

# A GUIDE FOR PARENTS AND FAMILY MEMBERS

of a child with  
scald or burn injuries

First information  
after an accident

In cooperation with:

Arbeitskreis  
Das schwerbrandverletzte Kind.



Deutsche Gesellschaft  
für Kinderrehabilitation



**Paulinchen e.V.**  
Initiative for Young Burn Survivors

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## **Dear Parents and Family Members,**

*Your child has suffered what is called a thermal injury: a scald or other type of burn. The injury is so severe that your child must be hospitalized. Unfortunately, such accidents are not rare.*

*The medical team at the hospital will of course try to keep you informed at all times of all the steps involved in treating your child. But please understand that they may not be constantly available to communicate with you, because medical care for your child always comes first.*

*In this little guidebook, we have briefly summarized the main steps in burn treatment to supplement the information you will receive at the hospital, so that you can read about what you need to know in your own time.*

*We wish you and especially your injured child all the best!*

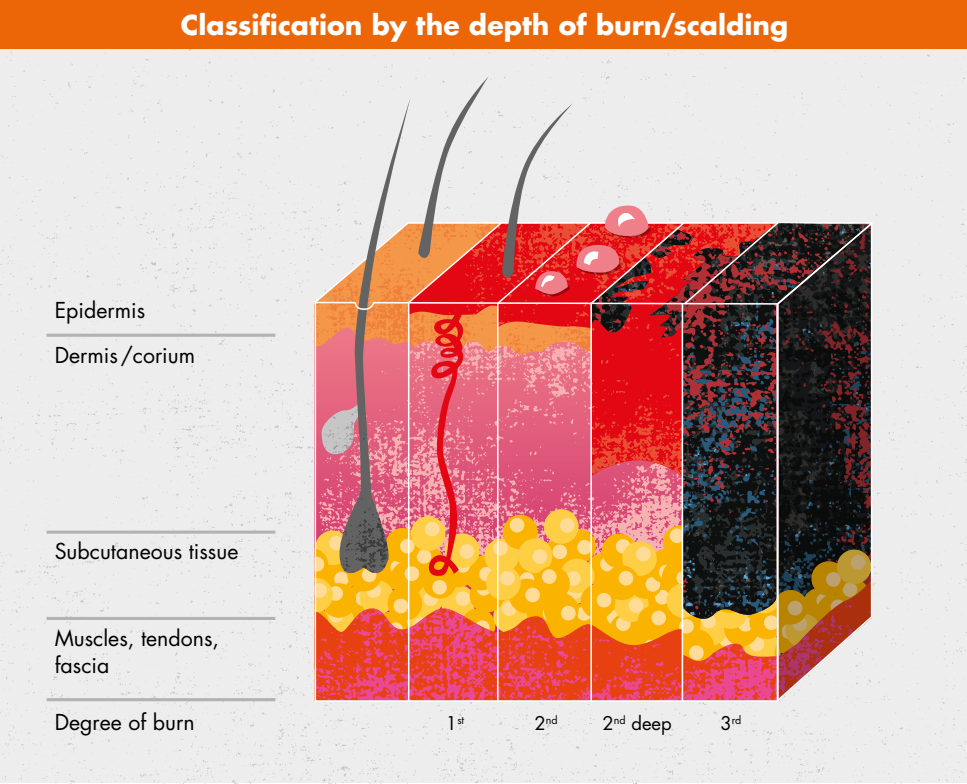
**Adelheid Gottwald**

*Paulinchen – Initiative for Young Burn Survivors*

What is it?

# A THERMAL INJURY

Excessive exposure to heat (hot liquids or hot surfaces, fire, or electricity) causes damage to the skin. Injuries are classified into various degrees of burn depending on the skin layers affected:





## **First-Degree Burns (I°)**

A first-degree burn is associated with redness and usually slight swelling and is very painful. Only the outermost layer of skin, the epidermis, is affected. The injury heals completely without surgery and leaves no scars, similar to a sunburn.

