

## Medications (Jones and Bartlett Learning, 2021)

albuterol sulfate (AccubNeb, Proair HFA)

- Dose: 5 mg/Nebulizer/Q2 hours
- Pharmacological: Adrenergic
- Therapeutic: Bronchodilator
- Reason taking: To treat bronchospasm.
- Nursing assessments: Monitor respiratory rate, oxygen saturation, and lung sounds before administration.

Budesonide (Pulmicort Respules)

- Dose: 0.5 mg/Nebulizer/BID
- Pharmacological: Corticosteroid
- Therapeutic: Antiasthmatic, anti-inflammatory.
- Reason taking: To provide maintenance therapy and asthma.
- Nursing assessments: assess pulmonary function periodically by measuring breath sounds, respiratory rate, dyspnea.

prednisone (Solu-Medrol)

- Dose: 26 mg/IVP/Q6 hours
- Pharmacological: Glucocorticoid
- Therapeutic: Immunosuppressant
- Reason taking: To treat adrenal insufficiency and acute and chronic inflammatory and immunosuppressive disorders.
- Nursing assessments: assess any muscle or joint pain.

## Relevant Lab Values/Diagnostics (Carle Database, 2022)

WBC (cells/mcL)

- Normal range: 4,000-11,000
- Abnormal value: 15,220
- Infection can cause an increase in WBC value. The patient may have a respiratory infection secondary to status asthmaticus (Hinkle & Cheever, 2022).

ABGs - **respiratory acidosis**

pH

- Normal range: 7.35- 7.45
- Abnormal value: 7.2

pCO2

- Normal range: 35-45
- Abnormal range: 48

HCO3

- Normal range: 22 to 26
- Abnormal range 20.1

Diagnostic test:

- CXR to help rule out any infection in the lungs, such as pneumonia.

## Demographic Data

### Admitting diagnosis:

Respiratory distress secondary to status asthmaticus.

**Age of client:** 6 years old

**Sex:** Male

**Weight in kgs:** 25.8 kg

**Allergies:** No known allergies

**Date of admission:** 09.07.2022

### Psychosocial Developmental Stage:

Industry vs. Inferiority. Psychosocial development appropriate for age.

### Cognitive Development Stage:

Preoperational Stage. Cognitive development appropriate for age.

## Admission History

The patient is a 6-year-old male with a history of bronchospasms. The patient was admitted with respiratory failure secondary to status asthmaticus. On 09.07.2022 the patient arrived at school showing signs and symptoms of respiratory distress. The school nurse called the family to pick him up and to be brought to the ED for further evaluation. Upon admission, the patient experienced increased work of breathing and diminished breath sounds, including wheezing. The patient was given albuterol. Symptoms mildly improved and the patient was placed on a high flow nasal cannula (10L/32%).

## Medical History

**Previous Medical History:** Asthma, respiratory distress.

**Prior Hospitalizations:** No previous hospitalizations.

**Past Surgical History:** No significant past surgical history.

**Social needs:** Patient's mother is a single parent. Mother has history of using drugs. DCFS is involved with patient. Temporary caregivers are patient's grandparents.

## Pathophysiology (Hinkle & Cheever, 2022) (Capriotti, 2020)

**Disease process:** Status asthmaticus is when the basic characteristics of asthma decrease the diameter of the bronchi. The basic characteristics of asthma include inflammation of the bronchial mucosa, constriction of the bronchiolar smooth muscle, and thickened secretions. The most common of manifestations of status asthmaticus is bronchospasm, with mucus plugging leading to asphyxia. Initially, there is a reduced PaO2 and initial respiratory alkalosis, with a decreased PaCO2 and an increased pH. As status asthmatic worsens, the PaO2 increases and the pH decreases, leading to *respiratory acidosis*. Lab values indicate that the patient is in a respiratory acidotic state.

