VAP Prevention: Is zero feasible?

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Road Map

- American Safety Perspective
- Causes of Pneumonia
- European Care Bundles
- Problems with end points
- Implications
- Conclusions

100,000 Lives Campaign
"All or None Assessment"

1. Head of bed 30-45^{o}
2. Sedation vacation (early weaning)
3. "Stress bleeding" proph (H2/SUC)
4. DVT prophylaxis

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INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY APRIL 2011, VOL. 32, NO. 4

ORIGINAL ARTICLE

Collaborative Cohort Study of an Intervention to Reduce Ventilator-Associated Pneumonia in the Intensive Care Unit

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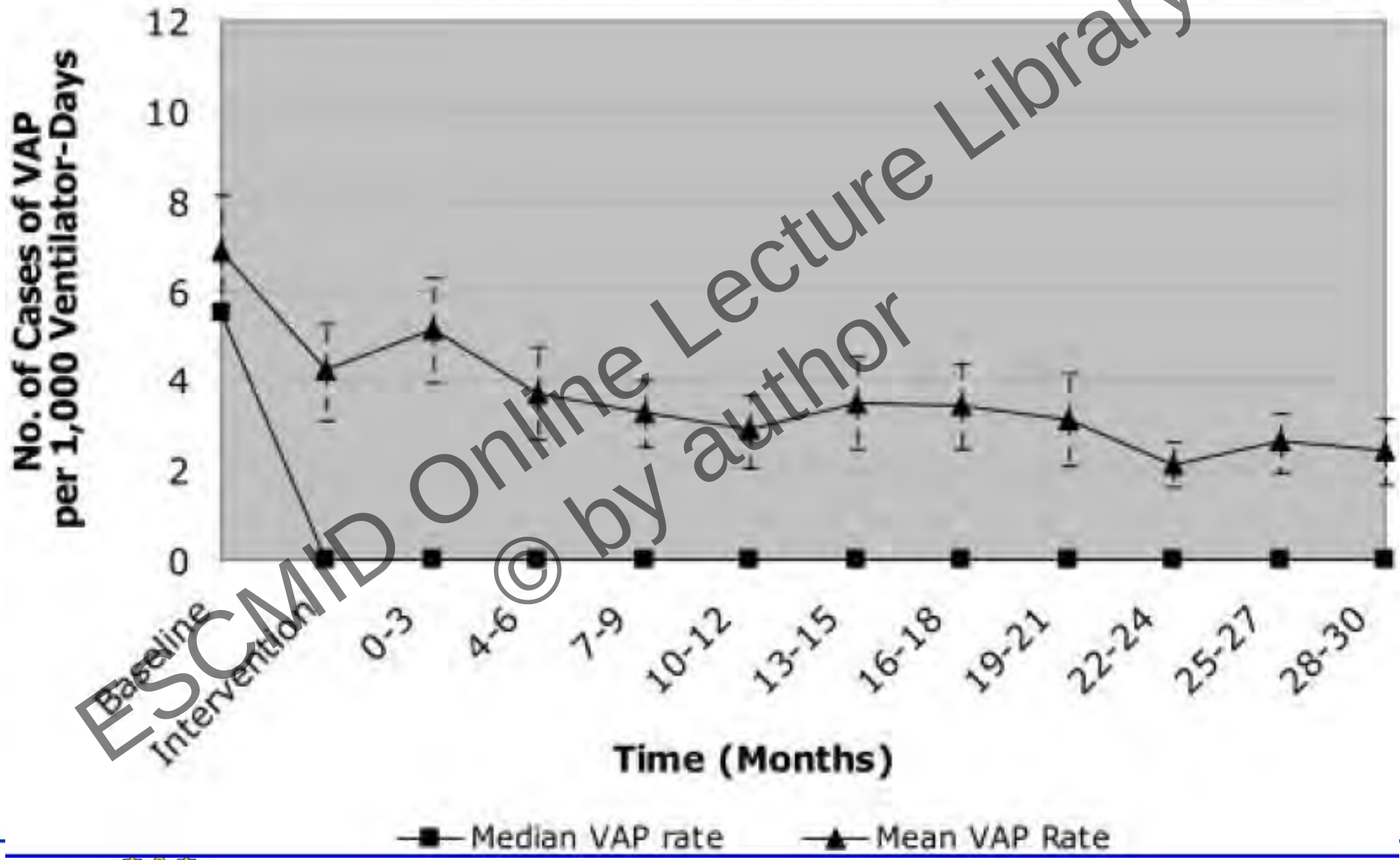