## **Second-Degree Burns, 2a and 2b (II°)**

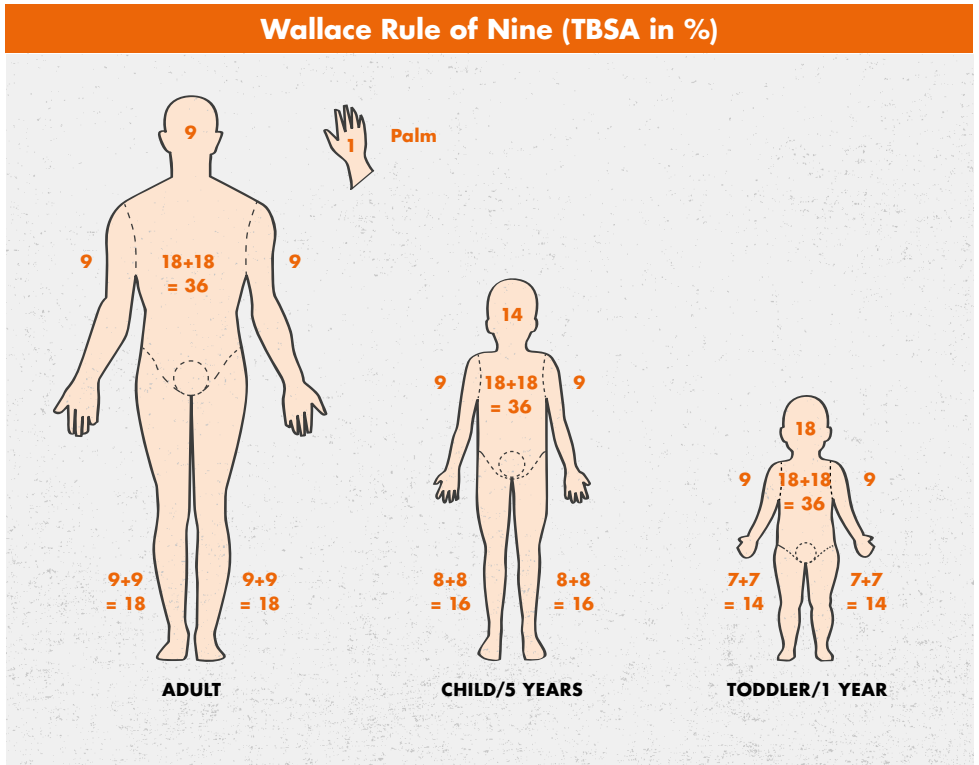
Second-degree burns cause blisters to form on the skin and are divided into two levels of severity. The outermost layer of skin (epidermis) and the layer beneath it (dermis) are affected. After a more superficial second-degree burn (2a), the skin usually heals completely within 14 days without scarring, and no skin grafts (transplants) are required. A deeper second-degree burn (2b) affecting the deeper parts of the skin (dermis) leaves scars after healing. Surgery with or without a skin graft is usually necessary.

## **Third-Degree Burns (III°)**

Third-degree burns affect all layers of the skin, but the injury is less painful because the nerves are damaged. The damage to the skin extends to the subcutaneous tissue. It is so deep that a skin graft is required. Especially in cases of scalding, it is hard to fully determine the depth of injury immediately after the accident, even with a wealth of experience. Only after a few days is it possible to assess the severity and extent of the damage to the affected areas.

When the skin is damaged, the body loses fluid, salts, and proteins. The body often reacts with fever and swelling of both injured and non-injured areas. These reactions are part of so-called "burn disease," which can result from large-surface, deep injuries to 15% or more of the skin surface.

# Calculating the total body surface area injured (TBSA)



	ADULT	CHILD
<b>head</b>	9 %	14 %
<b>arm</b>	9 %	9 %
<b>front of trunk</b>	18 %	18 %
<b>back of trunk</b>	18 %	18 %
<b>leg</b>	18 %	16 %
<b>hand</b>	1 %	

# ACUTE TREATMENT AT A SPECIALIZED HOSPITAL

What takes  
place there?

Burn and scald injuries are very painful. Treatment should be as pain-free as possible and is determined individually depending on your child and his or her situation. Wound cleaning of the injured areas with removal of blisters usually requires brief anesthesia. A special dressing is applied for further treatment and to protect the skin.