**S/S of disease:** Signs and symptoms of status asthmaticus are similar to those seen in severe asthma. This includes labored breathing, distended neck veins, prolonged exhalation, and wheezing. As the obstruction worsens, wheezing may disappear; this is usually a sign of impending respiratory failure. The patient showed signs of labored breathing, wheezing, and use of accessory muscles when breathing.

**Method of Diagnosis:** Exacerbation severity can be evaluated by a general assessment of the patient, a physical assessment, and a laboratory evaluation. A pulmonary function test is the most accurate method of diagnosing an acute, severe airway obstruction. If the patient cannot perform a pulmonary function test, arterial blood gas (ABG) measurements and/or pulse oximetry measurements are obtained. ABGs were taken of the patient and showed values indicating respiratory acidosis. Pulse oximetry levels showed 92-93% oxygen saturation, indicating decreased levels compared to a normal oxygen saturation level.

**Treatment of disease:** Nurse management of status asthmaticus is to actively assess the airway and the patient's response to treatment. The nurse should be prepared for the next intervention if the patient does not respond to treatment appropriately. The nurse consistently monitors the patient's vital signs for the first 12 to 24 hours, or until severe exacerbation is resolved. The patient's skin turgor, fluid intake, blood pressure, and cardiac rhythm are assessed and monitored as well. Medications such as corticosteroids are used in therapy for status asthmaticus and to decrease airway inflammation and swelling. Supplemental oxygen and IV fluids are also necessary for the treatment of status asthmaticus. The patient was receiving O2 therapy, was on a bronchodilator, and received corticosteroids for treatment.

## Active Orders

ADT Order

- Admit once (inpatient)

Level of care change

- PACU to PICU

Diet

- General

Respiratory Order

- Albuterol sulfate NEB/5 mg/Q2 hours

VS frequency

- Check Q1 hour; order changed to Q4 hours.

| Assessment                                |   |
|---|---|
| General                                   | The patient is a 6-year-old male. The patient is well groomed and awake. The patient is alert and oriented x4 and appears to be in respiratory distress.  |
| Integument                                | The skin is warm and dry upon palpation. Skin turgor is less than two seconds, normal mobility. There appears to be no rashes, bruises, or wounds. The patient has an IV (20 G) located at left antecubital space. The client capillary refill is less than two seconds between fingers and toes bilaterally, normal assessment finding. <b>Braden score of 10</b> . There are no drains present.   |
| HEENT                                     | The patient's head and neck are symmetrical. Skull is normocephalic. Upon palpation of neck, there are no palpable lymph nodes. There is acuity to regular voices. There is no visible abnormality of ears or palpable deformities. The sclera is white bilaterally. The patient's cornea is clear bilaterally. The patient's conjunctiva is pink bilaterally with no mucus. The patient's EOMs are intact bilaterally and it PERRLA bilaterally the patient's septum is midline. <b>There is bilateral nasal congestion</b> . The client has had no oral/dental surgeries. |
| Cardiovascular                            | Upon auscultation, there are clear S1 and S2 heart sounds without murmurs. <b>The patient is tachycardic</b> . The patient's extremities are pink, warm, and dry. There is no edema, palpated in all extremities. The epitrochlear lymph nodes are non-palpable bilaterally. The patient's pulses are 2+ bilaterally. Capillary refill is less than two seconds between fingers and toes bilaterally.   |
| Respiratory                               | <b>There is accessory muscle use when breathing and the patient is tachypneic</b> . Upon auscultation, lung sounds are clear throughout; anterior and posterior bilaterally. <b>HHNC, RAM cannula at 10L/32% with a consistent 93% oxygen saturation value.</b>   |
| Genitourinary                             | The patient did not void during clinical rotation or time of assessment. Prior to assessment day, the client reports no pain with urination. The patient is not on dialysis. The patient does not have a catheter placed.   |
| Gastrointestinal                          | The patient is on a regular diet. Upon inspection, the patient's abdomen is flat. There are active and normal bowel sounds and no tenderness after palpation of all quadrants. The patient's last BM was on 09.08.2022. There is no pain with defecation. There is no distention, incisions, scars, or wounds visible on the abdomen. There are no drains, ostomy, or NG tube present.  |
| Musculoskeletal                           | <b>The patient has generalized weakness</b> . The patient's arm muscle strength and hip muscle strength are equal bilaterally. ROM is active, but <b>strength is decreased</b> . Cummings Fall Scale score of 3, indicating low risk.   |
| Neurological                              | MAEW present. PERLA present. Strength is equal in the legs and arms bilaterally. The patient is alert and oriented x4, to person, place, time, and situation. The patient's speech is coherent and their sensory is intact. The patient performed pedal-pushes and handgrips with ease.   |
| Most recent VS<br>(highlight if abnormal) | <b>Time:</b> 1034<br><b>Temperature:</b> 37°C<br><b>Route:</b> Oral<br><b>RR:</b> 28 breaths/min<br><b>HR:</b> 135 bpm<br><b>BP and MAP:</b> 105/56 MAP: 79 mm Hg<br><b>Oxygen saturation:</b> 93%<br><b>Oxygen needs:</b> HHNC, RAM cannula 10L/32%  |
| Pain and Pain Scale Used                  | The patient denies any pain. FACES pain scale – pain rated 0.   |

