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VAP Prevention: Think differently

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Disclosures

- Speaker bureau for Pfizer, Jansen and Astellas
- Consultant for Pfizer, Astellas, Jansen, Kenta, Intercell, Sanofi Pasteur and Cubist
- Grant support from Pfizer

Daily Problem

THE RATIONAL
CLINICAL EXAMINATION

CLINICIAN'S CORNER

Does This Patient Have Ventilator-Associated Pneumonia?

Michael Klompas, MD



Craven et al, Clin Inf Dis 2010;51(S1):S59–S66
Craven et al, Clin Chest Med 32 (2011) 547–557
Klompas M, JAMA2007; 297:1583-93

VAP are detrimental for patients

- **Attributable mortality < 15%**
- Increased use antimicrobials
- Increased MV period
- Increased LOS
- Increased direct medical costs

When / How does it starts

- > 2days.

OGT & ETT

VAT or VAP:

Q-EA $\geq 10^5$ /ml
SQ-EA moderate (+++)
- heavy (++++) growth

VAP:

BAL $\geq 10^4$ /ml
PSB $\geq 10^3$ /ml

Subglottic
Secretions
&
Bacteria

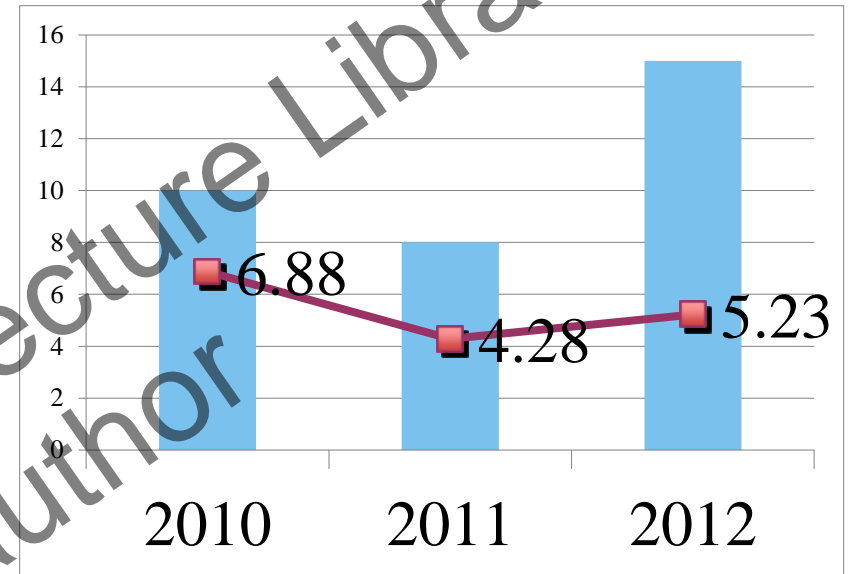
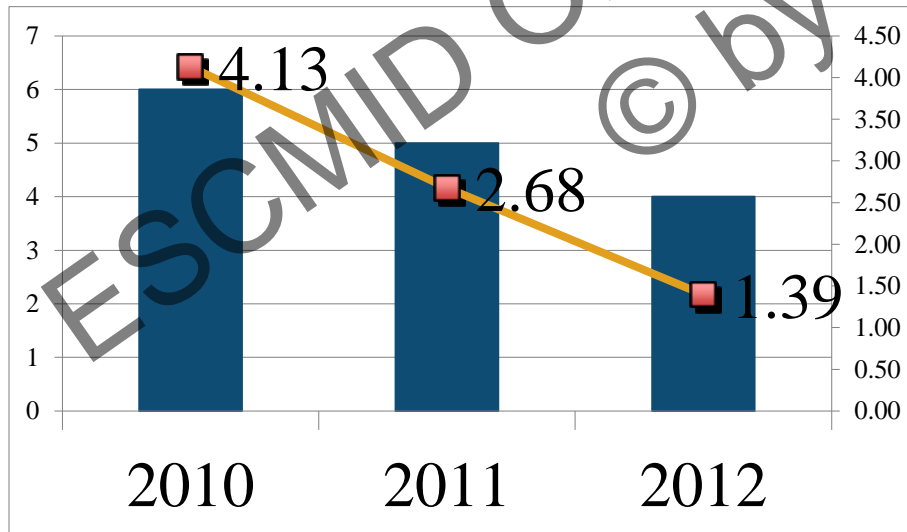
Oropharynx
Bacteria
 $>10^8 - 10^{10}$ /mL

ETT Cuff
Leaks

ETT Biofilm

What Rates?

