



**Subtle Signs of Child Abuse**  
**Child's Protection Office**  
**MOH**  
**Presented by Dr.Fatoumah**  
**Alabdulrazzaq**  
**M.D,FRCP,FAAP,PEM(C)**

# Cutaneous Injuries

- Bruise : injury to soft tissues in which skin is not broken , characterized by ruptured blood vessels & discoloration.
- Abrasion : rubbed or scraped area on skin or mucous membrane.
- Laceration : jagged wound or cut .
- Burns : thermal , chemical or electric injury to various layers of skin

# Bruises

## Incidence and prevalence



- 50% to 60% of all physical abuse cases have skin injuries, in isolation or in combination with other abusive injuries.\*
- Cutaneous injuries are the single most common presentation of physical abuse.

\*johnson CF . Pediatr Clin North Am. 1990;37:791-814

# Bruise Characteristics

Features to be noted & described:

Location

Color

Shape/Pattern

Size

# Accidental or Abusive

- Two characteristics help separate abusive from accidental bruises

Location

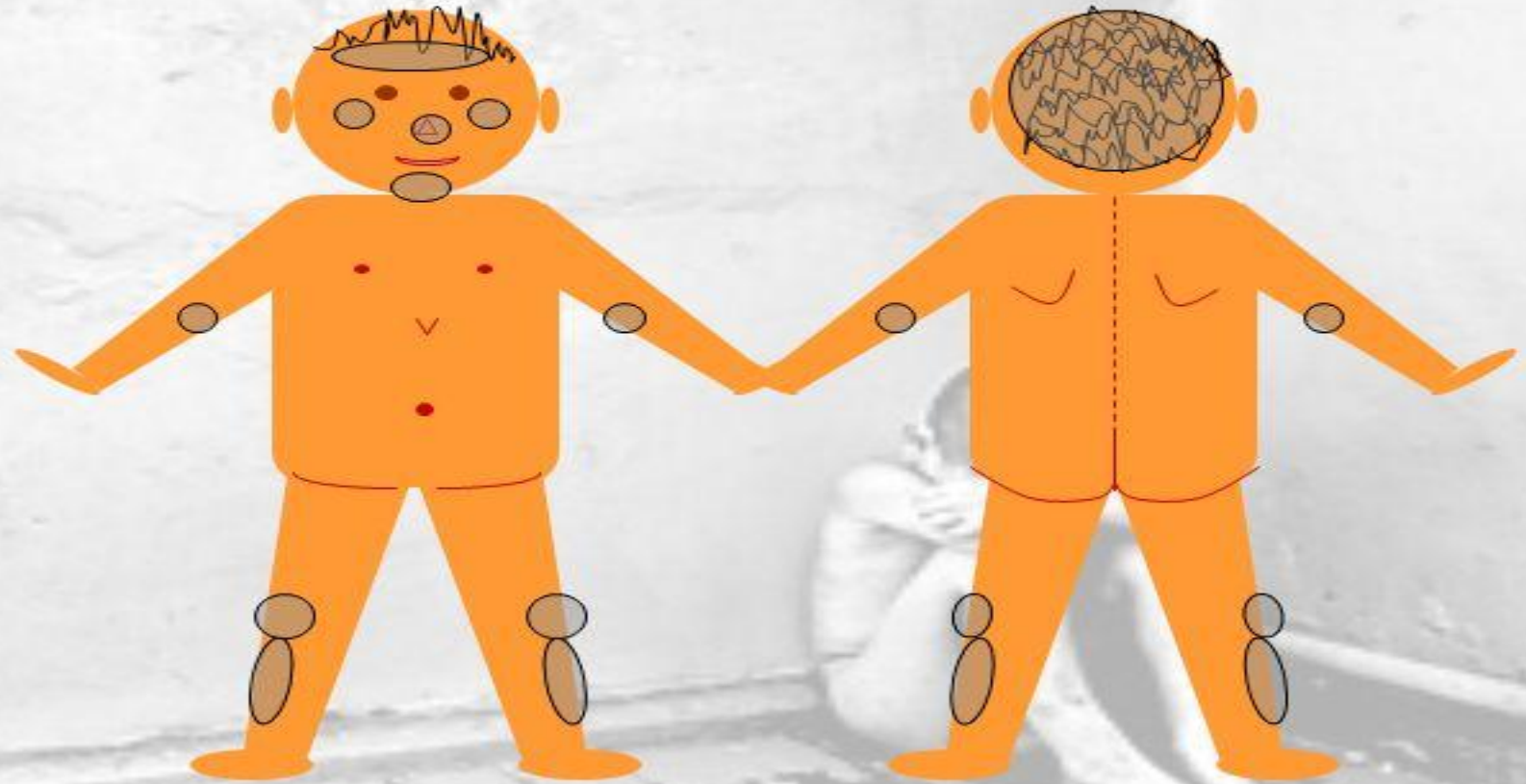
Pattern

