**Fever: Managing Fever in Older Adults**

**What is Involved in the Management of Fever in Older Adults?**

Fever (also called pyrexia) is a regulated rise in core body temperature in response to stimuli such as infection (e.g., viral, bacterial, fungal), inflammation, drug reactions, tumors, autoimmune diseases, and vascular occlusive diseases.

- **What:** The main goal of fever management is to normalize the patient’s body temperature by providing appropriate treatment.
- **How:** Treatment of fever involves noninvasive measures. Over-the-counter antipyretic medications such as aspirin, acetaminophen, or ibuprofen are administered to lower a patient’s temperature. Nonpharmacologic fever-reducing measures include tepid sponge baths, dressing the patient in lightweight clothing, and external cooling interventions such as applying cool compresses to the patient’s forehead, wrists, and/or other body sites. A cooling blanket might be appropriate for use in some patients with very high fevers. When these nonpharmacologic interventions are used, it is important to supervise the patient carefully to avoid causing shivering, which can increase core body temperature.
- **Where:** Fever management in older adults can be performed in inpatient, outpatient, and home settings.
- **Who:** Fever management can be performed by healthcare clinicians (e.g., nurses, physicians) and by appropriately trained family members. Although assistive staff members cannot provide antipyretic medication, they can assist with some nonpharmacologic treatment measures, such as dressing the patient in light clothing. It is appropriate for family members to be present during fever management in the hospital because they might need to continue management of the patient’s fever at home.

**What is the Desired Outcome of Management of Fever in Older Adults?**

The desired outcome of fever management in older adults is to improve patient comfort and to reduce the risk of medical complications due to very high body temperature.

**Why is Management of Fever in Older Adults Important?**

- Human cells function best at normal body temperature.
- Fever can cause dehydration and hypernatremia, which are associated with a poor prognosis in older patients with acute febrile illnesses.

**Facts and Figures**

- Up to one half of all older adult patients who develop serious infections while in long-term care facilities do not have temperatures high enough to meet the general definition of fever in adults (High et al., 2009).
- Researchers in a study involving 270 frail older patients with acute febrile illness found an increased mortality rate among those who developed dehydration and hypernatremia. This increase was not related to the magnitude of the hypernatremia, advanced age, the patient’s sex, or coexisting changes in plasma potassium levels (Arinzon et al., 2005).
What You Need to Know Before Management of Fever in Older Adults

Normal body temperature varies with patient age. In younger adults, fever is defined as a core body temperature of 102.0 °F (38.9 °C). However, because of the reduced ability of older adults to mount a fever response, fever in older adults is defined as:

• a single oral temperature > 100 °F (37.8 °C), or
• repeated oral temperatures > 99.0 °F (37.2 °C) or rectal temperatures > 99.5 °F (37.5 °C), or
• an increase in temperature of > 2 °F (1.1 °C) over the patient’s usual body temperature

Fever is most often caused by viral or bacterial infections, autoimmune diseases, and mass lesions. Less common causes include heat exhaustion, dehydration, drug toxicity, allergic reactions, and neurological injury. Fever is also seen in patients with cancer, pulmonary embolism, deep vein thrombosis, atelectasis, transfusion reactions, and other life-threatening medical conditions. Fever occurs in patients with severe tissue trauma (e.g., crush injury).

• Fever is one of the body’s protective mechanisms because an increase in body temperature of as little as (1.1 °C) 2 °F can make bacteria and viruses less able to reproduce. The presence of fever also enhances the body’s immune response.
• Because fever is part of the body’s normal defense against infection, clinicians may opt not to treat mild fever in some older patients who are otherwise healthy. These patients are observed closely and reevaluated if they develop additional symptoms and/or their temperature increases.
• Fever management may be delayed or minimized in patients with systemic bacterial infections or some other serious conditions in order to allow for monitoring the progression of the illness and the patient’s response to treatment. In addition, some antipyretic agents can have adverse effects in older patients.
• Fever should not be confused with hyperthermia, which is an unregulated rise in body temperature caused by the overproduction of heart or an inability to dissipate heat satisfactorily.