After an intervention...
(ventilator bundle)



**VAT as
own entity, too**

Prevention Measures ?

- Oral care.
- Stress ulcer prophylaxis?
- SDD ?
- Coated ET tubes?
- Tracheotomy ?
 - Liberation of vocal cords.²
- High Flow Nasal Oxygen

1. Definitively not recommended for VAP prevention

- Neither lower VAP rates nor decrease duration of MV, LOS or mortality

Definitively not recommended for VAP prevention

- Stress ulcer prophylaxis. QE II
- Early tracheotomy. QE I
- Early parenteral nutrition. QE II

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2. Approaches not recommended

- May lower VAP rates but abundant data suggest **no impact on duration of MV, LOS, or mortality.**

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Approaches not recommended

- Silver coated ET. QE I
- Kinetic Beds. QE I
- Prone positioning. QE II

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3- Approaches that are neither recommended nor discouraged

- No impact on VAP rates or patients outcomes and unclear impact on costs

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Neither recommended nor discouraged

- Closed ET suctioning systems. QE II

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4- Special approaches

- Interventions that decrease duration MV, LOS & mortality but **insufficient data on possible risks**

Special approaches

- Use of SDD. QE I
- Perform oral care with CHX. QE I
- Prophylactic Probiotics. QE II
- Ultrathin polyurethane cuffs. QE III
- Automatic control of cuff pressure. QE III
- Saline before suctioning. QE III
- Mechanical tooth brushing. QE III

