# Non-accidental pediatric burns: A review.

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## Background & Aim

Negligent and inflicted burns are a particularly difficult diagnostic problem. Pediatric burns due to abuse are unfortunately relatively common, accounting for 5.8–8.8% of all cases of abuse annually.[1] The Child Abuse Prevention and Treatment Act (1974) and the Keeping Children and Families Safe Act (2003) **define** child abuse and neglect as *"a parent or caretaker's act, or failure to act, which results in the death, physical or emotional harm (or imminent risk of serious harm), sexual abuse, or exploitation of a child"*. Physicians are almost always designated mandatory reporters of child abuse. [2,3]

The **aim** of our study is to:

- present our key findings on pediatric non-accidental burns (NAB)
- improve early recognition and management
- raise awareness on prevention strategies of this sensitive issue

## Methods

This review was performed according to PRISMA guidelines. The literature search was performed according to the following strategy:

concept 1

((pediatric[Title/Abstract] OR children[Title/Abstract]) AND burns[Title/Abstract]

concept 2

(inflicted[Title/Abstract] OR abuse[Title/Abstract] OR "non accidental"[Title/Abstract]))

Inclusion criteria included the highest quality evidence studies with the largest pediatric populations, English language, reviews, case series, guidelines on medicolegal/forensic aspects of pediatric abuse from burns. No publication time restriction was set. Exclusion criteria included Letters to the Editor, Correspondences, and adult or elderly inflicted burns. **Figure 1** illustrates the search process.

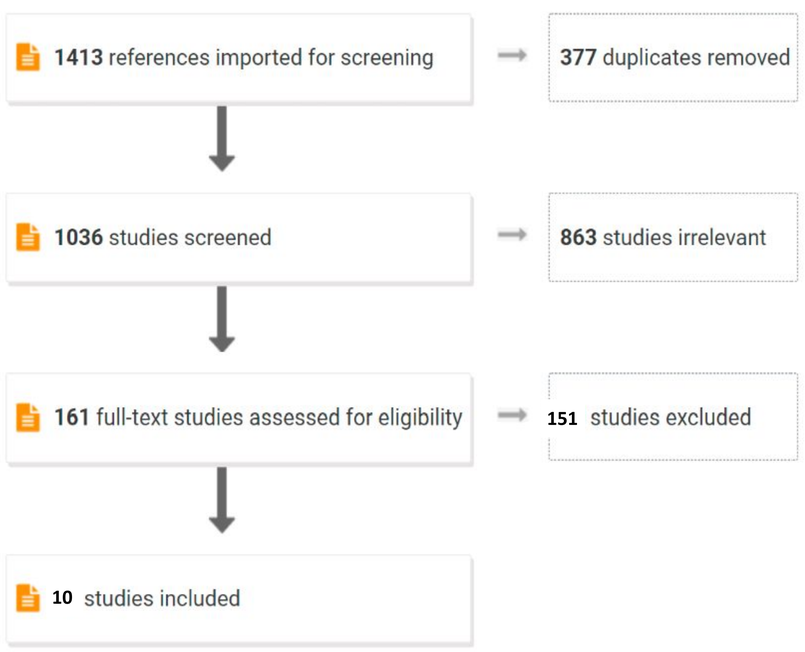



**Figure 1.** Flow diagram of the systematic review.

## Results

A total of ten studies were included for analysis. The estimated incidence of non-accidental burns (NABs) is 9.7% in children.[4] The estimated annual death rate from nonaccidental injury to children in the United States is 1000 annually.[5] **Figure 2** shows that scald burns accounted for 78% of all non-accidental pediatric burns. 45% of burns affect both feet and 43% affect the hands. 6% of cases involved TBSA of 5% or more, 12% involved deep burns and 2% involved the airway (inhalation burns).

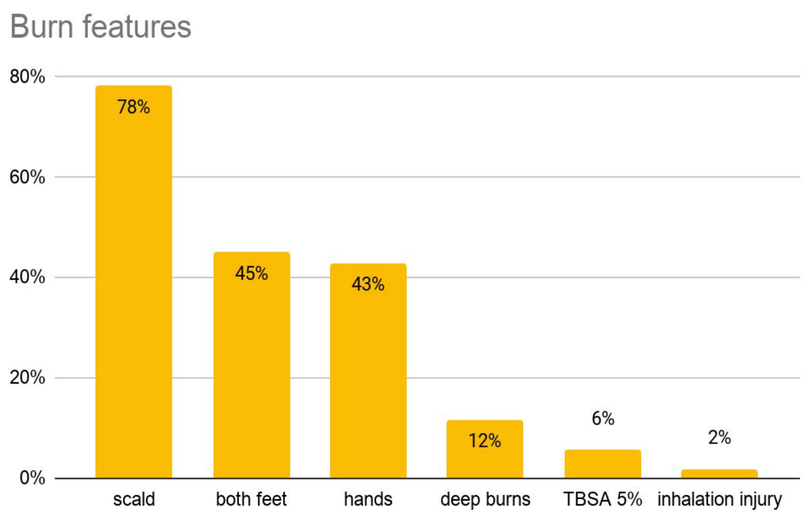



**Figure 2.** Distribution and severity of NABs in children.

The mortality rates from NABs vary widely from study to study. Mortality ranges between 10% (Thombs et al) and 38.2% (Hummel et al). **Figure 3** shows these rates according to each author.[6,7]