The evaluation and definition of fever in older adults is different from that in younger adults. As individuals become older and more frail, basal body temperature decreases making it less noticeable when a person’s temperature becomes elevated.

• Older adult patients who develop serious infections while in long-term care facilities may not have temperatures high enough to meet the general definition of fever in adult. Older patients with even mild temperature elevations (measured by comparison to their usual temperature) should be carefully observed for other symptoms that may indicate illness.
• The accuracy with which fever is determined depends on the method of temperature measurement. Rectal temperature is the most accurate reflection of a patient’s core body temperature (i.e., the temperature in the parts of the body that contain vital organs [e.g., brain, heart, liver, and kidneys]), but is rarely measured in adult patients. Core body temperature is therefore usually deduced from oral, axillary, or tympanic temperature measurements.
  – Oral temperature measurement is convenient for most patients and is the preferred method for assessing body temperature in older adults. Normal oral temperature is typically 96.8–99.3 °F (36–37.4 °C) and is typically 0.9 °F (0.5 °C) lower than rectal temperature.
  – Axial temperature measurements are typically 0.9 °F (0.5 °C) lower than oral temperature; this method of temperature measurement is appropriate for patients who are confused or unable to hold a thermometer in their mouth.
  – Tympanic temperature measurements are even less accurate.
  – For information on measuring body temperature by oral, axillary, tympanic and rectal routes, please see the series of related Nursing Practice & Skill papers.

• Fever increases the risk for agitation in older adult patients and can aggravate any pre-existing neuropsychiatric dysfunction and cognitive impairment or conditions that are commonly found in frail older adults.

Necessary nursing skills/areas of nursing knowledge include the following:
• Assessment of vital signs and identification of potential causes of fever.
• Knowledge of pharmacologic and nonpharmacologic fever reduction strategies.
• Ongoing patient monitoring.

Preliminary steps that should be performed before initiating fever management strategies in older adults include the following:
• Review the facility/unit specific protocol for fever management in older adults, if one is available.
• Review the treating clinician’s order for fever management.
  – Note any laboratory tests to be ordered prior to giving antipyretic medication.
  – Determine if fever management is to be delayed or minimized to help monitor the patient’s medical condition and response to treatment.
• Verify completion of facility informed consent documents.
How to Manage Fever in Older Adults

› Perform hand hygiene and don nonsterile gloves and other PPE, as appropriate
› Identify the patient according to facility protocol
› Establish privacy by closing the door to the patient’s room and/or drawing the curtain surrounding the patient’s bed
› Introduce yourself to the patient and family member(s), if present; explain your clinical role; assess the coping ability of the patient and family and for knowledge deficits and anxiety regarding fever management in older adults
› Determine if the patient/family requires special considerations regarding communication (e.g., due to illiteracy, language barriers, or deafness); make arrangements to meet these needs if they are present
   – Use professional certified medical interpreters, either in person or via phone, when language barriers exist
› Explain the procedure for fever management in older adults and its purpose; answer any questions and provide emotional support as needed
› As appropriate, ask family members and other visitors to leave the patient’s room in order to promote privacy
› Assess the patient’s general health status, including his/her pain level using a facility-approved pain assessment tool
› Identify the range of normal temperature for the individual patient
› Assess the patient’s vital signs according to facility protocol to evaluate the effect of previous interventions for fever management and identify whether fever is still present
› Verify that the patient has not consumed hot or cold liquids for 20–30 minutes prior to taking the patient’s temperature
› If fever is present, provide antipyretic medications as indicated by the clinician’s orders
› Provide nonpharmacologic comfort measures (e.g., cool oral fluids and/or giving the patient a sponge bath with tepid water)
   • Note: Never use rubbing alcohol for sponge baths, as this can cause toxicity due to absorption of the alcohol through the skin and may promote skin breakdown (for more information on sponge baths, see Nursing Practice & Skill … Bathing the Adult)
› Assist the patient into lightweight clothing for comfort. Provide a bed sheet and/or light blanket rather than standard bed linens to avoid overheating the patient
› Recheck the patient’s body temperature in 30 minutes
   • The temperature should be decreased if the antipyretic intervention was successful
   • Continue nonpharmacologic comfort measures as needed
   • Administer the antipyretic medication per protocol or clinician’s orders if the fever persists
› Dispose of used materials in proper receptacles and perform hand hygiene
› Update the patient’s plan of care, if appropriate, and document fever management in the patient’s medical record, including the following information:
   • Date and time the fever management interventions were performed
   • Description of the fever management interventions performed
   • Patient assessment findings, such as
     – level of pain
• Cognition level
• Vascular condition and for any signs and symptoms of infection
• Laboratory specimens collected and sent for analysis
• Patient’s response to the fever management interventions
• Any unexpected patient events or outcomes, interventions performed, and whether or not the treating clinician was notified
• Patient/family member education, including topics presented, response to education provided/discussed, plan for follow-up education, and details regarding any barriers to communication and/or techniques that promoted successful communication