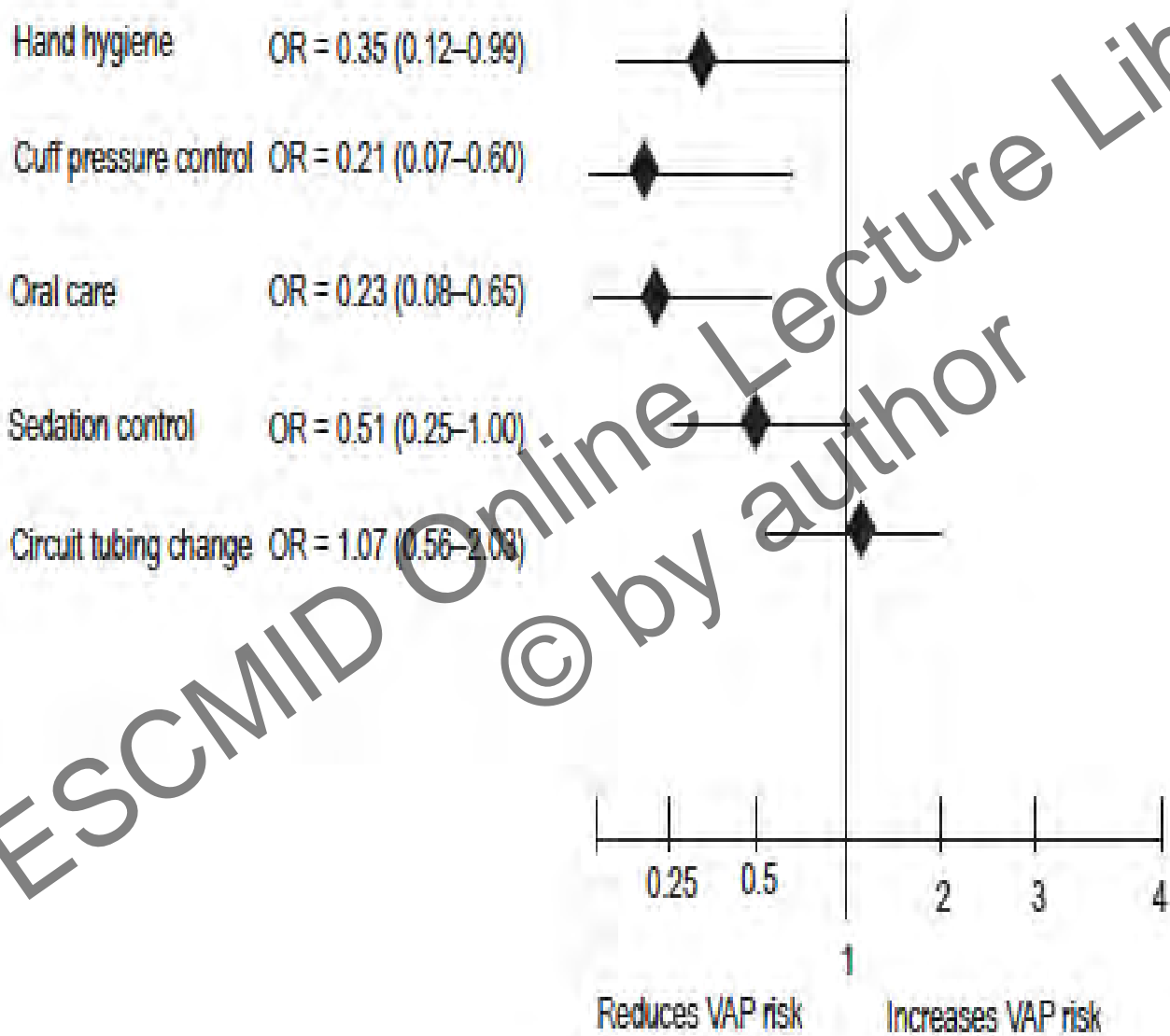
5- Basic Practices

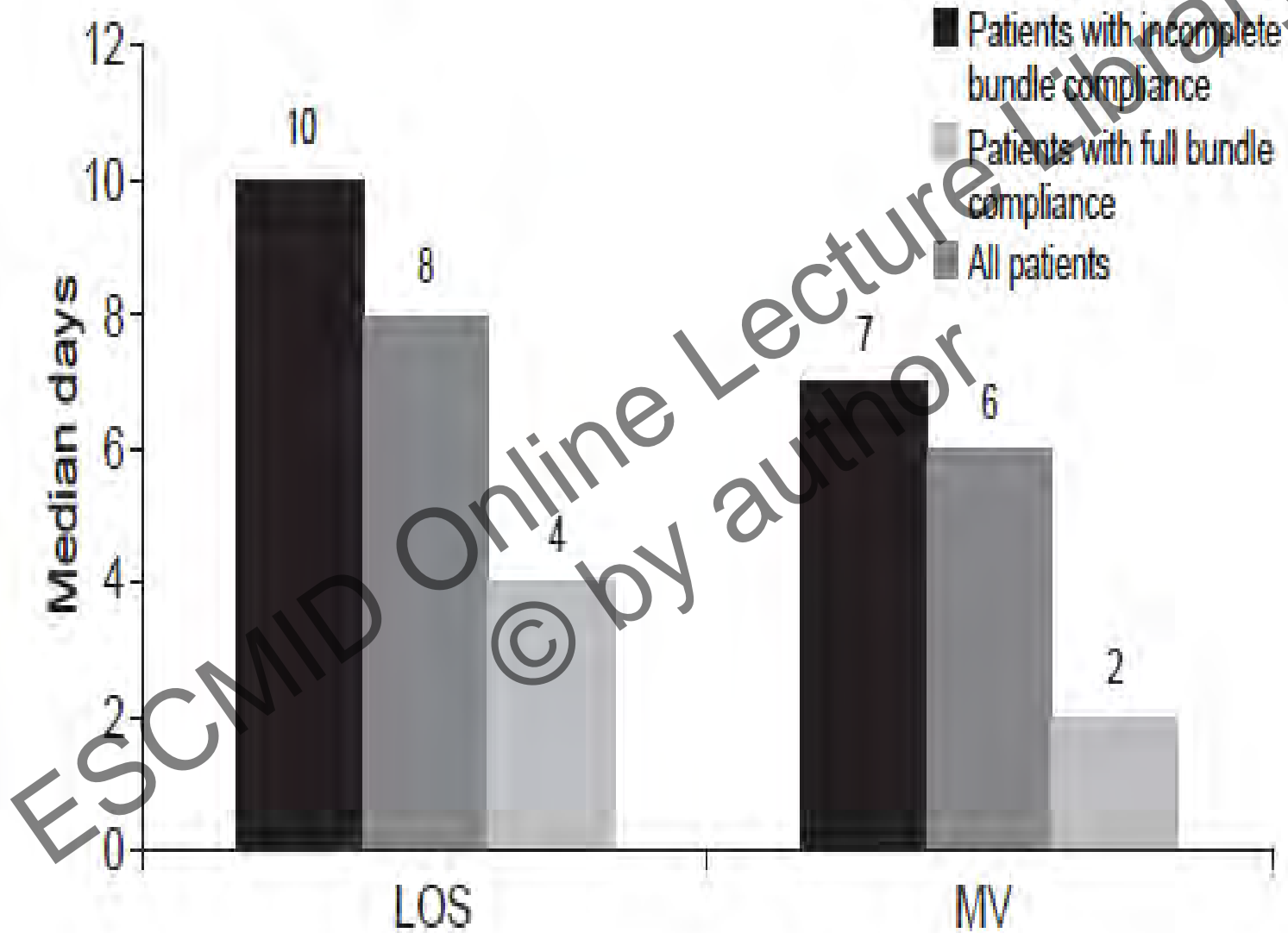
- **Little risk of harm that decrease duration of MV, ICU, risk of death or costs**

