

## THERE IS NO NEED TO LOWER A FEVER!

No doubt you are well aware that there is evidence for and against the use of drugs that lower fever. For mild infections, it doesn't matter much. A bit of temporary relief might be worth it even if the illness continues a bit longer as a result. But for infections that are potentially life-threatening the evidence weighs in against any antipyretic treatment. And inaccurate concerns by the public about the perceived danger of fever are a major drive for requests for health advice.

Here is a quick summary of the evidence:

**Antipyretic drugs increase mortality** from influenza in animal studies: pooled odds ratio 1.34 (1.04 - 1.73) (Eyers 2010).

**Antipyretic drugs inhibit antibody production in humans.** Bancos 2009. There is a reduced response to immunisation if paracetamol is given routinely (e.g. Das 2014, Department of Health Green Book, chapter 8).

**Reducing fever may increase transmission of infections.** Population-level effects of suppressing fever (Earn 2014).

**Bacterial and viral replication can be suppressed by fever.** Dixon 2010. Eyers references 34-37.

**Fever has been used to treat 'untreatable' infections in the past.** Julius Wagner-Jauregg won the Nobel prize for this in 1927, but with the advent of effective antibiotics, his legacy has been forgotten.

**For children the primary goal of treating the febrile child is to improve the child's comfort rather than the normalization of body temperature. Antipyretic use does not prevent febrile seizures.** Sullivan 2011, Rosenbloom 2013.

**In serious infection, high fever is associated with lower mortality.** See this study of 914 adult patients hospitalised with bacterial infection (Yamamoto 2016):

Temperature on admission (° C)	Mortality rate (%)
<36	32.5
36-36.9	14.1
37-37.9	8.7
38-38.9	8.2
39-39.9	5.7
≥40	5.3

Further evidence is cited in the useful **summary** by El-Radhi 2012.

**Please can we get a clear message out to the public that there is no need to lower a fever?**

## References

[Bancoş](#), S., Bernard, M.P., Topham, D.J. and Phipps, R.P., 2009. Ibuprofen and other widely used non-steroidal anti-inflammatory drugs inhibit antibody production in human cells. *Cellular Immunology*, 258(1), pp.18-28.

[Das](#), R.R., Panigrahi, I. and Naik, S.S., 2014. The effect of prophylactic antipyretic administration on post-vaccination adverse reactions and antibody response in children: a systematic review. *PLoS One*, 9(9).

[Department of Health](#) (accessed 19/3/2020). *Immunisation against Infectious Disease*, chapter 8 page 56

**Dixon**, G., Booth, C., Price, E., Westran, R., Turner, M. and Klein, N., 2010. Part of beneficial host response?. *BMJ: British Medical Journal (Online)*, 340.

**Earn** D, Andrews P, Bolker B. 2014. Population-level effects of suppressing fever. *Proc Biol Sci.* 2014; 281(1778):20132570.

**El-Radh**, A.S.M., 2012. Fever management: Evidence vs current practice. *World Journal of Clinical Pediatrics*, 1(4), p.29.

**Eyers S**, Weatherall M, Shirtcliffe P, Perrin K, Beasley R., 2010 The effect on mortality of antipyretics in the treatment of influenza infection: systematic review and meta-analysis. *J Roy Soc Med.* 2010; 103(10): 403–11.

**Rosenbloom**, E., Finkelstein, Y., Adams-Webber, T. and Kozer, E., 2013. Do antipyretics prevent the recurrence of febrile seizures in children? A systematic review of randomized controlled trials and meta-analysis. *European Journal of paediatric Neurology*, 17(6), pp.585-588.

**Sullivan**, J.E. and Farrar, H.C., 2011. Fever and antipyretic use in children. *Pediatrics*, 127(3), pp.580-587.

**Yamamoto**, S., Yamazaki, S., Shimizu, T., Takeshima, T., Fukuma, S., Yamamoto, Y., Tochitani, K., Tsuchido, Y., Shinohara, K. and Fukuhara, S., 2016. Body temperature at the emergency department as a predictor of mortality in patients with bacterial infection. *Medicine*, 95(21).