SE:0.007]	β	0.394 [SE:0.002]	β	0.143 [SE:0.004]	β	0.393 [SE:0.003]	β	0.321 [SE:0.09]
SEPTIC SHOCK																
→ RS	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]
→ COG	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]
→ PSYCH	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]
→ CARDIO	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]
→ AMP	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]	β	0.00800 [SE:0.0007]
→ KRT	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]
→ RS (SOC)	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]	β	0.133 [SE:0.004]
→ COG (SOC)	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]	β	0.185 [SE:0.001]
→ PSYCH (SOC)	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]	β	0.179 [SE:0.001]
→ CARDIO (SOC)	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]	β	0.00763 [SE:0.0003]
→ AMP (SOC)	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]	β	0.008 [SE:0.0007]
→ KRT (SOC)	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]	β	0.0925 [SE:0.003]
→ COG + PSYCH	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]
→ CARDIO + PSYCH	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.0007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.0007]	β	0.00820 [SE:0.00007]
→ CARDIO + COG	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.0006]	β	0.00610 [SE:0.00006]
→ CARDIO + COG + PSYCH	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.0001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.0001]	β	0.000300 [SE:0.00001]

→ AMP + PSYCH	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.0007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]
→ AMP + COG	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]
→ AMP + COG + PSYCH	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]
→ KRT + PSYCH	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]
→ KRT + COG	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]
→ KRT + PSYCH + COG	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]
→ COG + PSYCH (SOC)	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]	β	0.00200 [SE:0.0001]
→ CARDIO + PSYCH (SOC)	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]	β	0.00820 [SE:0.00007]
→ CARDIO + COG (SOC)	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]	β	0.00610 [SE:0.00006]
→ CARDIO + COG + PSYCH (SOC)	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]
→ AMP + PSYCH (SOC)	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]	β	0.00860 [SE:0.00007]
→ AMP + COG (SOC)	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]	β	0.00640 [SE:0.00006]
→ AMP + COG + PSYCH (SOC)	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]	β	0.000300 [SE:0.00001]
→ KRT + PSYCH (SOC)	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]	β	0.0993 [SE:0.0008]
→ KRT + COG (SOC)	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]	β	0.0745 [SE:0.0007]
→ KRT + PSYCH + COG (SOC)	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]	β	0.00330 [SE:0.0002]
→ DEATH	β	0.485 [SE:0.1]	β	0.490 [SE:0.008]	β	0.617 [SE:0.004]	β	0.365 [SE:0.008]	β	0.617 [SE:0.004]	β	0.667 [SE:0.006]	β	0.617 [SE:0.004]	β	0.500 [SE:0.1]

RS	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]	β	0.398 [SE:0.08]
COG	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
CARDIO	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]

AMP	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
KRT	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
COG + PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
CARDIO + PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
CARDIO + COG	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
CARDIO + COG + PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
AMP + PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
AMP + COG	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
AMP + COG + PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
KRT + PSYCH	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
KRT + COG	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
KRT + PSYCH + COG	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.196 [SE:0.08]	β	0.370 [SE:0.09]
RS READMISSION	β	0.800 [SE:0.1]	N/A	1	N/A	1	β	0.300 [SE:0.05]	N/A	1	N/A	1	β	0.800 [SE:0.1]	β	0.390 [SE:0.06]
COG READMISSION	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]	β	0.391 [SE:0.06]
PSYCH READMISSION	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]	β	0.300 [SE:0.05]
CARDIO READMISSION	β	0.800 [SE:0.1]	N/A	1	N/A	1	β	0.900 [SE:0.1]	N/A	1	N/A	1	β	0.800 [SE:0.1]	β	0.500 [SE:0.08]
AMP READMISSION	β	0.800 [SE:0.1]	N/A	1	N/A	1	β	0.900 [SE:0.1]	N/A	1	N/A	1	β	0.800 [SE:0.1]	β	0.500 [SE:0.08]
KRT READMISSION	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	β	0.390 [SE:0.06]
RS AMBULATORY	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0
COG AMBULATORY	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]
PSYCH AMBULATORY	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]
CARDIO AMBULATORY	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0
AMP AMBULATORY	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0
KRT AMBULATORY	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]	β	0.500 [SE:0.08]
UTILITY — GENERAL POPULATION	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]	β	0.904 [SE:0.04]
DISUTILITY — POPULATION	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]	γ	0.120 [SE:0.06]
UTILITY — BASELINE	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]	γ	0.784 [SE:0.4]
DISUTILITY — RS	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]	γ	0.150 [SE:0.08]
DISUTILITY — COG	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]	γ	0.0200 [SE:0.01]

