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Children of all ages feel pain. It’s important to treat pain in children!
João Pedro Coelho Cruz, 10 years old
The pain of newborns, children and adolescents is a concern which applies across borders. Throughout the world, the multidisciplinary scientific and clinical practice community dedicated to the study and treatment of pediatric pain is growing.

However, despite the tremendous advances in the last 30 years, pediatric pain management is still insufficient and asymmetrical. Many practices still need to be changed to meet what scientific studies have already shown to be effective in the prevention and treatment of acute and chronic pain in children of all ages and conditions.

Therefore, we salute the initiative of the Portuguese Association for the Study of Pain (APED) for adding this publication to the exhibition “Drawings of My Pain”, contributing to the awareness and education of the public, children and parents, and encouraging the improvement of professionals dealing with children.

*Ananda Fernandes*
President of the Special Interest Group Pain in Childhood, International Association for the Study of Pain (APED), Portugal.
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DRAWINGS OF MY PAIN

Leandro Rafael Borges Carvalho, 11 years old
**Introduction**

**Pain relief is a children right, a duty of the health professionals and a quality indicator of the health services.**

Over the past 30 years, scientific research has brought to light the long-term negative effects (biological, psychological and social) of under-treated pain in children. New therapeutic resources have emerged and the effectiveness of multiple interventions highlighting the multimodal approach to pain management has been demonstrated. Although knowledge in recognizing, preventing, and treating pain has evolved, its implementation is still very uneven, and as a result, children still suffer unnecessarily.

In this joint effort to share knowledge and training of professionals, the Portuguese Association for the Study of Pain (APED), has been promoting the study, teaching and awareness of pathophysiological mechanisms, prevention, diagnosis and therapy of pain, according to the parameters established by the International Association for the Study of Pain (IASP) and by the World Health Organization (WHO).

APED developed an exhibition about pain in childhood (“Drawings of My Pain”), integrating on it some children's drawings from the APED contest “I'm Going to Draw My Pain”.

The exhibition combines an educational and informative component addressed to the general public and health professionals, in order to draw attention to the issue of pediatric pain.

The exhibition was launched in October 2017 (National Day Against Pain), has been running the hospitals of Portugal during 2018 (IASP Global Year for Excellence in Pain Education, centering public and professionals’ education) and will continue through 2019.

The correct approach to pain in children and adolescents is very important and involves evaluation, prevention and treatment, which includes much more than drugs. There are multiple non-pharmacological and pharmacological interventions that should be implemented day-to-day in health services to mitigate children’s pain.

From the exhibition comes this book that retains, and underlines how much has to be done to improve pain management in child and to teach parents and caregivers how they can help and collaborate. It also intends to reinforce the need for the institutional commitment that must exist in order to ensure the conditions for a correct and complete approach to pain in children and adolescents in daily practice.

The English version of the book comes out in 2019, which is IASP Global Year Against Pain in the Most Vulnerable, working to reduce pain and needless suffering, for all children, as they are a vulnerable segment of the population.

*Clara Abadesso*
Coordinator of the Child and Adolescent Pain Working Group of the APED

*Children of all ages feel pain.*

*It’s important to treat pain in children.*
What is pain?

“Pain is an distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive and social components.”

IASP (2016)

THE EXPERIENCE OF PAIN RESULTS FROM INTERACTION

SOCIOCULTURAL FACTORS
family influence, pain reaction models, parental anxiety level, education, social support, friends, school environment, cultural and religious beliefs

BIOLOGICAL FACTORS
 genetic predisposition, age, stage of development, gender, type and extent of injury or associated disease

PSYCHOLOGICAL FACTORS
 previous experiences of pain, personality, emotions, fear, anxiety, Coping skills

Biopsychosocial Model of Pain
“Pain is whatever the experiencing person says it is, existing whenever the experiencing person says it does.”

McCaffery (1979)

- Pain is experienced in a different way in each moment and by each person, child or adult. In children, the approach must be different due to their cognitive, affective and language development.

- Repeated pain exposure changes pain pathways in children’s brain, making them more sensitive to future pain and increasing the risk of developing chronic pain in childhood and adulthood.