Other Tests, Treatments, or Procedures That May Be Necessary Before or After Management of Fever in Older Adults
› Reassess the patient’s vital signs at least every 4 hours or according to facility protocol in order to monitor body temperature and effectiveness of antipyretic treatment
› In addition to controlling the fever, the treating clinician will evaluate the patient to identify the cause of the fever using information from the patient’s history, physical examination, and laboratory testing
› Evaluation of the cause of the fever might include an X-ray to help identify lung infection; microbial culture of blood, urine, cerebrospinal fluid, and/or other body fluids to identify other possible sites of infection. If a bacterial infection is diagnosed, antibiotic sensitivity testing may be performed to identify the antimicrobial agent most effective in fighting the infection. If so, specimen collection for laboratory testing will be necessary

What to Expect After Management of Fever in Older Adults
› The underlying cause of the fever will be successfully identified and treated
› If the fever was caused by a self-limiting condition such as mild viral infection, the fever will resolve spontaneously after appropriate supportive care

Red Flags
› Very high body temperature (> 106 °F [41.1 °C]) is a medical emergency as it can cause irreversible protein denaturation that results in brain damage, and life-threatening consequences such as cardiovascular collapse. Patients with a temperature this high should be treated immediately with fluid therapy and cooling measures such as cooling blankets. Prepare to administer cardiopulmonary resuscitation to an older patient under these circumstances in case cardiac arrest occurs
› Serious infection can develop in older patients without the presence of fever. Infection should be suspected in any older person who experiences rapid changes in functional status, including the following:
  • New or increasing confusion
  • Incontinence
  • Falling
  • Deteriorating mobility
  • Reduced food intake
  • Inability to cooperate with spoken instructions
› Fever must be treated aggressively if it is present without apparent cause. If this occurs, the treating clinician will perform a detailed evaluation that includes the following:
  • Clinical evaluation will include assessment of respiratory status, hydration status, mental status, conjunctiva, the skin (including sacral, perineal, and perirectal areas), the heart, the abdomen, and the integrity and condition of indwelling devices (if present)
  • Typical laboratory testing includes
    – CBC with differential cell counts
    – Blood cultures
    – Urinalysis and urine culture
    – Chest X-ray
  • Patients with severe pressure sores may require evaluation of bone specimens to screen for osteomyelitis (i.e., bone infection). Microbial culture may be necessary to guide antimicrobial therapy if osteomyelitis is present

What Do I Need to Tell the Patient/Patient’s Family?
› Educate the patient and/or family members about the steps of fever management. Explain that treatment of fever, especially low-grade fever, may not be necessary or desirable in some cases
If the patient will be cared for at home, educate the family about how to use a thermometer by the route(s) appropriate to measure the patient’s temperature at home. Confirm their understanding of these method(s)

It is important to explain that tympanic temperature readings may under- or overestimate core body temperature by as much as 3 °F (1.7 °C), so temperatures detected by this method should be reevaluated by other methods of temperature measurement

If the patient will be cared for at home, explain how the family can contact the treating clinician if fever increases, additional signs and symptoms develop or worsen, or other questions arise

Note

Recent review of the literature has found no updated evidence on this topic since previous publication on December 12, 2014

References