DISUTILITY — PSYCH	γ	0.244 [SE:0.1]	γ	0.244 [SE:0.122]	γ	0.244 [SE:0.122]	γ	0.244 [SE:0.122]	γ	0.244 [SE:0.122]	γ	0.244 [SE:0.122]	γ	0.244 [SE:0.122]	γ	0.244 [SE:0.122]
DISUTILITY — CARDIO	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]	γ	0.121 [SE:0.06]
DISUTILITY — AMP	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]	γ	0.234 [SE:0.1]
DISUTILITY — KRT	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]	γ	0.42 [SE:0.2]
FAST ID/AST																
BSI HOSPITALISATION	γ	39340 [SE:39340]	γ	14300 [SE:1430]	γ	3557 [SE:889.3]	γ	1093000 [SE:103600]	γ	3557 [SE:889.3]	γ	3176 [SE:317.6]	γ	2762 [SE:2376]	γ	8459 [SE:845.9]
SEPSIS HOSPITALISATION	γ	60670 [SE:60670]	γ	22860 [SE:2286]	γ	12060 [SE:3014]	γ	3705000 [SE:351200]	γ	12060 [SE:3014]	γ	7629 [SE:762.9]	γ	14730 [SE:2410]	γ	28670 [SE:2867]
SEPTIC SHOCK HOSPITALISATION	γ	68670 [SE:68670]	γ	37950 [SE:3795]	γ	20330 [SE:5082]	γ	3705000 [SE:351200]	γ	20330 [SE:5082]	γ	10280 [SE:1028]	γ	19380 [SE:1600]	γ	48340 [SE:4834]
RECURRENT HOSPITALISATION	γ	44090 [SE:44090]	γ	17400 [SE:1740]	γ	17890 [SE:4474]	γ	5498000 [SE:549800]	γ	17890 [SE:4474]	γ	7629 [SE:1907]	γ	25570 [SE:2557]	γ	42550 [SE:4255]
COG HOSPITALISATION	γ	14920 [SE:14920]	γ	13600 [SE:1360]	γ	10030 [SE:2508]	γ	3083000 [SE:308300]	γ	10030 [SE:2508]	γ	2612 [SE:653]	γ	14335 [SE:1433]	γ	23850 [SE:2385]
PSYCH HOSPITALISATION	γ	8437 [SE:8437]	γ	11260 [SE:1126]	γ	12990 [SE:3248]	γ	3992000 [SE:399200]	γ	12990 [SE:3248]	γ	3146 [SE:786.5]	γ	18563 [SE:1856]	γ	30890 [SE:3089]
CARDIO HOSPITALISATION	γ	10850 [SE:10850]	γ	10940 [SE:1094]	γ	11160 [SE:2791]	γ	3431000 [SE:343100]	γ	11160 [SE:2791]	γ	2221 [SE:555.2]	γ	15954 [SE:1595]	γ	26550 [SE:2655]
AMP HOSPITALISATION	γ	19030 [SE:19030]	γ	39360 [SE:3936]	γ	17350 [SE:4339]	γ	5333000 [SE:533300]	γ	17350 [SE:4339]	γ	1555 [SE:388.7]	γ	24799 [SE:2480]	γ	41270 [SE:4127]
KRT HOSPITALISATION	γ	5989 [SE:5989]	γ	11400 [SE:1140]	γ	12620 [SE:3154]	γ	3877000 [SE:387700]	γ	12620 [SE:3154]	γ	1381 [SE:345.3]	γ	18027 [SE:1802]	γ	30000 [SE:3000]
CARDIO REHABILITATION	γ	2597 [SE:2597]	γ	3153 [SE:315.3]	γ	1901 [SE:475.2]	γ	350400 [SE:35040]	γ	1901 [SE:475.2]	γ	1901 [SE:475.2]	γ	1901 [SE:190]	γ	638.9 [SE:63.89]
AMP REHABILITATION	γ	11340 [SE:11340]	γ	13700 [SE:1370]	γ	8297 [SE:2074]	γ	1530000 [SE:153000]	γ	8297 [SE:2074]	γ	8297 [SE:2074]	γ	8297 [SE:829]	γ	520.3 [SE:52.03]
PSYCH AMBULATORY	γ	2384 [SE:2384]	γ	2373 [SE:237.3]	γ	600.0 [SE:150.0]	γ	110600 [SE:11060]	γ	600.0 [SE:150.0]	γ	600.0 [SE:150.0]	γ	600.0 [SE:60.0]	γ	2373 [SE:237.3]
KRT AMBULATORY	γ	103100 [SE:103100]	γ	1269 [SE:126.9]	γ	82860 [SE:20720]	γ	15280000 [SE:1528000]	γ	82860 [SE:20720]	γ	30021 [SE:3002]	γ	82860 [SE:8286]	γ	1269 [SE:126.9]
SOC																
BSI HOSPITALISATION	γ	39340 [SE:39340]	γ	14300 [SE:1430]	γ	3557 [SE:889.3]	γ	1093000 [SE:103600]	γ	3557 [SE:889.3]	γ	3176 [SE:794.0]	γ	2762 [SE:2376]	γ	8459 [SE:845.9]
SEPSIS HOSPITALISATION	γ	60670 [SE:60670]	γ	22860 [SE:2286]	γ	12060 [SE:3014]	γ	3705000 [SE:351200]	γ	12060 [SE:3014]	γ	7629 [SE:1907]	γ	14730 [SE:2410]	γ	28670 [SE:2867]
SEPTIC SHOCK HOSPITALISATION	γ	68670 [SE:68670]	γ	37950 [SE:3795]	γ	20330 [SE:5082]	γ	3705000 [SE:351200]	γ	20330 [SE:5082]	γ	10280 [SE:2570]	γ	19380 [SE:1600]	γ	48340 [SE:4834]
RECURRENT HOSPITALISATION	γ	44090 [SE:4409]	γ	17400 [SE:1740]	γ	17890 [SE:4474]	γ	5498000 [SE:549800]	γ	17890 [SE:4474]	γ	7629 [SE:1907]	γ	25570 [SE:2557]	γ	42550 [SE:4255]
COG HOSPITALISATION	γ	14920 [SE:14920]	γ	13600 [SE:1360]	γ	10030 [SE:2508]	γ	3083000 [SE:308300]	γ	10030 [SE:2508]	γ	2612 [SE:653.0]	γ	14335 [SE:1433]	γ	23850 [SE:2385]
PSYCH HOSPITALISATION	γ	8437 [SE:8437]	γ	11260 [SE:1126]	γ	12990 [SE:3248]	γ	3992000 [SE:399200]	γ	12990 [SE:3248]	γ	3146 [SE:786.5]	γ	18563 [SE:1856]	γ	30890 [SE:3089]
CARDIO HOSPITALISATION	γ	10850 [SE:10850]	γ	10940 [SE:1094]	γ	11160 [SE:2791]	γ	3431000 [SE:343100]	γ	11160 [SE:2791]	γ	2221 [SE:555.2]	γ	15954 [SE:1595]	γ	26550 [SE:2655]
AMP HOSPITALISATION	γ	19030 [SE:19030]	γ	39360 [SE:3936]	γ	17350 [SE:4339]	γ	5333000 [SE:533300]	γ	17350 [SE:4339]	γ	1555 [SE:388.7]	γ	24799 [SE:2480]	γ	41270 [SE:4127]
KRT HOSPITALISATION	γ	5989 [SE:5989]	γ	11400 [SE:1140]	γ	12620 [SE:3154]	γ	3877000 [SE:387700]	γ	12620 [SE:3154]	γ	1381 [SE:345.3]	γ	18027 [SE:1802]	γ	30000 [SE:3000]
CARDIO REHABILITATION	γ	2597 [SE:2597]	γ	3153 [SE:315.3]	γ	1901 [SE:475.2]	γ	350400 [SE:35040]	γ	1901 [SE:475.2]	γ	1901 [SE:475.2]	γ	1901 [SE:190]	γ	638.9 [SE:63.89]