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The VAP Care Bundle Contributors

A European care bundle for prevention of ventilator-associated pneumonia

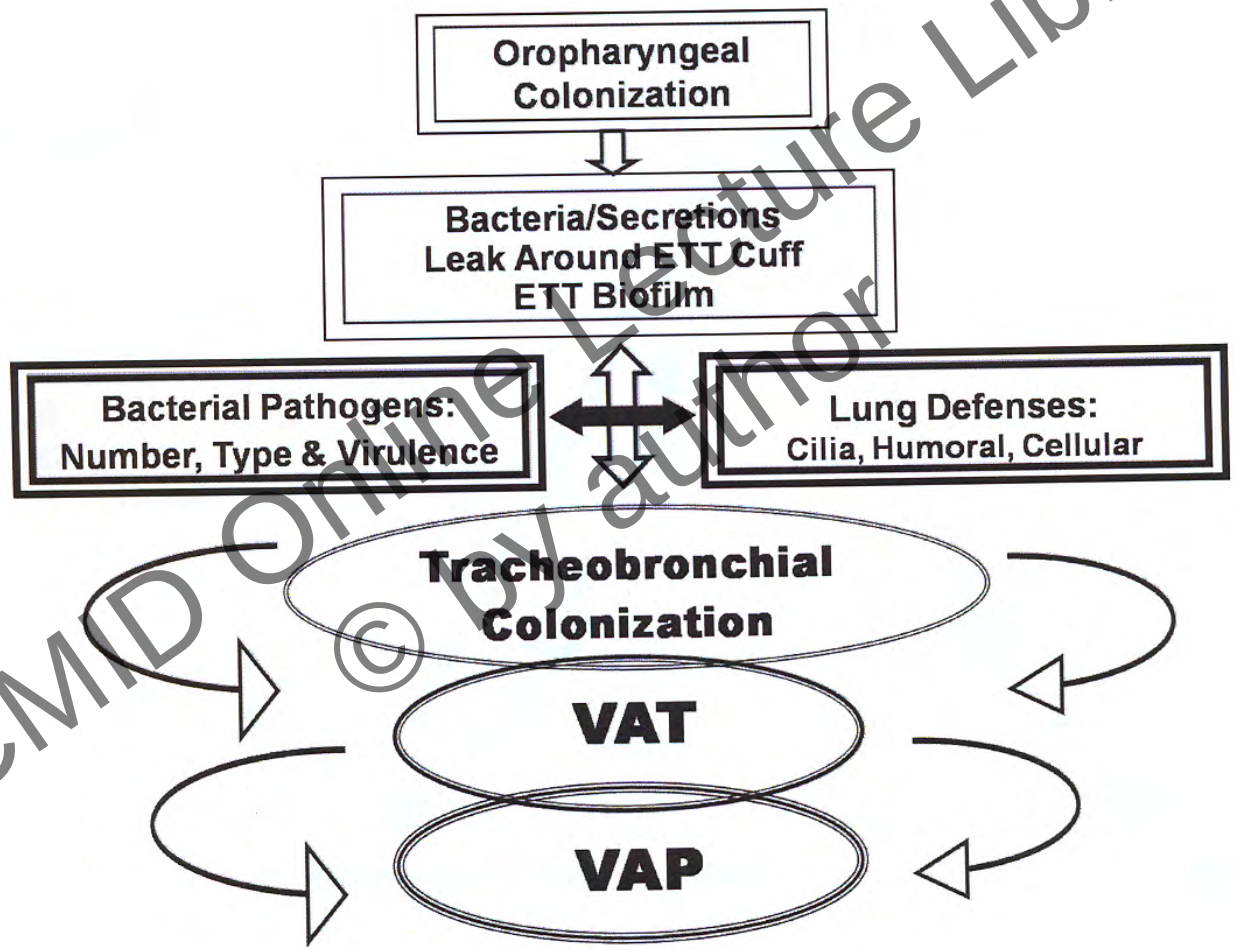
Intensive Care Med (2010) 36:773–780

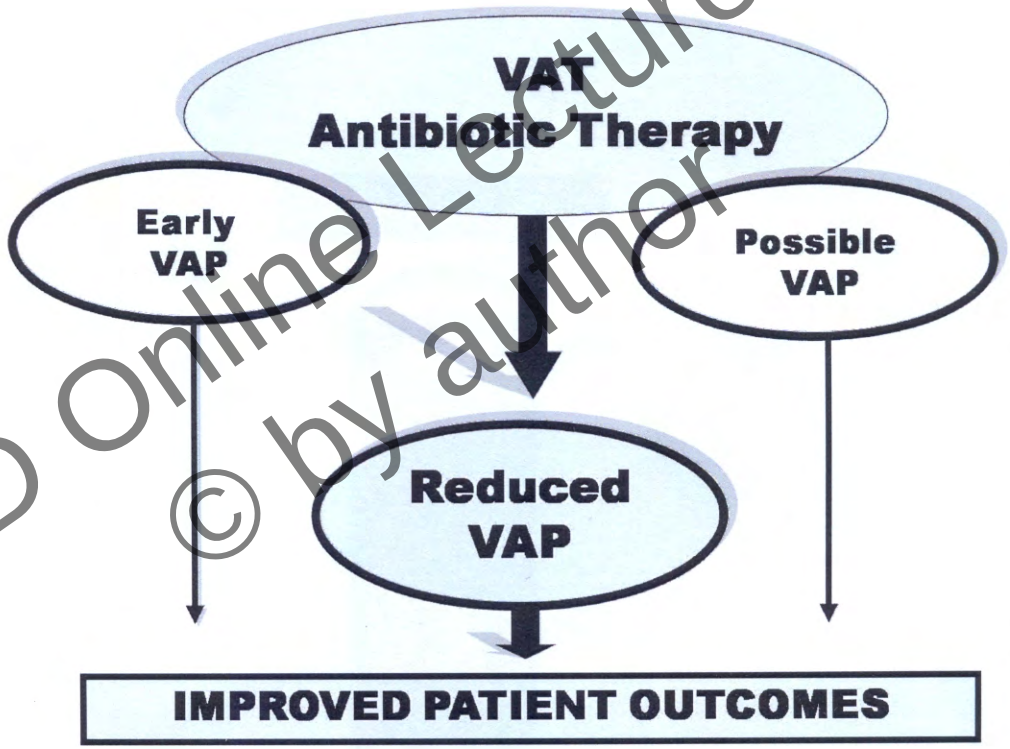
Table 1 Weighting of the criteria used to assess the applicability of VAP interventions for inclusion in the care bundle

Criterion	Mean weighting score
Ease of implementation within a care bundle package How easy it will be to implement the element of the care bundle?	18
Clinical effectiveness against VAP and the likely benefit Is there evidence that the intervention is clinically effective in its impact upon VAP? How big a benefit does the intervention produce?	16
Strength of clinical evidence concerning the intervention How good is the evidence that demonstrates the benefit of the intervention? Is all the evidence of the same standard? Are the study results relevant across the range of health systems?	15
Consistency of findings from different studies Are the findings of these studies consistent? Do the studies demonstrating benefit come from a range of health systems?	9
Generalisability to different health care systems and settings Is the recommendation acceptable across different health care systems?	9
Volume of clinical evidence supporting the intervention How many studies are available to show that benefit exists from the recommendation? Do the studies demonstrating benefit come from a range of health systems?	8
Cost effectiveness of the intervention Is the intervention cost effective? How cost effective is the intervention across the different health care systems?	7
Coverage in all VAP patients Is the benefit uniform across the complete VAP group of patients?	5
Impact on the health care system as a whole Think about the impact (positive or negative) on other services, e.g. will this intervention increase/decrease work load for other services (can this other part of the service deliver?), e.g. laboratories/imaging	3

Causes of pneumonia

- Aspiration of large inoculum
- Defect in Host Defenses (VAP)
- Virulent organism





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A European care bundle for prevention of ventilator-associated pneumonia

