Preventive Procedure

Terminology

HCAP (Healthcare Practitioner Acquired Pneumonia)

Pneumonia in any patient who **was any of the following:**

- **Hospitalized*** in an acute care hospital for **two or more days** within **90 days of the infection**
- **Resided** in a nursing home or long-term care facility
- **Attended*** a hospital or hemodialysis **clinic**
- **Received*** recent
  - **Intravenous antibiotic therapy**
  - **Chemotherapy**
  - **Wound care**

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MDR Multi-drug Resistant Risk Factors:

- Antimicrobial therapy in preceding 90 days
- Current hospitalization of 5 days or more ·
- High frequency of antibiotic resistance in the community or in the specific hospital unit
- Immunosuppressive disease and/or therapy
- Presence of risk factors for HCAP
- Hospitalization for 2 days or more in the preceding 90 days
- Residence in a nursing home or extended care facility
- Home infusion therapy (including antibiotics)
- Chronic dialysis within 30 days
- Home wound care

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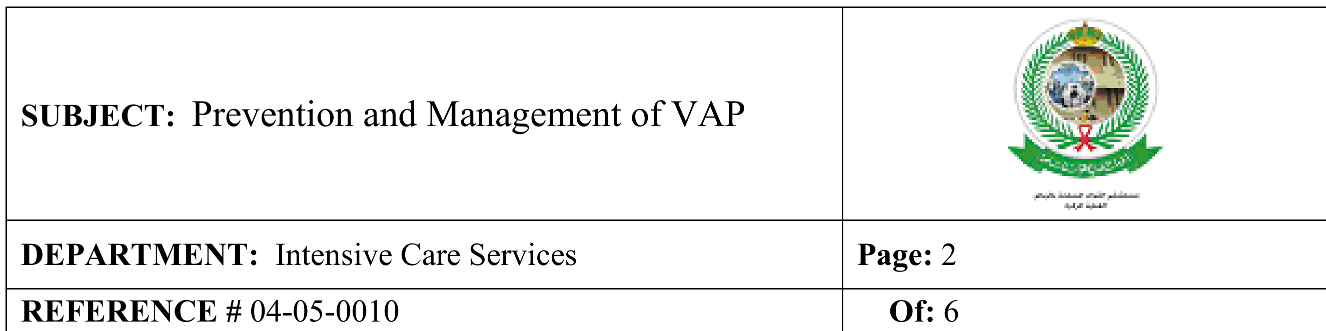

- Family member with multidrug-resistant pathogen

One risk factor present makes the patient at risk for MDR

Three or more risk factor makes the patient at high risk for MDR
A-1 Policy Level of Isolation Precautions

- **Level one precautions** is admit in to single room plus general and specific prophylaxis
  1. HCAP plus one risk for MDR
  2. A-high risk for MDR
  3. Patient is admitted or going to be admitted for 3 days in the ICU and at risk for MDR

- **Level two precautions** is general and specific prophylaxis
  1. Risk for MDR
  2. Patient is admitted or going to be admitted for 3 days in the ICU

A-2 Procedure Level of Isolation Precautions

- Admit in to single room plus general and specific prophylaxis for Level one precautions
- Call infection control team
- Apply level one precaution in management and handling of the patient according to RMH/ GICU isolation persuasion policy

B-1 Policy Prevention of VAP

- Identify high risk patient following above definitions
- Charge nurses are responsible to identify and apply the policy.

B-2 Procedure prevention of VAP

1. General prophylaxis

- Insure Staff Education and Involvement in Infection Prevention
- Wear gown, gloves and mask in contact with patient airway catheters or wounds

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- Do Infection and Microbiologic Surveillance every week for each patient.
- Daily CPIS.
- Insure Sterilization or Disinfection and Maintenance of Semi-Critical Equipment

2. Specific Prophylaxis

A-Intubation and Mechanical Ventilation

- Use Noninvasive positive-pressure ventilation in patient who require assisted ventilation or oxygenation is less than 36 hours if no contraindication to NIP (refere to NIP procedure)

- Early Tracheostomy in patient who require mechanical ventilation for more than10 days or there CNS status does not protect air way

