

Understanding the relative importance of  
different causes of illness among adults and  
children with fever attending health care  
services at



Presented By:

**Prof. Shally Awasthi**

Department of Pediatrics

King George's Medical University

Lucknow Uttar Pradesh, India

# Background

- **Fever**, also known as **pyrexia** and **febrile response**, is defined as having a temperature above the normal range due to an increase in the body's temperature set point
- There is not a single agreed-upon upper limit for normal temperature with sources using values between 37.5 and 38.3 °C (99.5 and 100.9 °F)
- The increase in set point triggers increased muscle contractions and causes a feeling of cold
- This results in greater heat production and efforts to conserve heat
- When the set point temperature returns to normal, a person feels hot, becomes flushed, and may begin to sweat
- Rarely a fever may trigger a febrile seizure
- This is more common in young children
- Fevers do not typically go higher than 41 to 42 °C (105.8 to 107.6 °F)

# Causes

- A fever can be caused by many medical conditions ranging from non serious to life threatening
- This includes viral, bacterial and parasitic infections such as the common cold, urinary tract infections, meningitis, malaria and appendicitis among others.
- Non-infectious causes include vasculitis, deep vein thrombosis, side effects of medication, and cancer among others
- It differs from hyperthermia, in that hyperthermia is an increase in body temperature over the temperature set point, due to either too much heat production or not enough heat loss

# Evidence of causes of Fever

## **Children < 5 years of age in outpatient settings:**

- In four studies conducted in Dar es Salaam, Ifakara, Zanzibar and Karachi, 12%, 9%, 1% and 0.4% of fevers were due to malaria, 49%, 76%, 84% and 47% to ARIs and 9%, 12%, 14% and 23% to gastroenteritis (diarrhoea), respectively
- The remaining children had nonspecific fevers with no clinical sign of localized infection, except for 1% children with skin infection and < 0.5% with meningitis
- Only  $\leq 25\%$  of cases of ARI corresponded to clinical pneumonia (WHO definition) and about 5% to radiologically confirmed pneumonia. Most ARIs of all types were due to viruses (mainly influenza and respiratory syncytial viruses)
- The causes of nonspecific fever included a variable prevalence of typhoid (2–10%), a low prevalence of urinary tract infection (1–6%) and a very low prevalence of occult bacteraemia (2%)

## **Children $\geq$ 5 years and adults:**

- Severe febrile illness in admitted patients is often associated with HIV-related infections in countries with generalized HIV epidemics: 39% of febrile patients admitted in northern United Republic of Tanzania were HIV-positive, while the prevalence in the community is only 3–4%
- Malaria was found in 2% of inpatients in northern United Republic of Tanzania, 32% of outpatients in Cambodia and 4% of outpatients in the Lao People's Democratic Republic
- In adult outpatients in Cambodia, 80% of malaria-negative patients had upper respiratory tract infection and 0.6% lower respiratory tract infection

## Site capacity description

Laboratory	Availability	Equipment type	Numbers performed per month
<b>Blood culture</b>	Yes	BACT/ALERT-30	701
<b>CSF cultures</b>	Yes	INCUBATOR (37C)+ 3 /BOD 211	348
<b>Other microbiological cultures</b>	Yes	INCUBATOR (37C)+ 3/BOD 211	Pus=536,Urine=964,Sputum=117,Stool=20
<b>Realtime PCR For pathogen detection</b>	Yes	Applied Biosystem 96 wells/7500 Real Time PCR	96 samples in one time
<b>Centrifuge</b>	Yes	Thermo scientific/FRESZ021	24 samples in one time

<b>CLINICAL</b>	<b>Answer</b>
Hospital level: Primary, Tertiary, Secondary (specify)	Tertiary
In-patients and outpatients average admissions per months- stratified by age (if possible)	Admissions 8000-10000 new patients daily.
Hospital number of beds	4400

**Country –India**

**Hospital Name: King George`s Medical University**

**Catchment area: IPD**

**YEAR 2017**

Age / Cases	< 1 y		1 to 5 y		5 to 15 y	
	No of Cases	% Male	No of Cases	% Male	No of Cases	% Male
	<b>Acute undifferentiated fever (acute fever without any localizing signs)</b>	0	0	2	0	11
<b>Fever with ARDS: Acute onset fever with respiratory distress</b>	119	47	150	78	242	83.40%
<b>Febrile encephalopathy / Acute encephalitic syndrome</b>	86	62.7	94	44.6	359	70.70%
<b>Fever with multiorgan dysfunction</b>	332	72	82	62	122	78.60%
<b>Fever with Gastrointestinal symptoms</b>	66	40	20	85	28	92.80%
<b>Total</b>	<b>603</b>		<b>348</b>		<b>762</b>	



Cases / Year	2017		2016		2015	
	No of Cases < 5 y	No of Cases > 5 y	No of Cases < 5 y	No of Cases > 5 y	No of Cases < 5 y	No of Cases > 5 y
<b>Acute undifferentiated fever (acute fever without any localizing signs)</b>	3	7	3	6	1	8
<b>Fever with ARDS: Acute onset fever with respiratory distress in the form of SpO2 &lt;90% at room air or frank ARDS with PaO2/FiO2 ratio &lt;200.</b>	506	200	441	178	418	169
<b>Febrile encephalopathy / Acute encephalitic syndrome</b>	288	365	265	317	275	364
<b>Fever with multiorgan dysfunction</b>	224	61	221	48	213	68
<b>Fever with Gastrointestinal symptoms</b>	54	14	50	13	66	24
<b>Totals</b>	1075	647	980	562	973	633