Basic practices

- Avoid intubation if possible. QE I
- Minimize sedation. QE II
- Maintain & Improve physical condition. QE I
- Minimize pooling of secretions. QE II
- Elevate Head of the Bed. QE III
- Maintain ventilatory circuits. QE I

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Implementation strategies

Engage

- Develop a multidisciplinary Team
- Involve local champions
- Utilize peer networks



Eciberes
Centro de Investigación Biomédica en Red
Enfermedades Respiratorias



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Implementation strategies

Educate

- Provide educational **sessions**
- Provide educational **materials**

A care bundle approach for prevention of ventilator-associated pneumonia

J. Rello¹, E. Afonso², T. Lisboa³, M. Ricart⁴, B. Balsera⁵, A. Rovira⁶, J. Valles⁷, E. Diaz⁸ and FADO Project Investigators*

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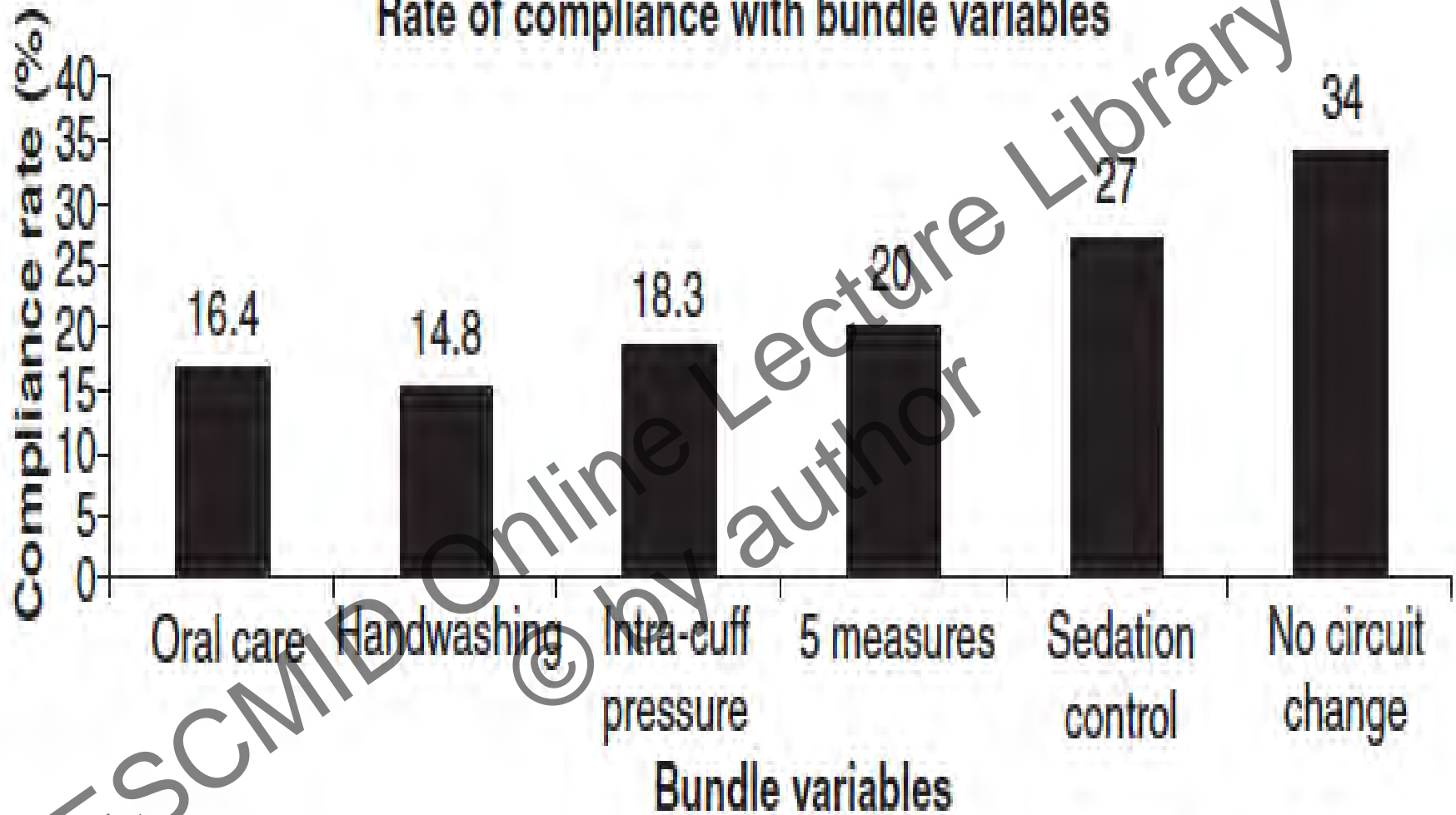
Implementation Strategies