The dressing must be changed over the next few days. To make sure dressing changes are pain-free, your

child will usually receive anesthesia. The attending physicians will evaluate how the wound is healing at regular intervals. After a few days, they will be able to inform you of the actual depth of the injury and the further course of treatment.

For deeper injuries, a skin graft is often required. For more superficial injuries, various special dressings can promote healing without a skin graft.

## **Skin graft**

If the injuries are 2<sup>nd</sup>-degree or 3<sup>rd</sup>-degree, a split-thickness skin graft must be carried out, usually 3 to 12 days after the accident. In some cases and for some areas of the body, the graft may be done later. For grafting, a very thin layer is taken from skin, which is then used to cover the injured area. In children, the scalp is usually selected as the best donor site for the graft, for cosmetic reasons. The advantage of using skin from the head is that the surface area is relatively large and the skin is of very high quality for a graft. The hair is shaved prior to skin removal, but it grows back quickly. Normally, the affected areas are invisible after a short time. Only a very thin layer of skin is taken, but a slight change in the skin surface nonetheless remains at the donor site.

When very large areas are damaged and the head is not sufficient as a donor site, the skin graft is usually taken from the buttocks or the upper thigh area.

For very large burns, it may be necessary to remove split-thickness skin several times. To enlarge the skin graft, it is sometimes meshed, which expands its size and allows greater surface areas to be covered. The cosmetic results are better without meshing, so this method is not used for smaller areas of damage.

The harvested split-thickness skin is fixed to the cleaned wound surface using surgical staples, stitches, or fibrin glue (tissue adhesive). Afterward, the grafted area must be kept immobilized for a few days so that the transplanted skin can adhere well. Your child may be given sedatives during this period and/or immobilized using splints or foam. This is necessary to make sure that skin grafts do not move.

Depending on the extent of the injury, the healing process may take some time and your child will have to stay in the hospital for a while. During the hospital stay, hygienic measures must be taken to prevent infection. The treatment team will inform you about the details.

Despite optimal treatment, deeper injuries always leave scars to varying extents. These scarred areas require further care and treatment after healing.

# TREATMENT IN THE ICU AND/OR NORMAL HOSPITAL WARD

What does that mean?

## ICU – intensive care unit

In cases of extensive injuries, children with severe burns must initially be treated in the ICU. Your child will be cared for in a special room in an environment as germ-free as possible. Because of the risk of infection, only the closest family members will be allowed to visit the child. The nursing staff will instruct you about the necessary rules for hygiene. These protective arrangements are very important, because the injured skin areas make your child more susceptible to infections.

Nursing staff will be on duty around the clock to carry out and monitor all treatment steps. The injury may be so severe that your child may be temporarily placed in an artificial coma. In this case, the treatment team will inform you about what an artificial coma involves. They will also explain to you the devices that will be supporting and monitoring your child.



## Normal hospital ward

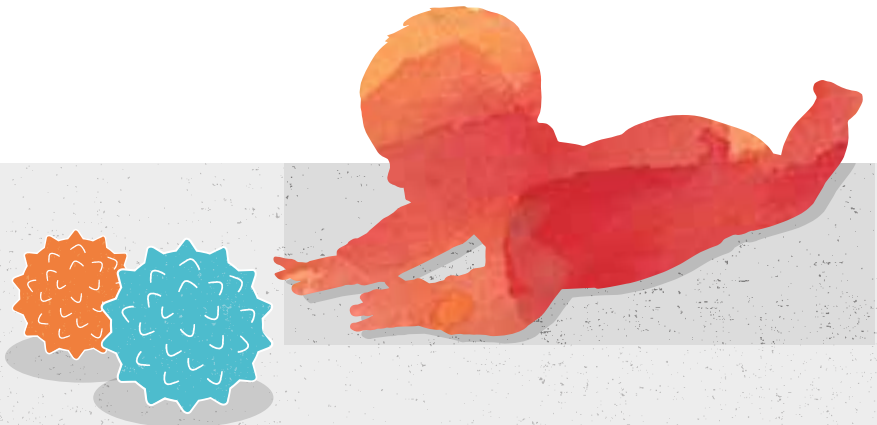
The burn patient will be transferred as quickly as possible from the ICU to the normal ward, especially if the injuries cover a relatively small area.

