

Fever

Setting: **Emergency Department** Population: **Pediatric**

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Clinical Description

Care of the Emergency Department patient seeking treatment for an elevated body temperature.

Key Information

- Fever is a beneficial physiologic mechanism for fighting an infection; however, the degree of fever does not always correlate to the severity of the presenting illness.
 - Oncology patients and children with febrile neutropenia require prompt evaluation and initiation of antimicrobial therapy. Avoid rectal temperatures in neutropenic patients undergoing cancer therapy.
 - Presence of fever (greater than 38.3 degrees Celsius orally or 2 consecutive measurements greater than or equal to 38.0 degrees Celsius, each lasting over 1 hour) combined with an absolute neutrophil count of less than 500 neutrophils per microliter is a medical emergency. If not treated promptly, rapid deterioration, sepsis and death may result.
 - Do not use ice or cold-water baths to reduce fever. Sponging or tepid baths may not be effective and often cause increased discomfort and shivering.
 - An intervention of “watchful waiting” and parent/caregiver guidance at discharge may be used for uncomplicated fever or infections to promote antibiotic stewardship and minimize unnecessary diagnostic testing. Follow-up will be necessary.
 - A CRP (C-reactive protein) and procalcitonin measurement may provide a better indicator of serious infection than WBC (white blood cell) counts.
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Threats to Life, Limb or Function

- bacteremia
- febrile neutropenia
- infant less than 29 days of age
- meningitis

- petechiae or purpura
 - sepsis
 - sustained fever
 - toxic appearance; severely ill; rapid deterioration
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Clinical Goals

By transition of care

A. The patient will demonstrate achievement of the following goals:

- Goal: Acute Signs/Symptoms are Managed
- Goal: Acceptable Pain Level Achieved

B. Patient, family or significant other will teach back or demonstrate education topics and points:

Correlate Health Status

Correlate health status to:

- history, comorbidity, congenital anomaly
- age, developmental level
- sex, gender identity
- baseline assessment data
- physiologic status
- response to medication and interventions
- psychosocial status, social determinants of health
- barriers to accessing care and services
- child and family/caregiver:
 - health literacy
 - cultural and spiritual preferences
- safety risks
- family interaction

- plan for transition of care
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Fever

Presentation

- chills, rigors
- drowsiness
- elevation in body temperature
- skin flushed
- inability to console
- irritability
- lethargic
- mental status altered
- seizures

Associated Signs/Symptoms

- arthralgia, myalgia
- breath sounds altered
- cough
- cyanosis
- diaphoresis
- diarrhea
- headache
- nuchal rigidity
- peripheral perfusion altered
- petechiae
- poor eating or feeding
- rash
- seizures
- signs of dehydration
- sleep pattern altered
- tachycardia

- tense, bulging fontanel
- urine output decreased
- vomiting
- weak, high-pitched cry
- work of breathing increased

Potential Causes

- central nervous system alteration
- dehydration
- environmental exposure; overdressed or over-bundled
- immune system disorder
- infection or infectious disease
- inflammatory or noninfectious disease
- malignancy
- medication reaction, drug ingestion
- metabolic disorder (hyperthyroid, thyroid storm, adrenal insufficiency)
- preexisting medical condition (autoimmune, rheumatologic disorder, sickle cell)
- vascular inflammation

Initial Assessment

- breath sounds
- feeding pattern
- fluid status
- focal site of potential infection (ears, throat, abdomen, bladder, soft tissue)
- fontanel
- general appearance
- hemodynamic status
- neurologic status
- oxygen saturation
- respiratory rate, pattern, effort
- skin characteristics

History

- allergies
- comorbidities
- immunization status
- last menstrual period (females of childbearing age)
- medications
- birth history (maternal infection, newborn fever or infection at delivery)
- fever onset and pattern
- mental and behavioral changes
- pain presence and location
- recent illness or exposure
- recent procedure or surgery
- recent travel
- treatment prior to presentation

Laboratory Studies

- CBC (complete blood count) with differential
- CRP (C-reactive protein)
- cultures (urine, wound, sputum, joint fluid)
- ESR (erythrocyte sedimentation rate)
- procalcitonin level
- urinalysis