We know that children feel pain and have memory of pain.

Untreated pain has short and long-term consequences in the child’s life.
Physiology and types of pain

**PERCEPTION**
The impulse is integrated and perceived as pain.

**TRANSDUCTION**
The painful impulse is received by nociceptors and transformed into action potential.

**TRANSMISSION**
The impulse is carried to the posterior horn of the spinal cord and from there to the brain.

**MODULATION**
In the spinal cord, the impulse is modulated before reaching the upper levels of the Central Nervous System.

**NOICEPTION**
Nociceptive stimulus.
WHAT TYPES OF PAIN CAN WE FEEL?

DAY-TO-DAY PAIN
Small wounds and bruises are very common in children arising from playing and sports practice. Usually, they are not serious, they cannot always be avoided, but each episode allows the child to learn how to cope with pain, increasing or reducing the distress.

ACUTE PAIN
Short-term pain that lasts minutes, hours or days, always lasting less than 3 months, associated with tissue trauma or inflammation.

CAUSED BY:
Mild illness, trauma, accidents, fractures, burns, diagnostic and therapeutic procedures such as vaccines or lab tests, surgical procedures or dental extraction.

Acute pain can have a protective effect and act as a warning sign in the diagnosis of various illnesses, for example, tummy ache from acute appendicitis.

RECURRENT PAIN
Pain that occurs by episodes, e.g. headaches, tummy aches, limb pains.

CHRONIC PAIN
Pain that lasts longer than 3-6 months or extends beyond the expected time of healing, and therefore no longer has the alert function.

When the pain becomes chronic, it becomes a disease itself.
Children’s rights to the treatment of pain

Pain relief is a fundamental human right.

Declaración de Montreal (IASP, 2010)

ARTICLE 1: The right of all people to have access to pain management without discrimination.

ARTICLE 2: The right of people in pain to acknowledgment of their pain and to be informed about how it can be assessed and managed.

ARTICLE 3: The right of all people with pain to have access to appropriate management of pain by adequately trained health care professionals.

The right to control pain in children

All children have the right to adequate pain control, whichever the cause may be, to avoid unnecessary suffering, and reduce the associated morbidity.

Ottawa declaration - Children's Rights in Health Care: “Every effort should be made to prevent or, if this is not possible, to minimize pain and suffering, and to mitigate the physical or emotional stress in the child.”

Charter of the Rights of the Hospitalized Child:
Steps should be taken to mitigate physical and emotional stress. Every child shall be protected from unnecessary medical treatment and investigation.

{Leyden, 1988}

Pain relief in children should be a top priority for all health professionals!
It’s essential to recognize, evaluate, prevent and treat PAIN IN CHILDREN.

Children have the right to the best care.

**RIGHTS OF THE CHILD, UNITED NATIONS:**

The child is a vulnerable human being entitled to special attention in all areas, including health care.


- **Standard 6:** “need for standards and guidelines for the evaluation and control of pain and discomfort”
- **Standard 7:** “invasive procedures must be accompanied by adequate analgesia/sedation...”

All health professionals should adopt strategies for the prevention and control of pain of children in their care, contributing to their well-being and humanization of health care.

Particular attention should be made to prevent and control pain caused by diagnostic and therapeutic procedures.
Evolution of pediatric pain management

About 50 years ago people thought that children felt less pain than adults due to the possible immaturity of their Central Nervous System.

In 1968 it was said:
“Pediatric patients tolerate discomfort well and rarely need pain medication.”

Later, in the 80’s it was shown that from the 24th week of gestation the anatomical and physiological bases for the perception of pain are present, which forced a change in child pain management.

In 1985, in the USA, Jill Lawson carried out a compelling public awareness campaign against the practice of surgeries and other procedures in children without the use of anesthesia or analgesia.

In 1987, The New York Times reported that the sensitivity of children to pain had finally been recognized.

In 1990, the Special Interest Group of Pain in Childhood of the International Association for the Study of Pain (IASP) was created.

Recognizing pain in children is very important!

In the last 30 years the scientific knowledge and therapeutic resources for pain management in children had a HUGE evolution.

Global Year Against Children’s Pain: 2005

Children’s Pain Matters!