This is important to allow you and your child to resume a more “normal” daily routine, which also means that someone must be there regularly to attend to the child’s needs.

Because your child needs peace and quiet to recover, all other visitors should agree on certain times and a limited length of stay for their visits. Depending on the progress of healing, hygienic measures must still be taken.

In the normal ward, the nursing staff is responsible for several children. This means that you are needed as parents and caregivers to support your child and help him or her through all the necessary steps of the treatment.

Transferring to a normal ward after spending a long time in the “protected” environment of the ICU means a big change for the child – and also for you. Nevertheless, this should also be seen as another step forward in your child’s healing process.





# PHYSIOTHERAPY AND OCCUPATIONAL THERAPY, SCHOOL LESSONS AT THE HOSPITAL



Especially when injuries affect the skin surrounding the joints, extensive physiotherapy and occupational therapy will be needed during the course of recovery.

When performed at an early stage, this therapy can prevent or minimize contractures and also have a positive influence on scarring.

The exercises will be tiring for your child and are often painful. But the therapy is very important to prevent the scars from limiting your child's mobility.

If you give your child plenty of encouragement, he or she will find it much easier to summon the necessary motivation for the exercises.

The goal is to return to everyday life as soon as possible, even while the child is still at the hospital. As soon as the healing process and the hospital's capabilities allow, an effort will be made to provide the child with appropriate school lessons. Younger patients not yet in school will be encouraged to play and keep busy.

# SCAR TREATMENT AND COMPRESSION THERAPY

Why and for how long?

Even after the burns have healed, the scars will still require further treatment. Deeper burns will be covered with tailor-made compression garments that must be worn around the clock. Through the constant, carefully regulated pressure of these compression garments, the scars will not only be flatter and lighter in tone but also softer and less itchy.

Additional silicone pads or other silicone products may also be prescribed for treating the scars. Since the natural relubrication of the skin will be affected by the injury, cream must be applied regularly to the scars to keep them soft and prevent them from drying out and becoming cracked or scaly. With proper treatment, massage, and consistent compression, the scars will become less and less noticeable.

For best results, the compression therapy must continue until the scars are mature (inactive). This will take some time, in most cases about one to two years.

You should support and motivate your child from the start to wear the compression garments around the clock. Only with consistent treatment and wearing of the compression garments can optimal scar quality be achieved. Experience has shown that children get used to the compression garments very quickly, usually much faster than adults.

For the first two years after the accident, the scars should not be exposed to direct sunlight. Afterward, wearing sunscreen with a high sun protection factor (50+) is also very important. Special sun-safe clothing can provide additional protection. Compression garments do not offer adequate protection from sun.



## ADDITIONAL HELP

Where  
to find it?

At the hospital you will find a large team of helping hands to assist you with problems associated with your child's scald or other burn injury, as well as coping with the trauma involved. The hospital staff will also be happy to inform you about what other offerings are available.

### **Psychological care, pastoral care**

A burn accident traumatizes the whole family. We strongly recommend that you take advantage of the pastoral and/or psychological support available at the hospital. Not only for your child's sake, but also for you as a family member. Don't be afraid to ask the hospital staff for this assistance.

### **Social services**

Every hospital offers social services. Here you can get help with issues relating to the family care available for other children in the family, the official care level relevant for your injured child, etc. Social services can also help you with many questions you may have concerning what happens after your child is discharged from the hospital.

### **Paulinchen – Initiative for Young Burn Survivors**

Paulinchen e.V., a German registered organization, is there for you at every phase after the accident. Just call our free hotline at **0800 0 112123** to find capable contacts in your area. Thanks to our large specialized network, we can answer virtually any question regarding burn or scald injuries. Talking with other affected families can also help you to find solace and summon renewed courage. **[www.paulinchen.de](http://www.paulinchen.de)**



Scan the QR code:  
More information is available on the Paulinchen website!

# BURN UNITS

Where are they located?



# OUTPATIENT FOLLOW-UP AND REHABILITATION

What does this involve?

