



Heat-related illness in children and adolescents from 0-18 years undergoing intensive care treatment

Aims: The primary goal of this study is to estimate the incidence of heat- and humidity- related illness in newborn, infants, children and adolescents. Along with direct effects of heat and humidity leading to heat cramps, syncope, exhaustion and heat stroke, heat can also exacerbate chronic medical conditions in children.

As a second aim, this study intends to assess risk factors on the health impacts of heat exposure such as e.g. socioeconomic status or comorbidities, leading to a higher vulnerability, that needs to be addressed adequately in future adaptative processes and measures on child health.

Study centre:

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Study duration: 3 years; Starting date: 07/2022

Background: Anthropogenic climate change has tremendous and wide-ranging impact on human health. Especially young children are most vulnerable to the still scarcely researched effects of climate change on child health. The Lancet Countdown on Climate Change and Health recently emphasized the current and future high risk and rising burden of heat-wave exposure on especially children under 1 year, showing high rates on heat related mortality. No research has yet described with primary data the incidence of children suffering from heat related illness. This knowledge gap is crucial when it comes to addressing child health specific adaptation measures adequately to reduce vulnerability and hence decrease heat related impact on child morbidity and mortality. (1-4)

Questions:

1. Estimation of the incidence of heat related illness in children from 0 – 18 years, undergoing intensive care treatment

2. Primary health outcome in terms of morbidity and mortality

Case definition:

Children from 0 to 18 years with following diagnoses:

- intensive care treatment (PICU or IMC) due to one of the following diagnoses:

- Heat cramps, or
- Heat syncope, or
- Heat exhaustion, or
- Heat stroke

Logistics: Please report all patients to the ESPED headquarters according to the case definition. After reporting, you will receive a short questionnaire (approx. completion time <5 minutes) to fill out online.

Literature:

1. Daniel Helldén CA, Maria Nilsson, Kristie L Ebi, Peter Friberg, Tobias Alfvén. Climate change and child health: a scoping review and an expanded conceptual framework. *Lancet Planet Health*. 2021;5: e164–75.
2. Romanello M, McGushin A, MacGuire FAS, Sly PD, Jennings B, Requejo J, et al. Monitoring climate change and child health: The case for putting children in all policies. *J Paediatr Child Health*. 2021;57(11):1736-40.
3. Romanello M, McGushin A, Di Napoli C, Drummond P, Hughes N, Jamart L, et al. The 2021 report of the Lancet Countdown on health and climate change: code red for a healthy future. *The Lancet*. 2021;398(10311):1619-62.
4. Xu Z, Sheffield PE, Su H, Wang X, Bi Y, Tong S. The impact of heat waves on children's health: a systematic review. *International journal of biometeorology*. 2013.