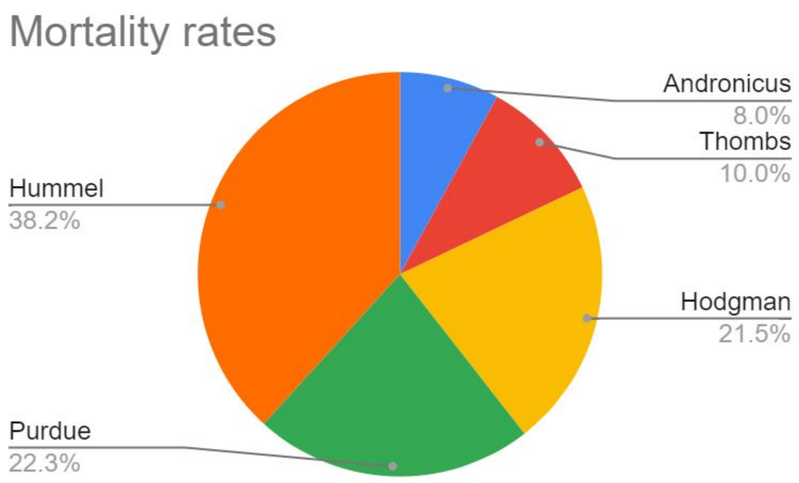



**Figure 3.** Mortality rates in pediatric NABs from each study.

Of the children who sustained partial-thickness and deep burns, reconstructive surgery was required with split-thickness skin grafts in 15.5%, 20%, and 75% of the cases, according to Loos, Campos and Collier et al, respectively **(Figure 4)**. **Complications** arose at a great frequency, such as wound infection (22%), sepsis (6%), requiring systemic antibiotics (22%), or intensive care (29%).[8]

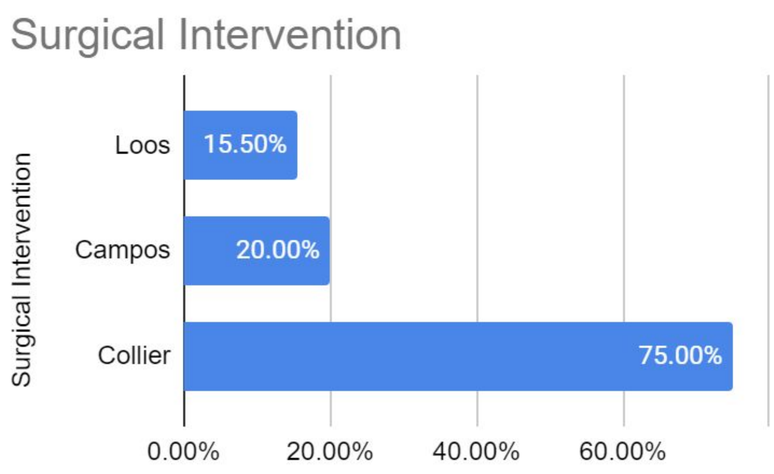


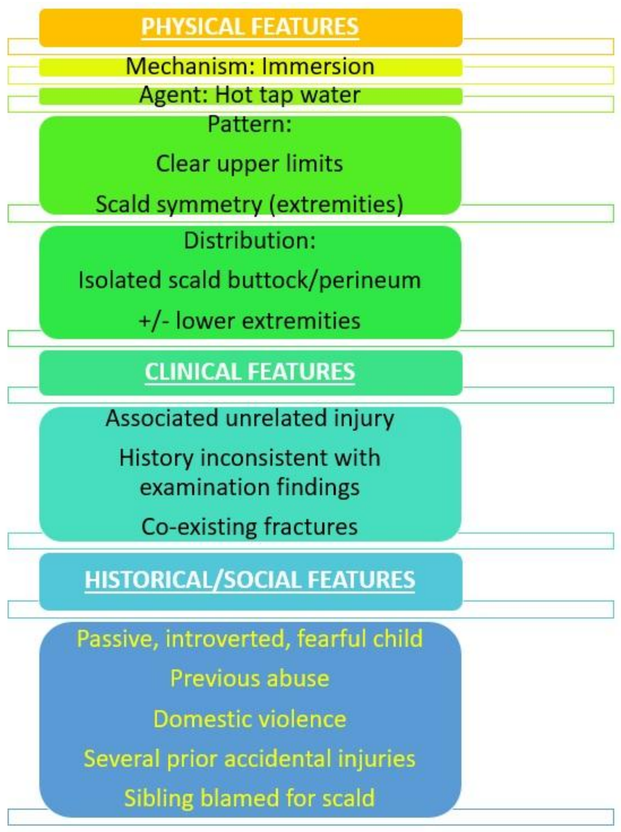

**Figure 4**. Percentages (%) of NABs requiring surgical intervention.

Often, abused children's parents had a history of mental illness, unemployment, substance abuse, incarceration, or Department of Children and Family Services (DCFS) involvement, and/orlow annual income. The mean parental age was 28.3 years old,and rates of single parenthood, single unemployed, and uninsured were 24.6%, 27.6%, and 43.5%, respectively. [9]

**Figure 5.** Thirteen-year-old female with a history of cerebral palsy abused with contact burns. The photographs show varying stages of healing of the burns on the posterolateral aspect of the right arm (reprinted with permission from Dr. J. Goverman).

## Recommendations

Using a standardized triage tool for suspected NABs is useful for assessing the physical, clinical and social characteristics of children with burns.[10]




## References

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