After the primary inpatient treatment, regular outpatient appointments will be necessary at the hospital. This follow-up will take a long time, because the development of the scars must be constantly monitored. We strongly advise scheduling the necessary follow-up appointments at the same hospital, because the doctors who have treated your child know all about the prior course of treatment. They can decide best when a therapy must be optimized or changed. For families who live very far away from the hospital where the child was treated, a physician specialized in burn injuries should be found close to home for emergencies.

Especially when injuries affect skin covering the joints, physiotherapy and in some cases also occupational therapy must be organized near your home so that it can be continued directly after discharge from the hospital to avoid any setbacks. In such cases it is important to search for suitable therapy possibilities close to where you live. The team at the hospital or Paulinchen e.V. would be happy to assist you.

For very serious injuries, inpatient rehabilitation is sometimes recommended and necessary. The attending physicians will discuss this with you. Paulinchen e.V. can give you the addresses of suitable rehab clinics and contact persons.



When your child is discharged from the hospital, the hospital will give you the Paulinchen brochure **“A Guide to Aftercare”** with more information about follow-up treatment and rehabilitation.

# FINDING COURAGE AND CONFIDENCE



How?

We would like to bolster your courage. Even if you may feel very helpless at the moment with your child hospitalized, there's still lots you can do! In particular, you can help your child cope with this traumatic situation. Give him or her the confident feeling that support is always close-by!

## **Important:**

- Always remember that your child is watching your body language closely and listening to everything that is said. So never show any uncertainty, fear, or concern in front of your injured child.
- Make sure you're well out of hearing range when you talk about anything you don't want the child to hear, even if the child is in an artificial coma. Don't whisper!
- You should not show the injured child the grief, despair, or uncertainty you may be feeling. Seek help in this difficult time from friends, pastoral workers, or psychologists. Feelings of guilt or blame do not belong in the hospital room either.
- In order to care for your child, you must first take care of yourself. Be sure to eat regularly, try to sleep, and let your child be cared for once in a while by someone whom you trust. Deliberately make use of these brief periods of "downtime" to recharge your batteries.



## Here's what else you can do:

- Find out everything you can about the injury, the treatment steps, and what is happening with your child. Knowledge and an overview of the situation can dispel fear and anxiety!
- If you have any questions, ask to meet with the attending doctor so that he or she can explain your child's current status and the next steps. This will calm you down. If you are feeling less rattled, you will not pass on your own uneasiness to your child.
- Make a note of questions you want to ask the doctor so that you don't forget anything during your meeting and are able to resolve all issues.
- Give your child a feeling of security and confidence through your presence! Stay with your child and distract him or her with games, stories, and music.
- Make sure friends from kindergarten or school are able to contact your child. Hearing from family members and friends can have a motivating effect on the healing process.
- While your child is still at the hospital, you can already get started searching for suitable therapy options close to home. Paulinchen e.V. will be happy to assist you.
- If you have questions, concerns, or fears, call the free hotline of Paulinchen – Initiative for Young Burn Survivors: **0800 0 112 123**. You will always find a sympathetic ear to comfort you, as well as information and important contacts.

# GLOSSARY

During your child's hospital stay and afterward, you will be confronted with many medical terms. We have put together explanations of the main ones for you. You can find a more detailed dictionary on the Paulinchen website: [www.paulinchen.de](http://www.paulinchen.de).