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|--|---|---|
| <p align="center"><b>Nursing Diagnosis 1</b></p> <p>Ineffective airway clearance related to bronchospasms as evidenced by adventitious lung sounds.</p>  | <p align="center"><b>Nursing Diagnosis 2</b></p> <p>Ineffective breathing pattern related to fatigue as evidenced by use of accessory muscles.</p>  | <p align="center"><b>Nursing Diagnosis 3</b></p> <p>Activity intolerance related to airway problems as evidenced by prolonged dyspnea due to an attack.</p>   |
| <p align="center"><b>Rationale</b></p> <p>It is pertinent to clear secretions or obstructions from the respiratory tract to maintain a clear airway and to allow for better breathing.</p>   | <p align="center"><b>Rationale</b></p> <p>It is crucial to assess and treat the patient, as an ineffective breathing pattern can develop into further complications such as pneumonia.</p>  | <p align="center"><b>Rationale</b></p> <p>Understanding the effects of activity on breathing and the need for rest is essential to prevent fatigue.</p>   |
| <p align="center"><b>Interventions</b></p> <p><b>Intervention 1:</b> Administer oxygen, as ordered, to promote oxygenation of cells throughout the body.</p> <p><b>Intervention 2:</b> Assess respiratory status at least every 4 hours or according to established order.</p> | <p align="center"><b>Interventions</b></p> <p><b>Intervention 1:</b> Assess breath sounds and adventitious sounds such as wheezing.</p> <p><b>Intervention 2:</b> Monitor oxygen saturation.</p>                                    | <p align="center"><b>Interventions</b></p> <p><b>Intervention 1:</b> Explain the reason for the need to conserve energy and avoid fatigue to caregiver and the patient.</p> <p><b>Intervention 2:</b> Disturb the patient only when necessary; perform all care at one time instead of spreading out over a period of time.</p> |
| <p align="center"><b>Evaluation of Interventions</b></p> <p>Patient will maintain airway patency as evidenced by clear breath sounds, normal rate of respirations, and improved oxygen saturation levels.</p>  | <p align="center"><b>Evaluation of Interventions</b></p> <p>The patient will maintain an optimal breathing pattern, as evidenced by a normal rate of breathing, absence of dyspnea, and an appropriate oxygen saturation level.</p> | <p align="center"><b>Evaluation of Interventions</b></p> <p>The patient will engage in normal activities with absence of fatigue.</p>   |

(Phelps, 2020)

### References (3):

Capriotti, T. (2020). *Davis Advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F.A. Davis.

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Hinkle, J.L., & Cheever, K. H. (2022). *Brunner & Suddarth's textbook of medical-surgical nursing* (15<sup>th</sup> ed.). Wolters Kluwer Health  
Lippincott Williams & Wilkins.

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