- Not implementing ventilatory circuit changes unless specifically indicated.
- The use of strict hand hygiene using alcohol.
- The incorporation of sedation vacation and weaning protocols into patient care.
- Oral care with chlorhexidine
- Intracuff pressure check / 4h

EU Care Bundles for VAP prevention
FADO Project

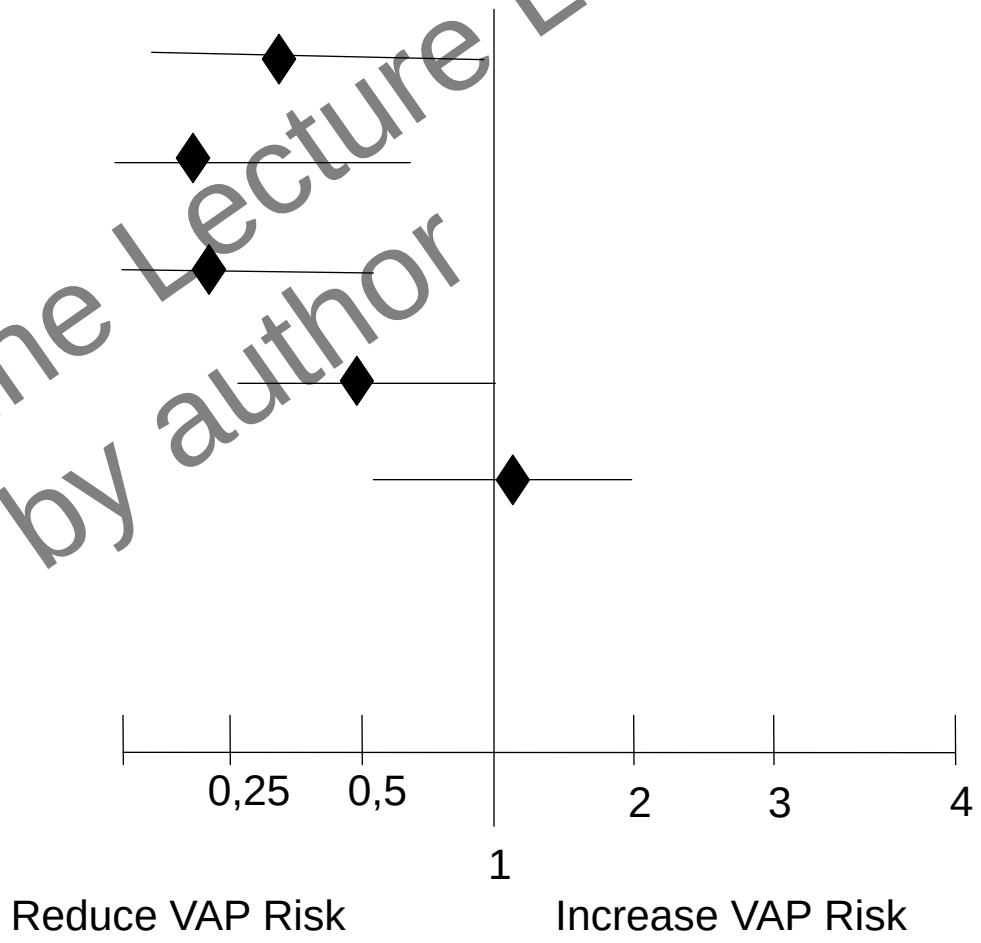
Hands Hygiene OR=0.35(0.12-0.99)

Cuff Pressure OR=0.21(0.07-0.60)

Oral Hygiene OR=0.23(0.08-0.65)

Sedation Control OR=0.51(0.25-1.00)

V circuit change OR=1.07(0.56-2.03)