<b>Allograft</b>	a skin transplant from a genetically non-identical donor
<b>Analgesic</b>	pain medication
<b>Analgo sedation</b>	the administration of an analgesic and sedative for brief anesthesia
<b>Anesthesia</b>	medically induced painlessness
<b>Autologous graft</b>	endogenous graft, i.e., the donor and recipient are the same person
<b>Bandagist</b>	manufacturer of compression garments
<b>Basal cell layer</b>	layer of the skin in which new cells are constantly being formed
<b>Bobath concept</b>	special neurological treatment technique used in physiotherapy
<b>Brief reactive psychosis</b>	narrower term for a special form of brief delirium, for example after withdrawal of medication
<b>Camouflage</b>	special make-up technique used to hide skin imperfections or scars
<b>Chronic</b>	long-lasting, sustained, protracted, the opposite of acute
<b>Circumferential burn</b>	a burn that goes all the way around a part of the body
<b>Collagen</b>	protein that forms the elastic fibers in the connective tissue
<b>Compression clothing</b>	compression bandages of various types, for example as shirts, pants, gloves
<b>Contracture</b>	restriction of movement in the joints, for example after thermal injuries, mostly due to scarring
<b>Corium</b>	dermis, second skin layer
<b>Cutis</b>	generic term for epidermis and dermis = skin
<b>Debridement</b>	wound cleaning
<b>Dermabrasion</b>	smoothing of the skin
<b>Dermatome</b>	surgical instrument used to remove split-thickness skin
<b>Dermis</b>	layer of skin between epidermis and subcutaneous tissue

<b>Epidermis</b>	uppermost layer of the skin
<b>Epithelium</b>	multi-layer cell complex that encloses the body's surface
<b>Escharotomy</b>	an incision through the burn scabs to relieve pressure and ensure blood circulation
<b>Excise, excision</b>	cutting out, removal of scar tissue
<b>Extension</b>	stretching
<b>Extubation</b>	removal of the ventilation tube
<b>Fascia</b>	muscle sheath
<b>Fibrin glue</b>	physiological two-component adhesive of biological origin, used for example to fix split-thickness skin grafts
<b>Granulation tissue</b>	new connective tissue that forms on wounds during healing processes (hypergranulation = excessive granulation)
<b>Hematoma</b>	bruise, initially blueish but turns different colors over the course of a few days
<b>Hypertrophic scarring</b>	excessive, proliferating scar formation
<b>Hypertrophied</b>	raised, enlarged, still active
<b>Infection</b>	inflammatory reaction caused by pathogens
<b>Infusion</b>	supplying the body with fluids, usually via an intravenous drip
<b>Inhalation injury</b>	injury of the lungs by inhaling hot or toxic substances
<b>Intravenous</b>	in the vein
<b>Intubation</b>	insertion of a tube through the mouth or nose for respiration
<b>Irreversible</b>	cannot be reversed
<b>Keloid</b>	raised scar tissue as a result of an impaired healing process
<b>Keratinocytes</b>	cells of the epidermis
<b>Lesion</b>	damage, injury
<b>Localization</b>	pinpointing a certain spot or area

<b>Manual therapy</b>	a joint and soft tissue technique in physiotherapy
<b>Mature (healed) scars</b>	scars that no longer change under pressure, are light in tone and flat
<b>Meek technique</b>	special expansion technique for split-thickness skin grafts to increase surface area
<b>Mesh graft</b>	grid-patterned graft
<b>Meshing</b>	cutting a split-thickness skin graft in a grid pattern
<b>Monitoring</b>	keeping close watch over bodily functions using monitors
<b>Narcosis</b>	sedation brought about by artificial means to induce a sleep-like state with loss of consciousness and thus insensitivity to pain
<b>Necrectomy</b>	surgical removal of dead tissue
<b>Necrosis</b>	dead tissue
<b>Occupational therapy</b>	therapy designed for the recovery of lost physical, social, or psychological functions; targeted exercises train the patient to master daily activities such as washing, dressing, etc.
<b>Organism</b>	the human body's organ system
<b>Pad</b>	used in medicine for compression
<b>Physiotherapy</b>	physical therapy: movement therapy used to maintain or restore physical function
<b>Pneumonia</b>	inflammation of the lungs
<b>Postoperative</b>	after surgery
<b>Post-traumatic stress syndrome</b>	mental effects of a traumatic experience that appear with some delay
<b>Primary excision</b>	cutting out small scars and closing the skin immediately
<b>Prognosis</b>	prediction of the course of an illness
<b>Prophylaxis</b>	prevention
<b>Pruritus</b>	itching
<b>Rehabilitation</b>	measures to aid recovery after an accident or illness and restore optimum physical, emotional, and social health
<b>Relapse</b>	recurrence of an illness or a condition
<b>Respiratory therapy</b>	passive and active breathing exercises as a supportive measure after surgery, for example blowing bubbles in a glass using a straw
<b>Reversible</b>	can be turned around, recoverable