# Bruise Location

## Accidental:

Typical of play or  
everyday activity

- Front
- Bony  
prominences



Typical sites of accidental bruises

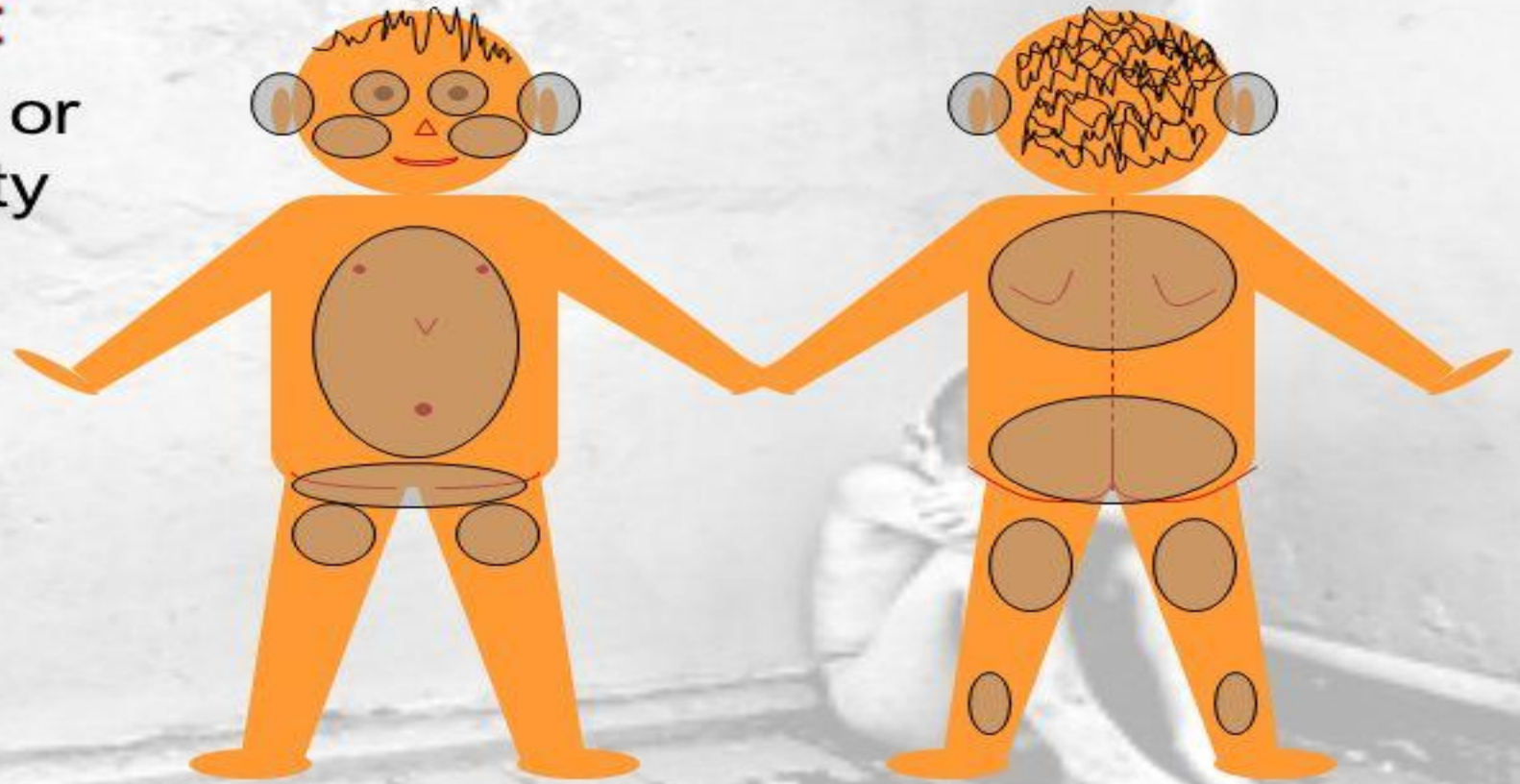


# Description of Bruises

## Non-accidental:

**not** typical of play or everyday or activity

- Eyes & cheeks
- Abdomen
- Genital area & inner thighs
- Upper back
- Buttocks
- Thighs & back of legs



Typical sites of inflicted bruises

# Bruises

- Those who don't cruise rarely Bruise !
- Finding of bruises in children up to 3 years
- in pre-cruisers 2.32%
  - < 6 mos = 0.5%
  - 6-8 mos = 4%
  - 9-12 mos = 11.5%
- in cruisers = 17.8%
- in walkers = 51.9%



# **Bruising characteristics discriminating physical child abuse from accidental trauma**

- Number of bruises ( more bruises more suspicious of child abuse)
- Location : abdomen , back , buttocks , GU , hip , ears , neck and chest)
- Age < 4 months : bruise anywhere

# Can bruises be accurately dated

- Bruises are caused by blood leaking out of capillaries into surrounding tissue. As this blood is broken down, the colour of the bruise changes
- Soft tissue swelling and tenderness – most recent
- Many factors affect the color of the bruise and age :
  - Depth of bruise
  - Location
  - Vascularity of underlying tissue
  - Age and complexion of child
- Age of bruises **cant** be estimated reliably based on colour

# Can bruises be accurately dated ?

- Conclusions

1. Estimation of age is inaccurate, in one paper, ability to correctly estimate within 24 hour period was < 50%
2. Any color can appear at any time until resolution
3. Poor intra-observer reliability

- Maguire S, et al Arch Disease child 2005;90:187-189

# Bruising – medical assessment

- Does history explain injuries seen on examination ?
- Rule out medical causes such as bleeding disorders, Mongolian spots
- Determine need for other medical investigations

# Further testing

- Coagulation screen :
  - Platelets
  - PT/INR, PTT
  - Specific clotting factors when warranted
- Skeletal survey in infants
- Head imaging & eye exam if concern of abusive head trauma
- Abdominal studies