Execute

- Standardize care processes
- Create redundancy

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Rate of compliance with bundle variables



Implementation Strategies

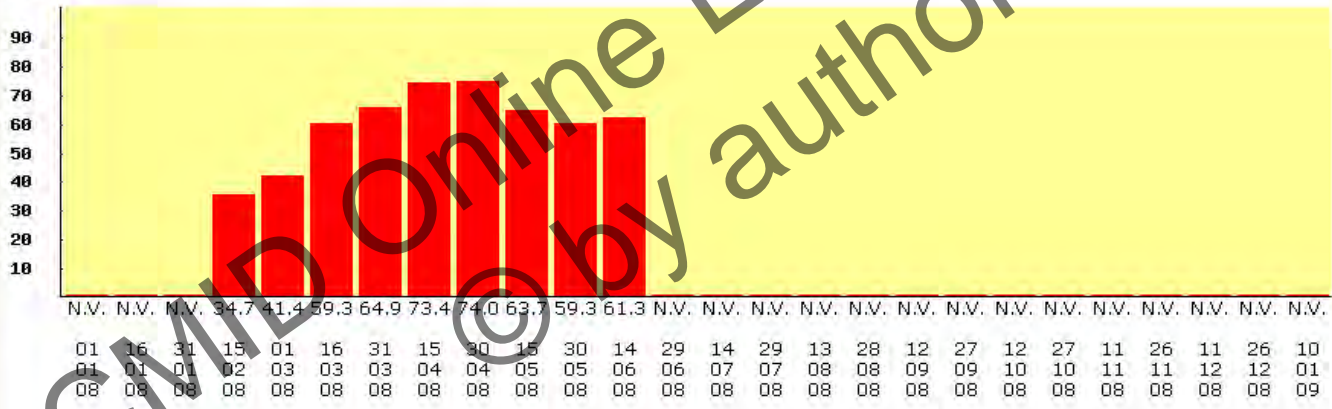
Evaluate

- **Measure** performance
- Provide **feedback** to staff !

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AUDIT DE COMPLIÀNCIA A IMPLEMENTAR PEL COORDINADOR/A DE TORN (PRÈVIES 24 H)

COMPLIMENT TOTES LES MESURES
HOSPITAL



- > Box 1
- > Box 2
- > Box 3
- > Box 4
- > Box 5
- > Box 6
- > Box 7
- > Box 8
- > Box 9
- > Box 10
- > Box 11
- > Box 12
- > Box 13
- > Box 14
- > Estadístiques
- > Calendari
- > Sortir

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Performance strategies

- Internal Reporting
- Process Measures: Ventilator bundles
- Approaches to defining process measures:
 - Hand hygiene
 - Minimize sedation
 - Expedite extubation
 - Minimize risk of aspiration
- External Reporting

Take home messages

Balance Benefits vs Risk

Focus on Outcomes rather than Rates

VAP prevention can be improved with the use of a care bundle package. Real life low compliance

The FADO project demonstrates that continuous training and synergic participation of multidisciplinary teams have a significant impact in health outcomes in patients prone to ventilator associated problems.

PNEUMONIA PREVENTION



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A NEW PARADIGM?