

The burden of hospital-acquired venous thromboembolism to patients and healthcare systems in ten countries: A health-economic analysis

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Objectives:

- Aggravated, iatrogenic, venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE), is a major cause of preventable in-hospital morbidity and mortality.¹
- In addition to its patient burden, VTE imposes a substantial economic burden on healthcare systems.^{2,3}
- In many countries this burden remains unknown.⁴
- This analysis quantified the burden of VTE across ten different countries.

Methods:

- The study was undertaken in Australia, Brazil, China, France, Mexico, South Korea, Spain, Taiwan, Thailand, and the UK. (Figure 1)

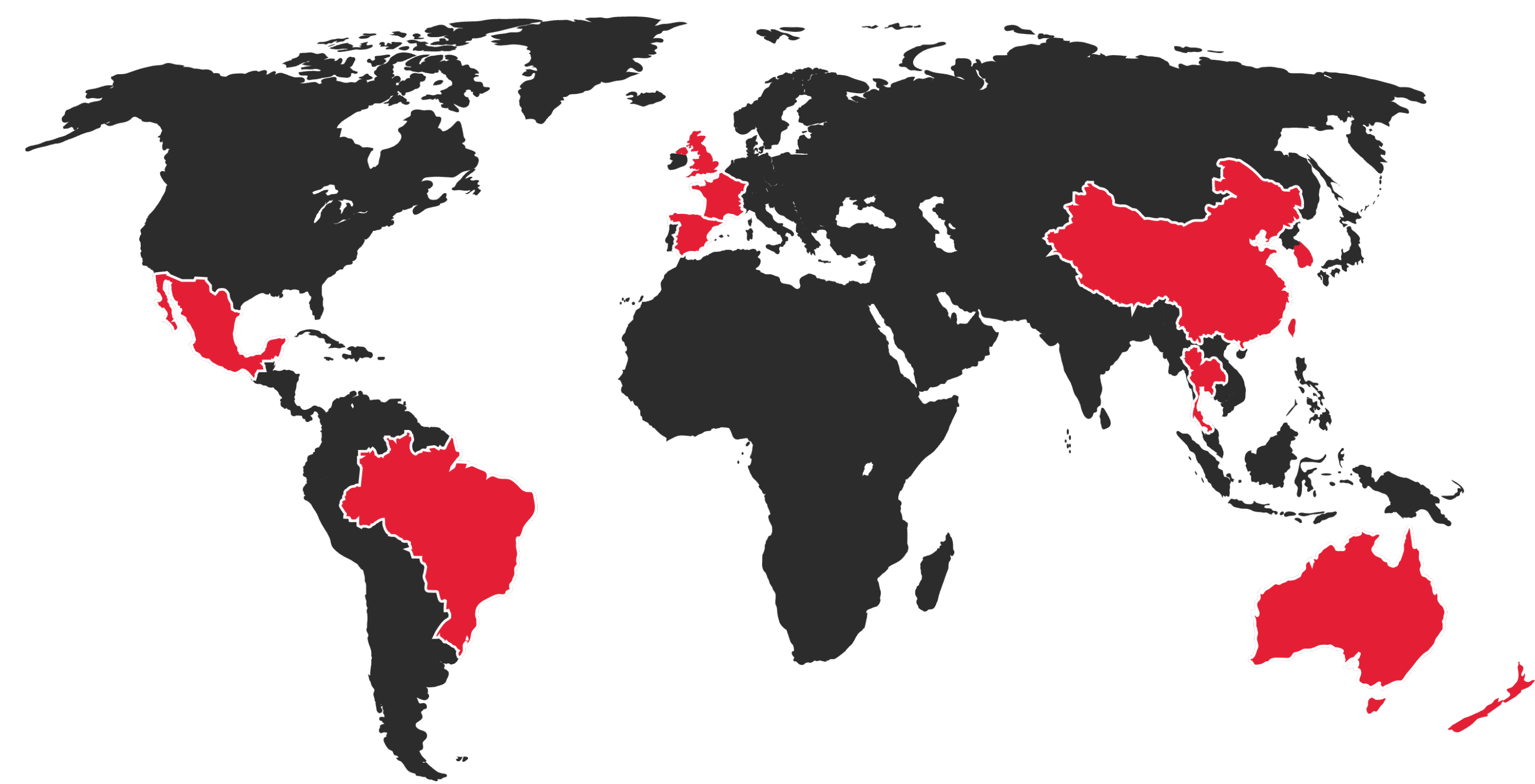


Figure 1 Map of investigated countries

- The GATHER guideline was followed, with expert interviews and a systematic literature review informing the burden of disease model.
- Prophylaxis decisions were modelled with a decision tree, with VTE development and progression evaluated using a Markov model.
- The five most important clinical areas for VTE per country were identified by a clinician survey.
- The main outcomes were: Total cost burden, quality-adjusted life years (QALYs), hospital days due to VTE.
- All local costs were converted to USD for comparison.