# What Patterns of injury ?!

Handprint Injury



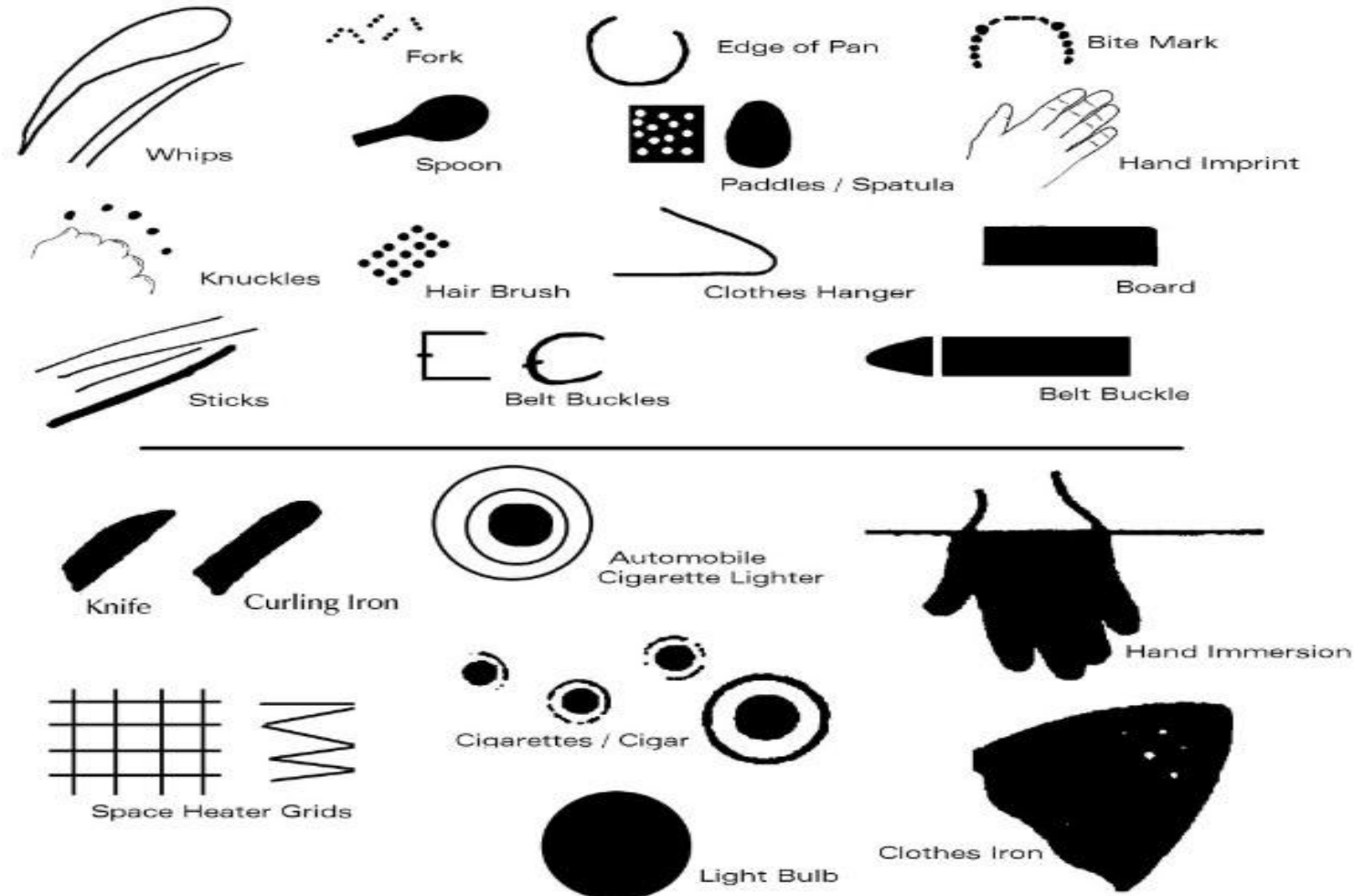


# What Patterns of injury Tell US

- Pinch injury – double bruises.
- Hand Slap – parallel linear lesions.
- Imprint injuries – ligature or finger marks of neck (petechiae can be seen above the point of strangulation)
- Bruising to multiple planes or body surfaces



# Clues as to the cause of intentional ir











# Petechiae

- Pinpoint flat round red spots under the skin surface
- Intra-dermal hemorrhage
- Red, tiny dots (2mm in diameter)
- Do not blanch when pressed on





# How useful is the presence of petechiae in distinguishing abuse from accidental injury ?

- Petechiae more frequent in abuse
- If petechiae present 6x likelihood abusive injuries
- Absence of petechiae did not exclude abuse

# BURNS

## Burn Types

- Scald burn – hot liquids
  - spill/ splash
  - contact
  - immersion
- Contact burns – hot solids
- Flame burns
- Chemical
- Electrical burns