- Always Orotracheal intubation

- Use ET tube with Continuous aspiration of subglottic secretions for patient expected to be intubated for more than 3 days

- Endotracheal tube cuff pressure should be maintained at greater than 20 cm H_2O

- Contaminated condensate should be carefully emptied

- Passive humidifiers or heat-moisture exchangers decrease ventilator circuit colonization, but does reduced the incidence of VAP

- Place the patient in a Semirecumbent position (30 to 40)

- Enteral nutrition is preferred over parenteral nutrition

- Prophylactic administration of systemic antibiotics for 24 hours at the time of emergent intubation

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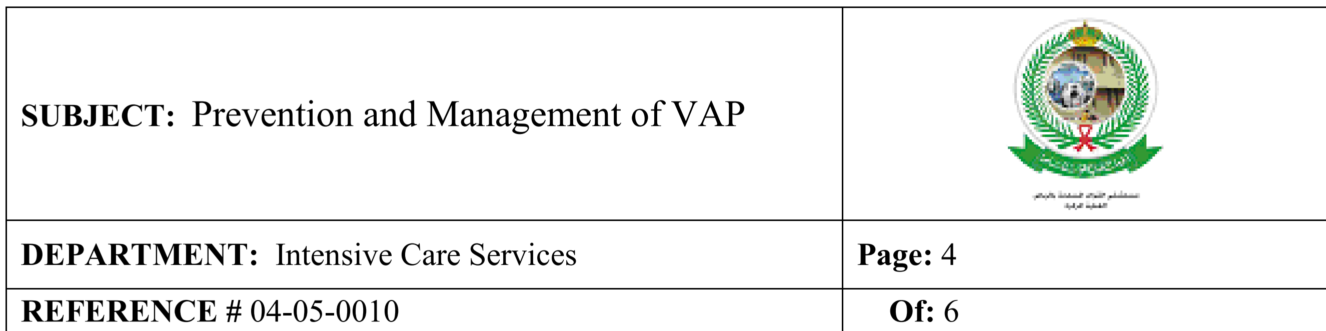

- Modulation of oropharyngeal colonization by the use of oral chlorhexidine
- Use daily interruption or lightening of sedation
- Intensive insulin therapy

C-1 Diagnostic Policy of VAP

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- Aggressive Diagnosis and management of VAP is vital to prevent spread of the infection
- Apply daily CPI score to screen for possible cases
- Combine clinical and Bacteriological methods to diagnose VAP

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C-2 Diagnostic procedure of VAP

1. Clinical Strategy

- Weekly Tracheal aspirate Gram stain
- High CPIS start starting empiric antibiotic
- A negative tracheal aspirate search for alternative sources of
- Reevaluate antibiotics based on the results of semi quantitative lower respiratory tract cultures
- CPIS of 6 or less for 3 days low risk for early discontinuation of empiric treatment of HAP

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2. **Bacteriologic Strategy**

Quantitative cultures can be performed on endotracheal aspirates or samples collected either bronchoscopically or nonbronchoscopically when clinically indicated.

Diagnosis can be made on either clinical or bacteriological strategy once made anti biotic should be started ASAP following the Therapeutic procedure

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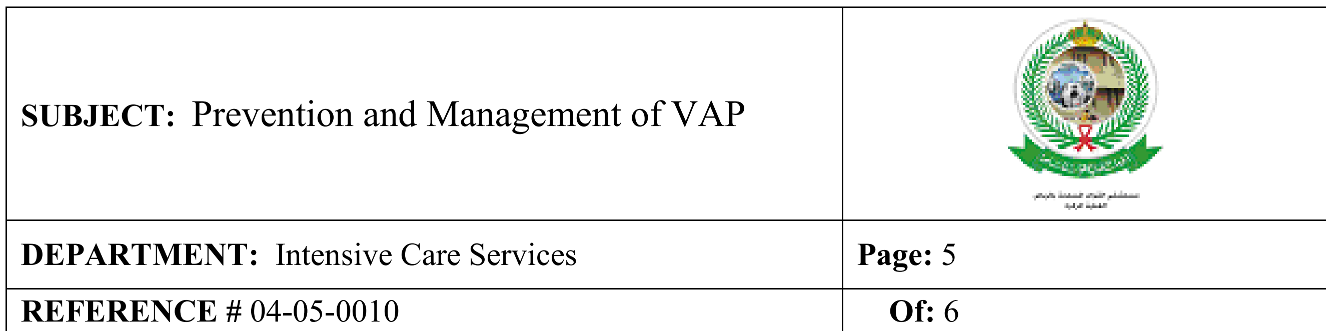