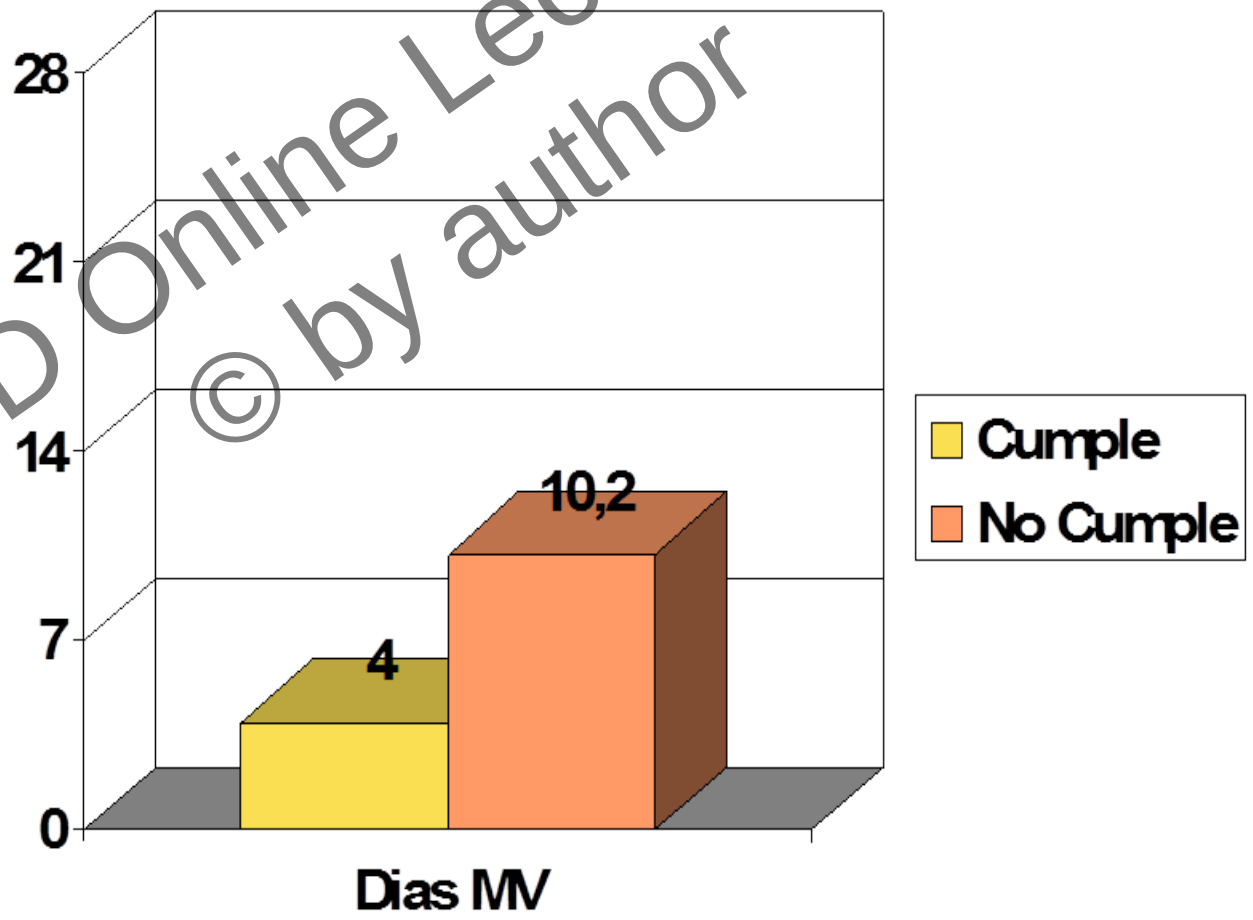


Problems

- 1 – No gold standard
- 2 – Lack of evidence

  Colonization vs contamination vs infection
- 3 – Micobiologic proven vs non-documented
- 4- Tracheobronchitis ?

Outcomes Fado Study



Zero VAP presumes that all VAP is preventable

- Therefore, VAP is a medical error !
- Assumes that quality can be reflected by VAP rates.
- Ignores differences in case-mix

If VAP is considered a reflection of poor quality of care...

- Hospitals will be tempted not to treat indigent, and other high risk patients with non-modificable risk factors

Pressure promotes under-reporting

- Hospitals with (falsely) low rates may be lulled into thinking things are fine
- Hospitals with (falsely) high rates may get penalized in “pay-per-performance” atmosphere, and end up with fewer resources to help patients

Klompas, et al. Ann Intern Med 2007;147:803-5

Will eliminate research into VAP

- How and why study a disease that should not be present?

Conclusion

- Implement Care bundles to improve safety
- Focus on improving outcomes
- Interventions on virulence or host defense not feasible
- VAP zero is not implementable!