- **Approximately 20 % of burns are inflicted**



# Classification of burns

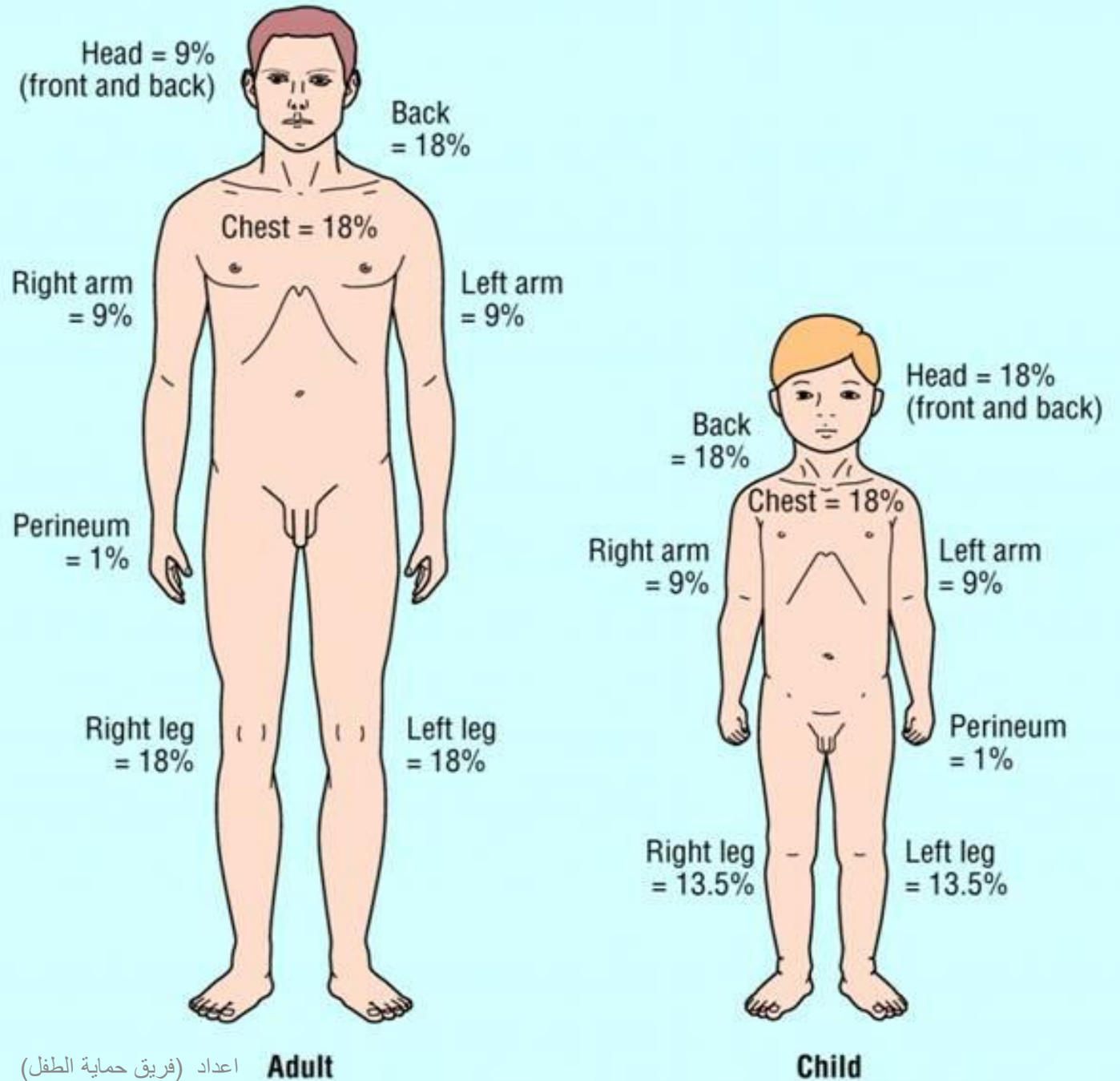
- **Superficial** : superficial layer of the epidermis characterized by redness only
- **Partial thickness** : Extends into the dermis causing blistering & tissue loss
- **Full Thickness** : Entire dermis , nerves are destroyed , no pain
- **Fourth degree** : Extends into the muscles, bones and joints

# Burn Injury Mechanism

- Resulting injury depends on :
  1. Mechanism of burn
  2. Temperature
  3. Duration of exposure
  4. Presence of clothing