AMP REHABILITATION	γ	11340 [SE:11340]	γ	13700 [SE:1370]	γ	8297 [SE:2074]	γ	1530000 [SE:153000]	γ	8297 [SE:2074]	γ	8297 [SE:2074]	γ	8297 [SE:829]	γ	520.3 [SE:52.03]
PSYCH AMBULATORY	γ	2384 [SE:2384]	γ	2373 [SE:237.3]	γ	600.0 [SE:150.0]	γ	110600 [SE:11060]	γ	600.0 [SE:150.0]	γ	600.0 [SE:150.0]	γ	600.0 [SE:60.0]	γ	2373 [SE:237.3]
KRT AMBULATORY	γ	103100 [SE:103100]	γ	1269 [SE:126.9]	γ	82860 [SE:20720]	γ	15280000 [SE:1528000]	γ	82860 [SE:20720]	γ	30021 [SE:3002]	γ	82860 [SE:8286]	γ	1269 [SE:126.9]
INTERVENTION EFFECT	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]	normal	-0.248 [SE:0.107]
TAT — FAST ID/AST	$LN(\mu,\sigma^2)$	27.80 [SE:0.088]	$LN(\mu,\sigma^2)$	27.80 [SE:0.088]	$LN(\mu,\sigma^2)$	27.80 [SE:0.088]	$LN(\mu,\sigma^2)$	27.80 [SE:0.088]	$LN(\mu,\sigma^2$	27.80 [SE:0.088]	$LN(\mu,\sigma^2)$	27.80 [SE:0.088]	$LN(\mu,\sigma^2)$	27.80 [SE:0.088]	$LN(\mu,\sigma^2$	27.80 [SE:0.088]
TAT — SOC — DE/USA	uniform	43.20 [32.40, 54.00]											uniform	43.20 [32.40, 54.00]		

