The Cute, The Bad & The Ugly of Pediatric Fever
How bad is it?

Do healthcare providers over-react or under-react to pediatric fever?

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Fever

The reason for 1 in 5 ED and office visits for kids.
Goal

Patient Outcome/Patient Comfort
Fever is a dangerous medical condition!
Fever can fry the brain!
Fever can predict outcome!

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Pathophysiology

The Body's Thermostat is the Hypothalmus

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Pathophysiology

What temp indicates Fever?
What is a normal temp?
What is a normal BP?
Pathophysiology

Normal Range 35.6 (96.0) – 38.2 (100.8)

FEVER = Rectal temperature >38°C (100.4°F)
FEVER = Oral temperature >37.2°C (99.0°F)

Pathophysiology

Pyrogens
Exogenous
Endogenous
Pathophysiology

Exogenous Hyperthermia

Hot environment
Trauma / Surgery
Medications / Poisoning

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Pathophysiology

Pathogens

Bacteria
Viruses
Fungi
Parasites
Pathophysiology

Common Bacterial Illnesses:
Otitis Media
Urinary Tract Infections
Appendicitis
Pharyngitis
Sinusitis
Pathophysiology

Common Viral Illnesses:
Gastroenteritis
Upper Respiratory Infections
Bronchiolitis

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Pathophysiology

Immune Response

Pathogen invades.

Pathogen releases endotoxins.

Endotoxins attract macrophages.

Macrophages eat the pathogens.

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Pathophysiology

Fever Response

Macrophages exude cytokines.

Cytokines (through a series of chemical reactions) resets hypothalamus.

More difficult for temperature sensitive pathogens to replicate.

Increases activity & mobility of macrophages and immune system.

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Seizures
Sepsis
Special Kids
Butt wait.
There’s more...
Seizures
Febrile Seizure vs Seizure with Fever
Seizures

They’re more scary than dangerous. Most resolve without anticonvulsants. Not all seizures with fever are febrile seizures. Kids with seizure disorders tend to have more seizure when febrile. Even well controlled kids may be "reset" when febrile.
Seizures

Treatment for Seizure with Fever?
Treatment for Febrile Seizure
Febrile Seizures

6 mo – 3 yrs, median 18-22 mo.
85% of all F.S. last for <15 min and don’t recur within 24 hrs.
1/3 will have recurrence of F.S.
Simple F.S. are generalized tonic-clonic with brief post-ictal period.
Complex or atypical F.S. can be focal, atonic, or prolonged.
There is no set Seizure temp. Even with the same child. Dropping temp neither stops nor prevents seizures. F.S. has a genetic component.
Sepsis

Infection Triad
Tachycardia, Tachypnea, Fever
SIRS
More Sx
AMS, Cap Refill ↑ or ↓, Bounding Pulses, Cool Extremities, Rash
Cellular Hypoxia / Lactic Acidosis
MODS
Death
Special Kids

Immunocompromised
Immunotherapy
Chemotherapy
Steroids
AIDS
Special Kids

Sickle Cell
Cystic Fibrosis
Poor Respiratory Function
Poor Cardiac Reserves
Significant Burns
Liver or Splenic dysfunction

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Special Kids

Under 3 months old

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PEDIATRIC ASSESSMENT

Critical = QUICK

Not Critical = Not QUICK

Adapted from the AAP’s Pediatric Education for Prehospital Professionals (PEPP) course. www.PEPPsite.com
General Appearance

Tone
Interactiveness
Consolability
Look/gaze
Speech/cry

Are they with it or out of it?
Work Of Breathing

Work
Abnormal Sounds
Retractions
Extreme Nasal Flaring

Are they fighting for air?
Circulation to Skin

Temperature - Skin
Time - Capillary Refill
Pulse

Are they compensating?
Recent infections from parents / caregivers, siblings / peers, recent hospital stays, antibiotic use, fever reducer, immunization status.
History

Food & Fluid Intake

Food & Fluid Output
History

Sickle Cell
Cystic Fibrosis
Poor Respiratory Function
Poor Cardiac Reserves
Significant Burns
Liver or Splenic dysfunction
Indwelling devices
Exam

Respiratory Distress

Grunting
Stridor
Nasal flaring
Retractions
Barking
Skin
Temperature
Fontanel
Pale / Cyanotic
Cap Refill Time
Rash

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Vitals

PAT
BP, Pulse, Resp. out of range
SpO2 < 94%
etCO2 < 32
Glucose < 60
Temp > 100.4

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• Gold standards are rectal temp for children.
• Oral for older children and adults.
• Axillary temps are not reliable for temp.
• There is no reliable conversion factor for axillary vs rectal temps 0.6°C (1.0°F)
• Tympanic thermometry is technique-dependent.
• There is no reliable tympanic conversion.
• Infrared temporal artery (TA) thermometry is only slightly better than tympanic.
Treatment

ABC
Treatment

Reasons to Treat Fever

Interferes with activities

Patient Comfort

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Parent Comfort
Treatment

Trying to drop body temp while pt. is shivering is no good.
Passive Cooling: Exposure
Active Cooling: Water

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Treatm**ent**

**Tylenol** or Motrin

Approx 30 minutes

Until they feel better, not until afebrile

Not Aspirin!

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Treatment

Fluids
20cc/kg
Glucose
>60

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Pediatric Fever

The Bad

Except when it is!
Pediatric Fever

The Ugly
So we have to know the difference.