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Clinical and economic  
impact of introducing the  
use of chlorhexidine-  
impregnated sponges for  
central venous catheters  
dressings in an intensive  
care unit



# Introduction

- Nosocomial infection:  
5-10% hospitalised patients (30% in ICU)  
serious consequences, including death
- Central venous catheter (CVC) infections:  
effective prevention with « catheter bundles »  
effective with antiseptic dressings\* (e.g Biopatch®)  
but more expensive than usual dressings
- Clinical and economic impact ?

\* *Timsit JF et al. JAMA 2009*

# Antiseptic dressing (Biopatch®) introduced in 1997



# Methods

- A 32-bed mixed adult intensive care unit
- Between 2006 and 2010
- Standard procedure for CVC insertion
- Standard guidelines for dressing change
- Prospective surveillance of CVC infections
  
- Outcome: infection rate/1000 CVC-days
  - primary and CVC-related bacteremia
  - clinical sepsis (2/3 of all episodes)\*

\* Hugonnet S. et al. *Emerg Infect Dis* 2004

# Resources and costs variables

- Number and costs of Biopatch® dressings changed every 4 days (CHF 7.00)
- Number and costs of usual dressings changed every 2 days (CHF 2.00)
- Number of CVC infections leading to:
  - 10-day increase in LOS\*
  - CHF 20'000 increase in costs\*
- Hospital perspective

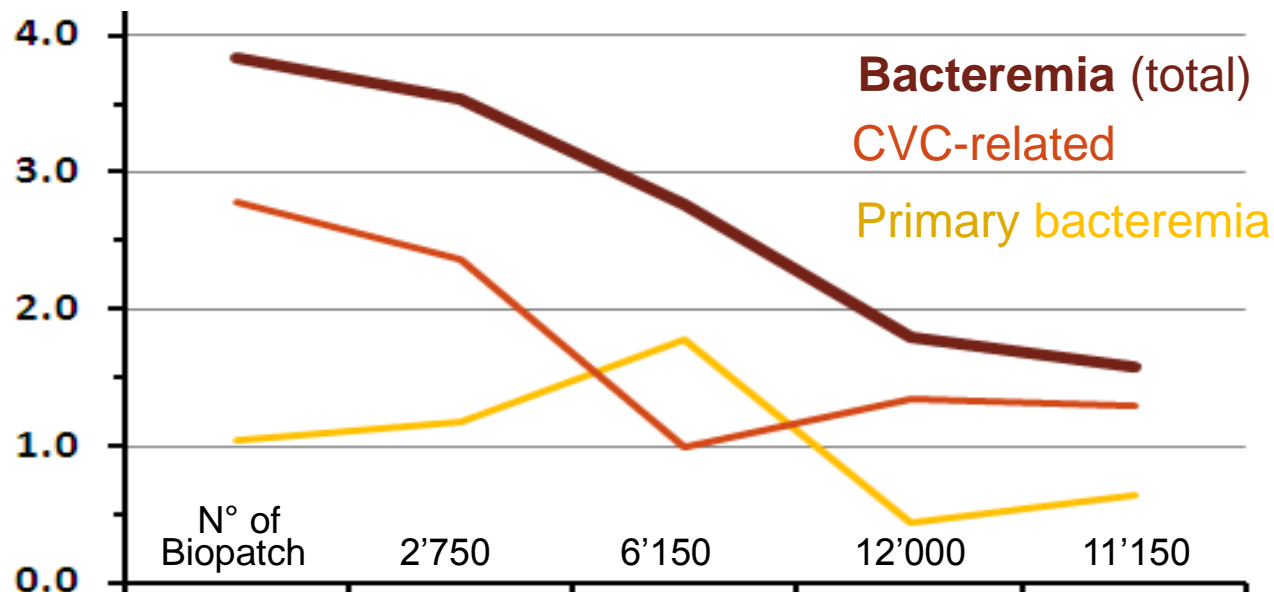
*\* Timsit JF et al. 50th ICAAC sept 2010*

# Results

- Introduction of Biopatch®:
  - Decreased the infection rate by 40%  
(3.8/1000 CVC-days to 1.8/1000 CVC-days)  
saving in 2010
    - 73 infectious episodes
    - 732 ICU days
    - CHF 1'464'251
  - Increased dressing costs by 350%  
(12'000 dressings x 7 or CHF 84'000)

# Impact following the introduction

Episodes/1000 CVC-days



Number Avoided	2006	2007	2008	2009	2010
	8'615 CVC-days	9'332 CVC-days	10'145 CVC-days	11'168 CVC-days	10'809 CVC-days
Bacteremia	-	3	11	23	24
Clinical sepsis	-	6	22	46	49
Hospital days	-	82	326	683	732
Costs (\$)	-	164'789	651'642	1'366'760	1'464'251

# Discussion

- A marked increase in CVC-days occurred between 2006 and 2010
- Decrease in infection rate occurred progressively but is significant
- Increase in dressing costs was higher than initially planned and led to budget difficulties
- Savings related to infection avoidance is theoretical (non-expense) and difficult to single out



# Conclusion

The new dressing increases material costs  
But decreases CVC-associated infections  
Thus allowing indirect savings in the ICU  
and reallocation of these rare resources  
to other patients...  
... potentially leading to new earnings

It should therefore be adopted