Diagnostics

- chest x-ray

Potential Additional Testing

- abdominal ultrasound
- antigen panel

- ABG (arterial blood gas)
- bilirubin
- bone scan
- chemistry panel
- CSF (cerebrospinal fluid) evaluation
- CT (computed tomography) scan abnormal
- hepatic transaminase enzymes
- nuclear imaging
- pregnancy test (females of childbearing age)
- viral swab

Problem Intervention(s)

Provide Respiratory Support

- Assess and monitor airway, breathing and circulation for effective oxygenation and ventilation; maintain close surveillance for deterioration.
- Maintain open and patent airway with use of positioning, airway adjuncts and secretion clearance.
- Position to minimize the risk of aspiration, ventilation/perfusion mismatch and breathlessness.
- Minimize oxygen consumption and demand.
- Provide oxygen therapy judiciously; titrate to prevent hyperoxemia.
- Implement noninvasive or invasive positive pressure ventilation to support oxygenation and ventilation, as well as relieve respiratory distress.

Monitor and Manage Fluid and Electrolyte Balance

- Assess fluid status; provide oral or intravenous fluid therapy.
- Monitor intake, output and laboratory value trends.
- Evaluate patient response; advocate for adjustment in treatment with imbalance.

Minimize and Manage Infection

- Assess for presence of infection and signs of early sepsis.
- Initiate precautions to prevent the spread of infection.
- Assist with a complete septic work up in infants and children presenting with serious illness or condition.

- Obtain cultures prior to initiation of antimicrobial therapy, when possible.
- Anticipate antimicrobial therapy administration; do not delay in the presence of high suspicion or clinical indicators.
- Anticipate hospitalization for life-threatening illness, if source of fever is not determined or the patient is immunocompromised.

Promote Comfort and Manage Pain

- Use a consistent pain assessment tool; evaluate pain and treatment response at regular intervals.
- Involve patient and family in the management plan.
- Provide nonpharmacologic strategies, such as adjusting room temperature, removing excess clothing, blankets and providing oral care.
- Consider pharmacologic measures, such as an analgesic or antipyretic agent.
- Anticipate aggressive treatment of fever in children with limited cardiopulmonary or metabolic reserve.

Facilitate Procedures

- Initiate and maintain NPO (nothing by mouth) status.
- Prepare for or assist with procedure to determine source of fever, such as lumbar puncture, ear examination, pelvic examination, urinary catheterization or suprapubic tap.
- Anticipate and prepare for surgical intervention.

Teaching Focus

- symptom/problem overview
- risk factors/triggers
- self-management
- assistive device
- diagnostic test
- diet modification
- medical device/equipment use
- medication administration

- opioid medication management
 - orthopaedic device
 - safe medication disposal
 - smoking cessation
 - wound care
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Population-Specific Considerations

Forensics and Legal

- Utilize local, state/province, federal requirements and hospital policy and protocols to manage patient care involving forensics, protective services, workman's compensation and mandatory reportable events and illness.

Human Trafficking

- Human trafficking victims most frequently seek healthcare services from Emergency Departments. Healthcare professionals, alert to signs of trafficking, can guide supportive care for victims.
- Trafficked individuals may be male or female and engaged in sex work or other forced labor. High-risk signs requiring more direct questioning about exploitation include, among others, current employment in a high-risk industry, prior sexually transmitted infections, recent immigration and other vulnerable and minority populations, as well as children who are homeless, runaways or in foster care.

Age-Related

- Neonates are less able to dissipate heat than older infants.
- Infants less than 29 days of age presenting with fever should have a complete sepsis work-up, followed by hospitalization and antimicrobial therapy, until culture readings are finalized.
- Seizures related to fever generally occur between 5 months and 5 years of age; peak incidence is between 8 and 20 months of age. They are related to how rapidly a temperature rises, rather than from the actual temperature value.

Pregnancy

- Beyond 20 weeks gestation, supine position should be avoided. Maternal position should be lateral or lateral tilt to prevent compression of the inferior vena cava and aorta by the pregnant uterus.
- Maternal stabilization and resuscitation are the primary priorities.

- Assessment of fetal status, a secondary assessment, should include fetal heart rate, contraction activity and presence of maternal-fetal hemorrhage.
- Maternal overheating during pregnancy can also result in fetal overheating. Congenital anomalies can result, particularly in the first trimester.
- There is a higher risk for volume depletion due to heat stress during pregnancy.

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