Abbreviations: *BSI = bloodstream infection; SOC = standard of care; RS = recurrent sepsis; COG = cognitive impairment; PSYCH = psychological impairment; CARDIO = cardiovascular disease; AMP = amputation; KRT = kidney replacement therapy; TAT = time-to appropriate therapy; SE = standard error; CI = confidence interval; LN (μ,σ²) = log-normal distribution parameterised by mean μ and variance σ².*

Notes: *N/A indicates the mean value did not fall between 0 and 1; therefore, no valid probability distribution could be applied. Standard errors (SEs) were calculated from published confidence intervals (CIs) and sample sizes where available. Where a CI and/or sample size was not reported, a conservative approach was used by assuming a small sample size (n = 25) and deriving an SE accordingly to reflect high uncertainty.*

Distributions (PSA): *Beta (β) distributions were used for probabilities/proportions bounded between 0 and 1 (e.g., progression rates, 1-year mortality rates, utilisation shares). Gamma (γ) distributions were used for positive, right-skewed continuous parameters (e.g., costs, disutilities). Normal distributions were used for intervention effects modelled on an unbounded scale (can take negative values). Log-normal distributions were used for strictly positive time-based parameters (e.g., turnaround time, TAT). Uniform distributions were used where only plausible minimum/maximum bounds were available (e.g., TAT for SOC in DE/USA)*

B. Results of sensitivity analyses

Figure B1 One-way sensitivity analysis showing the impact of key parameters on cost savings per patient.