Table 1 Key outcomes across investigated countries

	ANZ	Brazil	China	France	Mexico	South Korea	Spain	Taiwan	Thailand	UK	Total
Total cost (mio. USD)	\$1,483	\$2,619	\$25,004	\$3,188	\$1,710	\$885	\$2,390	\$313	\$446	\$1,533	\$39,574
Total QALY lost	2,005	9,747	108,751	3,643	6,791	3,502	4,015	1,081	3,172	2,044	144,750
Hospital days	347,716	390,485	18,361,028	971,316	549,935	320,177	606,713	145,720	593,198	498,267	22,784,555
ICU days	7,226	25,503	1,208,397	24,859	17,944	2,943	9,062	5,647	13,126	12,440	1,327,145

Conclusion:

- VTE places a substantial burden on all healthcare systems assessed here.
- There may be potential to address this burden through implementation of further prophylaxis measures.

Results:

- Key areas for iatrogenic VTE were identified to be surgeries (orthopedic, oncology, cardiology, obstetrics/gynecology [obgyn]) and long-term ICU.
- In these areas there were an estimated 9,179,228 VTE events.
- On average the cost burden of VTE was equal to 0.10% of each country's GDP. (Figure 2)
- The highest total cost of VTE was found in China: \$25,004,681,545. (Table 1)
- In total, there were 22,784,555 additional hospital days required due to VTE. (Table 1)
- Total QALYs lost (per 100,000 population) due to VTE ranged from 13 in South Korea to 414 in China.

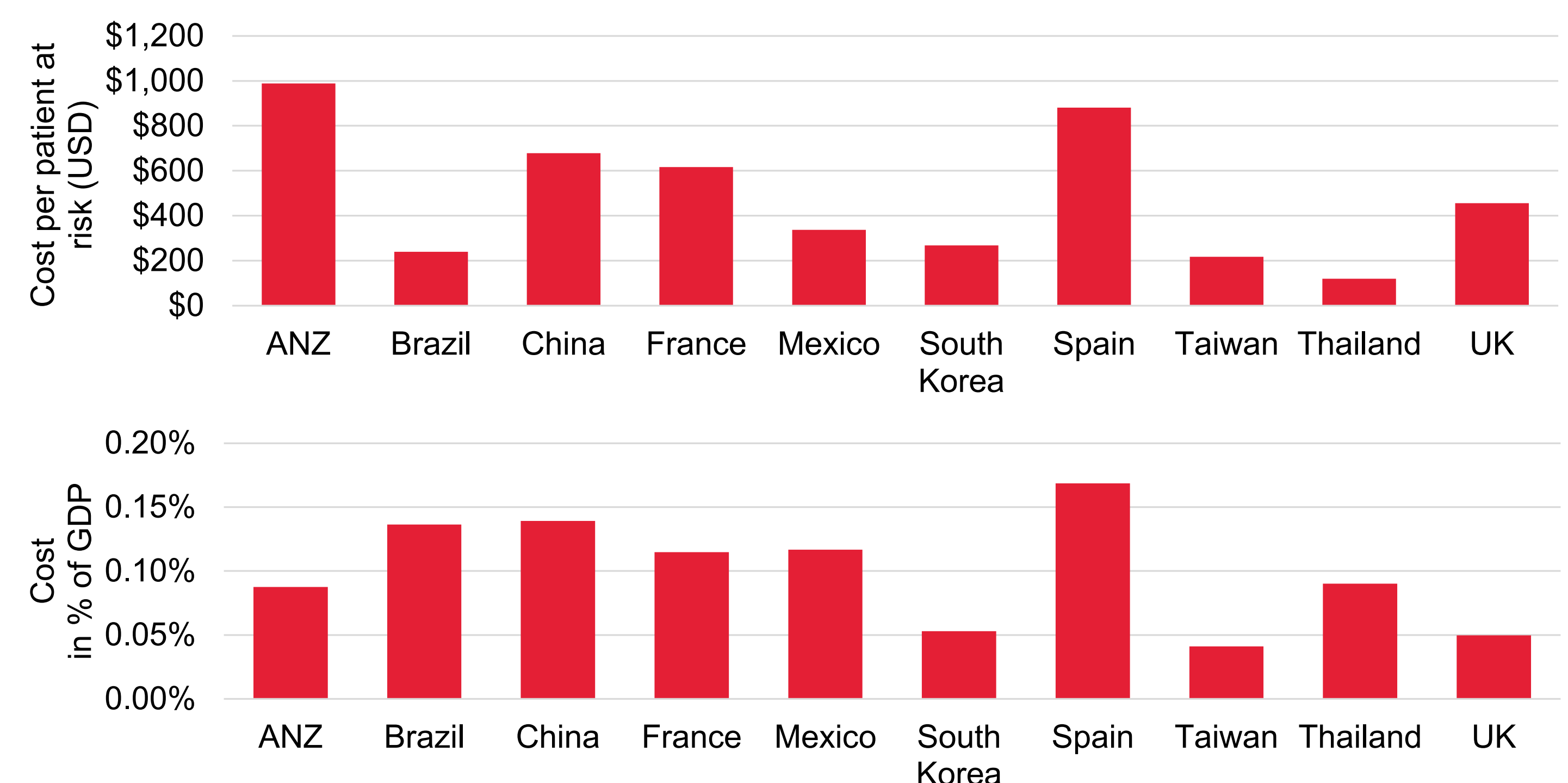


Figure 2 Normalized costs across investigated countries

Disclaimer

KS and US are employees and RS is the owner of Coreva Scientific, which received consultancy fees for this work. HEOR Pro received consultation fees from Cardinal Health to design and carry out the work presented here. This research was funded by Cardinal Health.

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