# Burn Extent

## Rule of nines



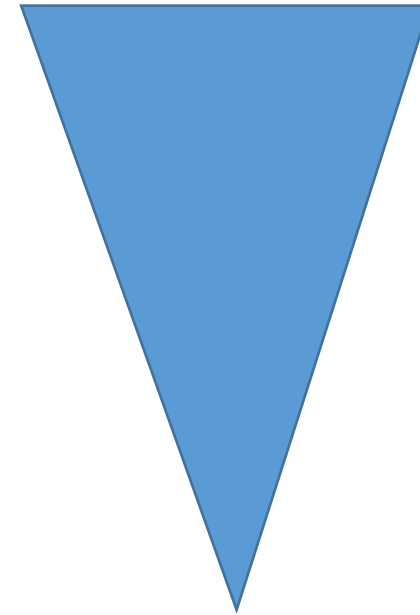


# Features differentiating accidental & non-accidental burns

- Age/developmental stage – contact burns unusual in infants before they can crawl
- Location – buttocks & feet in stocking distribution may indicate forced immersion
- Pattern

# Spill Burns

- Inverted arrow distribution
  - Less severe at arrow tip
  - Spares area under prominences
- 
- Size of burn area
  - Details of how spill happened





# Cigarette burn

- Classically reported as evidence of child maltreatment
- Uniform depth, circular burns with measurement of 7-8 mm
- Circular areas of skin hyperpigmentation or scarring may represent previous burn injury but are nonspecific



## Cigarette Burns

- Sharply demarcated
- Round ulcer or eschar
- May be confused with impetigo (more irregularly shaped)



# Scalds

## ❖ Unintentional :

- More commonly due to spill injuries of other hot liquids
- Affect upper body
- Irregular margins & depth

## ❖ Intentional :

- Commonly immersion injuries
- Caused by hot tap water
- Affecting extremities, buttocks & or perineum
- Symmetrical with clear upper margins
- Associated with old fractures & unrelated injuries





# Immersion Burns

Factor	Accidental	Non-Accidental
Demarcation of normal /burns	Indistinct	Clear
Splash marks	yes	No
thickness	variable	uniform

# Temperature & Exposure Time

48.9 C	5 min
54.4 C	30 Secs
60.0 C	5 secs
65 C	1.5 Secs



Kuwait National  
Child Protection Program  
برنامج الكويت الوطني لحماية الطفل



Cable News Channel Office

اعداد (فريق حماية الطفل)

# Burns – Medical assessment

- Documentation – drawing & photographs
- Does history explain finding on examination, in particular – temperature & duration of exposure
- Rule out other medical conditions – i.e. infections, skin conditions
- Determine need for other medical investigations

# Document cutaneous Injuries

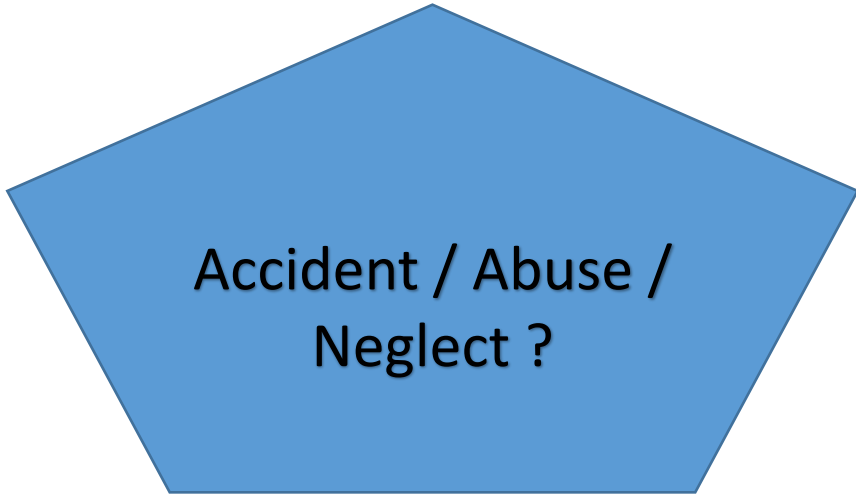
- **Describe :**

1. Type
2. Location
3. Size : by measurement (preferred) ; comparison to known object , eg , coin; or proportion of child's body, eg , one third of thumb length
4. Colour

- **Photograph** : include measure , color chart & identifying information

# Assessment of each injury

- Location
- Pattern
- Mechanism
- Force/degree
- Dating
- Symptoms
- Severity



Accident / Abuse /  
Neglect ?



# Thank you