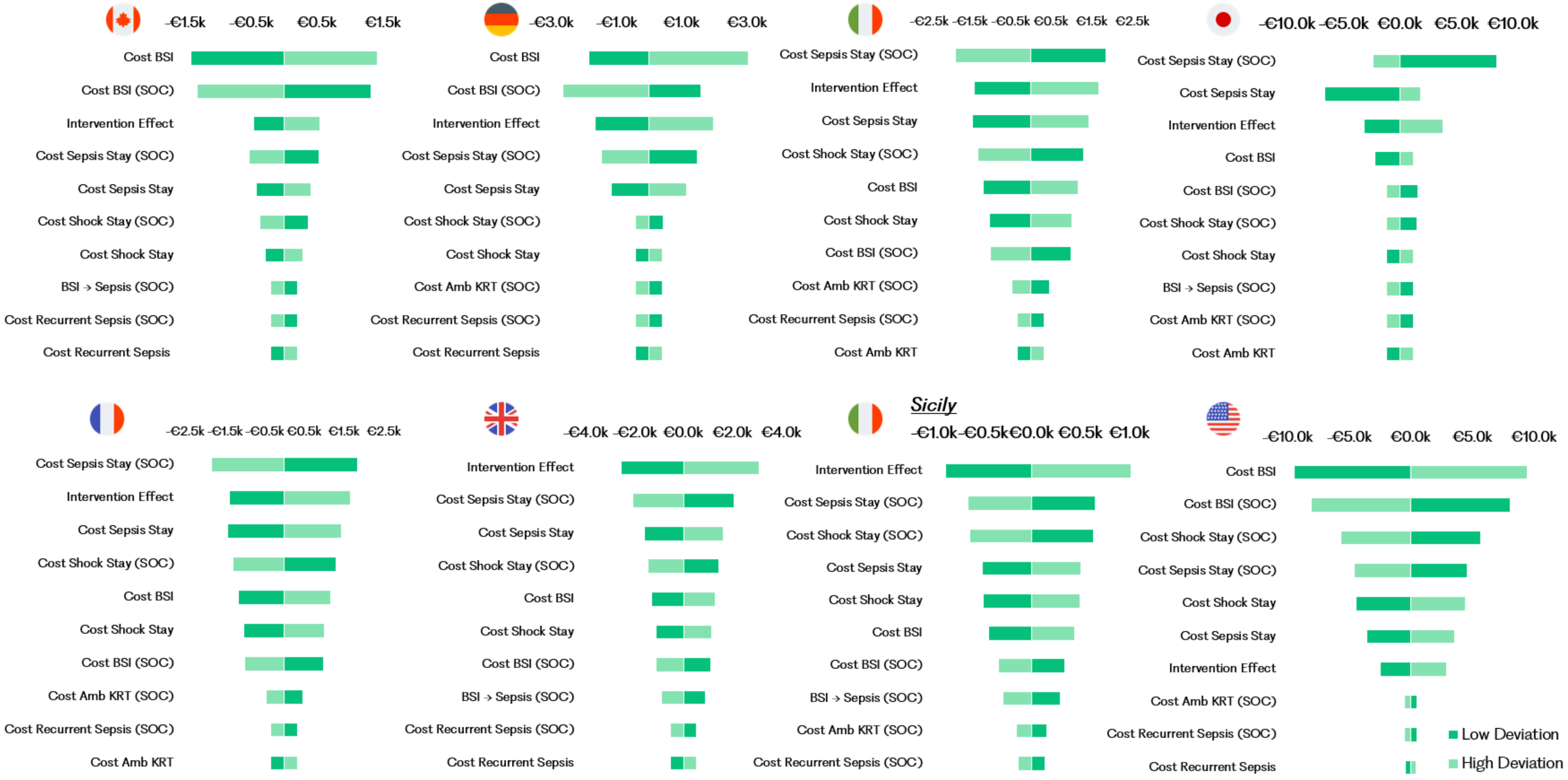
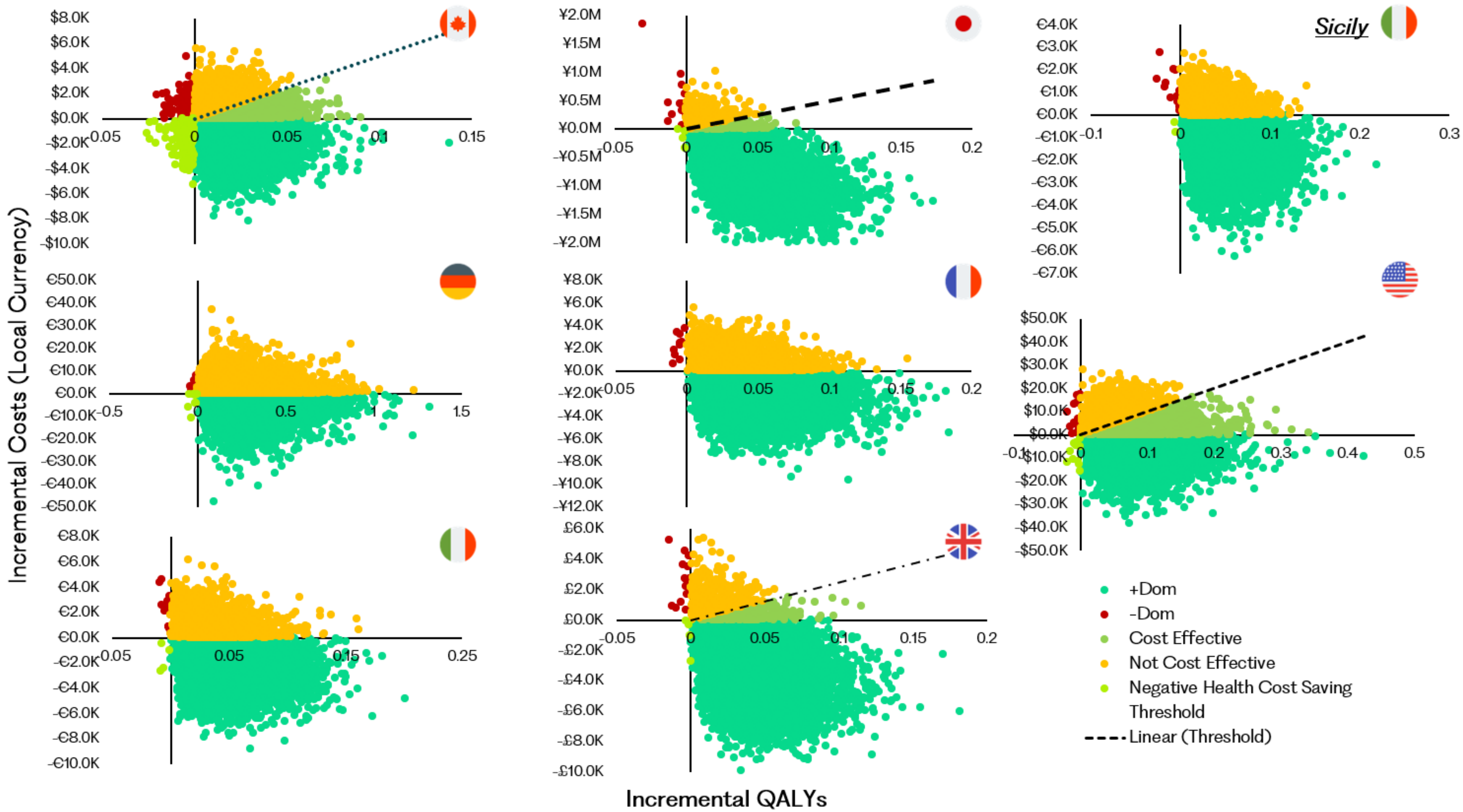


Figure B2 Probabilistic cost-effectiveness results by country



Note: *x-axis represents incremental QALYs and y-axis represents incremental costs in local currency for each country. Each point represents one probabilistic simulation. The dashed line represents the cost-effectiveness threshold, which was applied only for countries with published cost-effectiveness thresholds. +Dom = fast ID/AST positively dominates SOC; -Dom = fast ID/AST is dominated by*

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