

Systematic review on the acute cost-of-illness of sepsis and meningitis in neonates and infants



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Health care costs ranged from \$55 to \$129,632 for sepsis and \$222 to \$33,635 for meningitis but data are very limited in low- and middle-income countries.

Introduction

- Sepsis and meningitis in neonates and infants lead to substantial morbidity, mortality and economic loss
- Investment in optimal prevention and treatment strategies requires good estimates of their cost-effectiveness, which in turn requires understanding of the economic burden of disease
- We reviewed the global evidence on the acute costs of sepsis, meningitis and meningococcal septicaemia, among neonates and infants under 1 year

Methods

- Systematic search of Medline, Embase and EconLit databases

Inclusion criteria:

- Cases of sepsis or meningitis according to authors' definition
- Reported costs of amongst neonates and/or infants < 1-year
- Primary data, or previously unanalysed secondary data

Analysis:

- Costs inflated to 2017 and converted to US Dollars (USD)

Table 1 – Characteristics of included studies

Author	Year	Country	Condition(s)	Ascertainment	Age range
Anh DD	2010	Vietnam	Meningitis	Lab. confirmed	<1 year
Garg P	2005	India	Sepsis	Unspecified	"neonates"
Atif ML	2008	Algeria	Sepsis	Lab. confirmed	0 – 89 days
Liao XP	2017	China	Sepsis	Unspecified	"newborns"
Qian L	2008	China	Sepsis	Unspecified	0 – 89 days
Angus DC	2001	USA	Sepsis	ICD codes	<1 year
Balada-Llasat JM	2018	USA	Meningitis	ICD codes	<1 year
Balamuth F	2014	USA	Sepsis	ICD codes	0 – 59 days
Bhatt P	2018	USA	Sepsis	ICD codes	0 – 28 days
Davis KL	2011	USA	Meningitis + Men. Septicaemia	ICD codes	<1 year
Donovan E	2013	USA	Sepsis	Unspecified	<120 days
Hartman ME	2013	USA	Sepsis	ICD codes	"newborns"
Inigo J	2006	Spain	Sepsis	ICD codes	<1 year
Johnson TJ	2013	USA	Sepsis	ICD codes	"newborns"
Lieu TA	1992	USA	Meningitis + Sepsis	Unspecified	28 – 90 days
Robinson CJ	2010	USA	Sepsis	ICD codes	0 – 89 days
Tanihara S	2014	Japan	Sepsis	ICD codes	0 – 95 days
Trejejo RT	2003	USA	Meningitis	ICD codes	< 1 year
Uribe-Leitz M	2017	USA	Sepsis	ICD codes	< 1 year
Willson DF	2003	USA	Sepsis	ICD codes	< 1 year

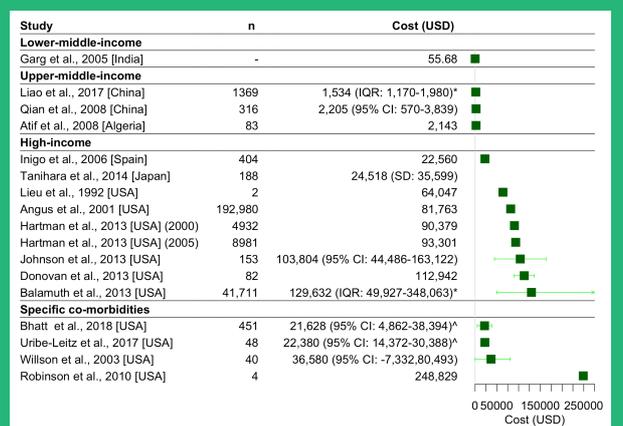


Figure 1 – Costs related to sepsis

Results

- 15 studies from high-income countries, 5 studies from middle-income countries and no studies from low-income settings
- Health care costs ranged from \$55 to \$129,632 for sepsis, \$222 to \$33,635 for meningitis
- A single estimate of \$56,286 for meningococcal septicaemia
- No studies reported costs to families or wider society

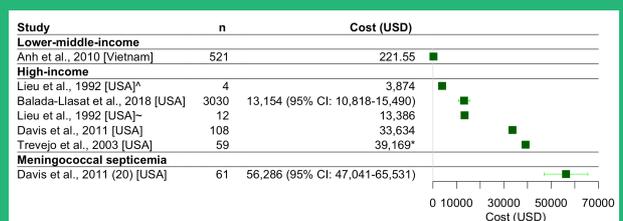


Figure 2 – Costs related to meningitis & meningococcal septicaemia

Conclusions

- Sepsis and meningitis in neonates and infants incur substantial costs to healthcare systems
- More research is needed on costs in low- and middle-income countries
- Consistency in case definitions and transparency of economic methods are needed to maximise the value of future studies

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