

FUO: What to Know About a Fever of Unknown

of Unknown

One of the most common physical examination abnormalities documented in dogs and cats is an elevated body temperature. Sometimes a fever persists for weeks or intermittently recurs, and diagnostic testing fails to yield a definitive diagnosis. Such fevers are called fevers of unknown origin or FUO. This week I've dedicated some time to explaining this clinical entity in attempt to increase awareness. Happy reading!

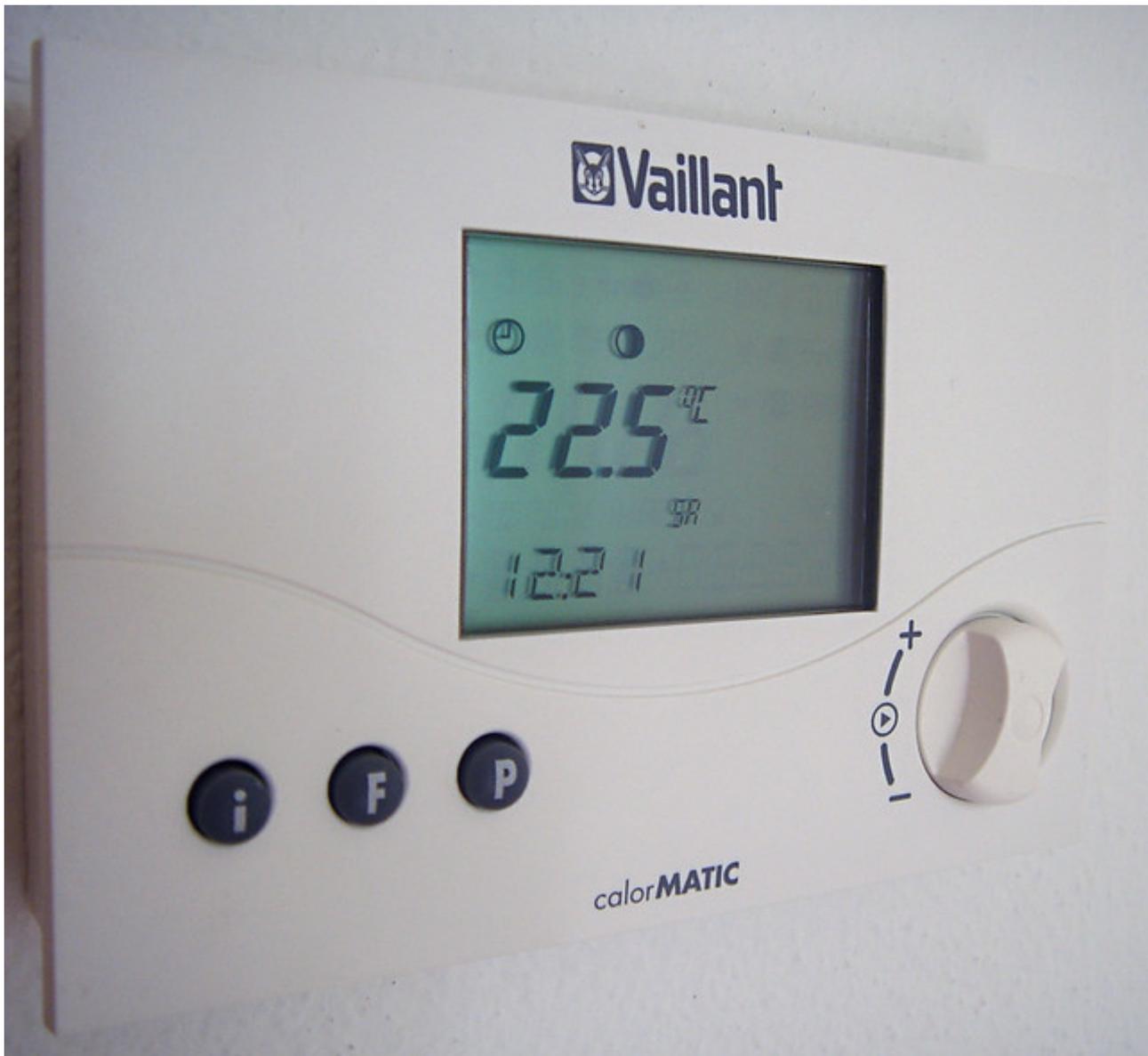


FUO - What is it?