<b>Sedation</b>	immobilization with medication
<b>Sepsis</b>	“blood poisoning,” reaction of the organism to a serious infection
<b>Skin graft</b>	either full-thickness or split-thickness skin is transferred from one region of the body to another to cover open areas
<b>Smear/Swab</b>	retrieving material from the body using cotton swabs to determine the presence of bacteria or cell changes
<b>Split-thickness skin</b>	extremely thin skin layer taken from an unburned area of the body for use as a skin graft
<b>Subcutaneous tissue</b>	fatty tissue layer underneath the skin
<b>Symptoms</b>	signs of illness characteristic of a specific disease
<b>Take rate</b>	amount of healed grafts in percentage
<b>Tangential excision</b>	surgical removal of tissue in thin layers
<b>Thermal</b>	the Greek prefix “therm” stands for “warm”
<b>Trachea</b>	windpipe
<b>Trauma</b>	medical: wound, injury, or damage to the body mental: emotional or mental distress caused by an outside event
<b>Transplant</b>	a transfer of tissue or organs to replace missing tissue or organs
<b>Vojta therapy</b>	special neurological treatment technique used in physiotherapy
<b>Xenograft</b>	a graft taken from an animal
<b>Z-plasty</b>	through small z-shaped incisions, two triangular flaps of scarred adjacent skin are transposed in order to relax scar contractures

# THIS GUIDE WAS PRODUCED IN COOPERATION WITH:

## **Working Group “Das schwerbrandverletzte Kind”**



Arbeitskreis “Das schwerbrandverletzte Kind” (Working Group for children with traumatic thermal injuries) is an association of specialists from various medical disciplines and professional groups that treat children with thermal injuries. The working group aims to improve interdisciplinary cooperation and enforce proven standards, as well as to promote new strategies in the treatment of burn-injured children.

## **Deutsche Gesellschaft für Verbrennungsmedizin**



Deutsche Gesellschaft für Verbrennungsmedizin, DGV (German society for burn treatment) is the national scientific society for doctors and scientists who are primarily engaged in the treatment of people with thermal injuries. It aims to promote research into treatment options for burn injuries, for example by developing guidelines.

**[www.verbrennungsmedizin.de](http://www.verbrennungsmedizin.de)**

## **Paulinchen – Initiative for Young Burn Survivors**



Paulinchen e.V. advises and assists families with burn-injured children at each stage after the accident. A large network of specialists is available to answer any questions regarding thermal injuries. The goal is to ensure the best possible treatment for every thermally injured child and to prevent accidents by raising awareness of risks.

**[www.paulinchen.de](http://www.paulinchen.de)**



# CREDITS

A guide for parents and family members of a child with scald or burn injuries; first information after an accident.

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## FOR YOUR NOTES

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**IMPORTANT ADDRESSES  
AND PHONE NUMBERS**

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## FAMILIES COMMENT ON THE HELP OFFERED BY PAULINCHEN

*If Paulinchen hadn't been there to support us, our little world would probably have become very black. But now we feel that we are not alone with our grief and all we are facing.*

Family H.

*Although we parents would like nothing more, we cannot undo the accident. We have to learn to live with it, just as our children do.*

Family F.

*Many thanks for your quick help while we were still in the hospital with our little one.*

Family E.

*Paulinchen gave me hope that we, too, would gradually learn to accept this accident with all its consequences.*

Ms. B.

*Paulinchen is a wonderful organization, which helped not only me but also my family in our time of need.*

Jana

*I am grateful for being able to call or contact you at any time. This was a great help for me and my husband at this trying time – just knowing that there is someone we can call on if we need to, who understands our concerns and fears, our feelings of self-reproach.*

Ms. T.

*I find it very helpful that Paulinchen always responds quickly with expert answers to my questions. It's a good thing Paulinchen is there for us!*

Ms. P.

## CONTACT

**If you have any questions, would like to speak with other affected families, are seeking solace and advice, or need assistance, just contact Paulinchen – Initiative for Young Burn Survivors:**

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