Once diagnosis of VAP is made patient care will be upgraded to category A monitoring and lab work (see ICU policy and procedure for monitoring and lab work) Therapy will follow the therapeutic procedure.

D-1 Therapeutic Policy of VAP

- **GICU team, ID team and infection control team will manage the case in combined**
- **Microbiological consultation is mandatory to help the management.**

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D-2 Therapeutic Procedure of VAP

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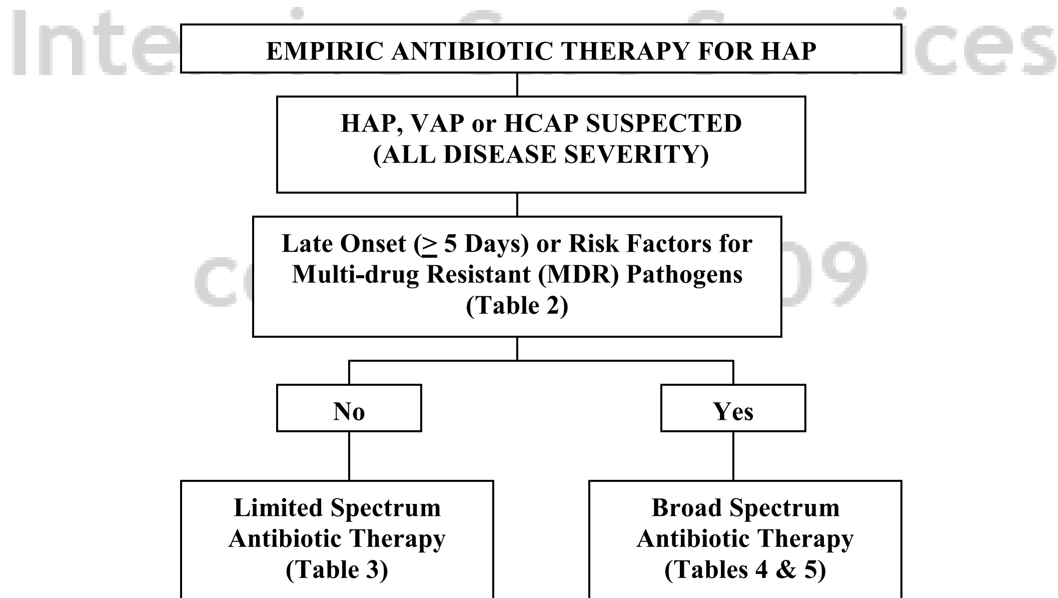

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MDR Consideration

- P. aeruginosa pneumonia combination therapy
- Acinetobacter species carbapenems, sulbactam, colistin, and polymyxin
- ESBL+ Enterobacteriaceae monotherapy with a third-generation cephalosporin should be avoided. Most active agents carbapenems
- Adjunctive therapy with an inhaled aminoglycoside or polymyxin for MDR gram-negative pneumonia in patients who are not improving with systemic therapy
- Linezolid more active than vancomycin for MRSA VAP
- Antibiotic restriction and antibiotic cycling, may be able to reduce the overall frequency of antibiotic resistance. However, the long-term impact of this practice is unknown

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Response to Therapy

- Serial assessment of clinical parameters should be used to define the response to initial empiric therapy
- Modifications based on microbiologic data
- Clinical improvement usually takes 48 to 72 hours
- De-escalation of antibiotics& narrowing
- Nonresponse to therapy is usually evident by Day 3, using an assessment of clinical parameters
  - o Noninfectious
  - o drug-resistant organisms
  - o extrapulmonary sites of infection
  - o complications of pneumonia and its therapy

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