The normal body temperature for dogs and cats is generally accepted as 101.5°F

+/- 1.0°F (38.1°C-39.5°C). A fever is an abnormally elevated body temperature. The medical term for fever is pyrexia. Fever is not a specific disease but rather is a clinical sign the body is reacting to inflammation. A fever of unknown origin or FUO is an abnormal elevation of body temperature that lasts more than three weeks or recurs intermittently. Frustratingly, diagnostic tests don't identify the cause of the fever. To fully understand FUO, one must have a basic understanding of how a fever develops.

Just like your home, the body of a dog and cat has an internal thermostat - this is called the hypothalamus. It's a small part of the brain that responds to both internal and external stimuli to keep the body's temperature within about a degree of 101.5°F. This process of temperature control is called thermoregulation. The hypothalamus is very sensitive and receives two signals. The first signal is from nerves that transmit information from warm and cold receptors in the skin. The second signal is the temperature of blood circulating in the small vessels surrounding the hypothalamus.



The body secretes into the blood special chemicals called cytokines in response to inflammation. A common basis for inflammation is infection (i.e.; bacterial, viral, fungal, parasitic, etc.), but other possible causes include drug reactions and immune-mediated conditions. When cytokine-laden blood reaches the hypothalamus, the cytokines induce the release of another chemical called prostaglandin E2 that triggers a series of events causing the hypothalamus to raise the body's set point temperature. In other words, the thermostat is turned up, and this, by definition, is a fever. Infectious organisms (or parts of them) circulating in blood can similarly cause the same chain of events to induce a fever.

How is body temperature measured?

Documenting an elevated body temperature in dogs and cats is relatively straightforward. The traditional method for measuring body temperature in dogs and cats is via the rectum using a standard mercury or digital thermometer. Many pet parents ask about alternative ways to obtain body temperature due to a desire to stay away from their pet's derriere. Measuring body temperature via the ear (called auricular or tympanic membrane temperature) has been studied, but studies have shown a clinically unacceptable difference between auricular and rectal temperatures. Other studies have consistently shown axillary (armpit) body temperatures were similarly inferior to rectal ones. Thus, at this time, rectal temperatures remain the gold standard for measuring body temperature in dogs and cats.



FUO - How is it diagnosed?

In contrast to documenting an elevated body temperature, determining the cause of pet's fever can be quite challenging and anything but straightforward. Pet parents should be prepared for a veterinarian to recommend a series of logical diagnostic tests to get to the bottom of their pet's fever. Testing may include:

- Complete blood count (CBC)
- Serum biochemical profile (CHEM)
- Urinalysis (UA) & urine culture
- Viral screening in cats (i.e.: feline leukemia/FeLV, feline immunodeficiency virus/FIV, feline infectious peritonitis/FIP)
- Infectious disease screening on blood (i.e.: vector-borne diseases, uncommon bacterial diseases, fungal organisms)
- Tests to check the health of the immune system
- Diagnostic imaging (i.e.: chest, abdominal & joint radiographs/x-rays, [abdominal sonography](#), echocardiography)
- Bone marrow sampling
- Cerebrospinal fluid sampling for cytology, culture, and infectious disease tests
- Lymph node sampling
- Joint fluid sampling for cytology & culture
- Blood culture

Pet parents will likely find it helpful to partner with a board-certified veterinary internal medicine specialist to develop a logical & cost-effective diagnostic plan. Unquestionably, determining the cause of a patient's FUO can be time- and resource-consuming so patience from all on a pet's healthcare team is certainly appreciated.

FUO - How is it treated?

The most effective treatment of an FUO is identifying the cause of a pet's fever and treating that! Easier said than done! Sometimes one simply can't identify the

cause, and empirical or “best guess” therapy may be needed. As such, a veterinarian may recommend trial therapy with antibiotics, antifungal drugs, and/or anti-inflammatory medications. Debilitated patients may require hospitalization, nutritional support, and intravenous fluid therapy. Please note you should *never* administer anti-inflammatory medications meant for humans (i.e.: [acetaminophen/Tylenol](#), aspirin, ibuprofen) as these medications may be quite toxic to both dogs and cats.

The take-away message...

Fevers of unknown origin or FUOs can be frustrating to definitively diagnosis and treat. A thorough diagnostic investigation is required, an endeavor that can be costly and may not yield immediately identify an underlying cause. If a treatable disease is ultimately diagnosed, the prognosis is generally good.

To find a board-certified veterinary internal medicine specialist, please visit the [American College of Veterinary Internal Medicine](#).

Wishing you wet-nosed kisses,

CriticalCareDVM