Priority should be given to the recognition and treatment of pain in newborns, infants, children and adolescents.

However, there are studies that show that children get fewer analgesics than adults!

...there is still much to be done!!!
Pediatric pain management - evolution in Portugal

Children’s pain must become a priority for all health care professionals!

IN PORTUGAL

1991: Foundation of APED - Portuguese Association for the Study of Pain

1999: APED created the National Day Against Pain

2000: National Survey and Conference of the Child Support Institute (IAC) - “Pain is whenever it is painful”

2001: National Plan Against Pain

2002: Established the “Operation Red Nose” in hospitals with children

2003: Technical Guidance of General Health Division (DGS): PAIN – 5th vital sign – evaluation and regular registration of pain intensity in all health services

2008: National Program for Pain Control (PNCDor) – DGS

2009: Multidisciplinary Pediatric Pain Groups in public hospitals start to arise

2013: National Strategic Plan for the Prevention and Control of Pain (PENPCDor) – DGS

2016: 1st Multidisciplinary Pediatric Chronic Pain consultation: Maternal–infant center of the North, Porto

2017: National Program for the Prevention and Control of Pain (PNPCDor)

APED HIGHLIGHT INITIATIVES


2013: APED Workshop: “Control of Acute Pain in Children and Adolescents: Protocols and Auditing”

2017: Challenge to all health institutions to prevent, minimize and treat pain in children and adolescents in a systematic approach.

2018: APED scientific support of the Workshops of Pediatric Hypnosis for pain and anxiety management (Dra Leora Kuttner)

The fight against children’s pain should be a priority of all health institutions!

It’s an indicator of the quality of the health services!
Children’s pain must become a priority for all health care professionals!

PUBLICATIONS IN PORTUGAL ABOUT PAIN IN CHILDREN


2010: Creation of APED Pediatric Pain Working Group+ National Commission for Pain Control of DGS:

Publication of National Guidelines:
- Guideline 014/2010 - Technical guidelines on the evaluation of pain in children
- Guideline 022/2012 - Technical guidelines on pain management in invasive procedures in children (1 month to 18 years)
- Guideline 023/2012 - Technical guidelines on pain control in children with oncological disease
- Guideline 024/2012 - Technical guidelines on pain management in newborns (0 to 28 days)

Behavioral responses to pain

The child’s responses to pain depend on:
> age > developmental stage > personality > child’s environment

**HOW EXPRESS PAIN?**

**NEWBORNS AND INFANTS**

“The body speaks”:
- facial expression of discomfort
- intense crying
- body responses (“The body speaks”)
- changes in behavior
- physical signs: increased heart and respiratory rates

**CHILDREN 1-3 YEARS OLD**

Children between 1-3 years old manifest themselves mainly by shouting - “Scream age”:
- crying and shouting
- high anxiety/stranger anxiety
- use words for pain (e.g., “owie”, “boo boo”, “hurt”)
- facial expression
- body expression: agitation, aggression, protection of the painful area

**CHILDREN OF PRESCHOOL AGE (3-6 YEARS OLD)**

Pre-school age children have “Magical thinking”: mum’s kiss makes the pain go away...
- can express pain
- demonstrate behavioral changes such as agitation and physical aggression
- fear bodily injury or mutilation (e.g. when they have a wound), express fear of needles and medical procedures
- believe in pain as punishment
- mix real facts with fiction, show magical thinking about pain

**DRAWINGS OF MY PAIN**
HOW EXPRESS PAIN?

CHILDREN AT SCHOOL AGE

School age children are more demanding: “I need you to explain!”
- can describe their pain
- can associate pain and cause
- appreciate and demand explanations about procedures
- body expression: immobility and stiffness, fetal position, protecting or touching the painful area, clenching fists, isolation
- behavioral expression: angry, sad, depressed or aggressive; change in the sleep pattern

HOW EXPRESS PAIN?

ADOLESCENTS

Teenagers question: “Why me?”
- need to maintain self-esteem and control
- may not show pain behaviors out of shame - hard facial decoding
- benefit from teaching of pain control techniques
- the feeling of abandonment and depression may arise quickly
Pain assessment in pediatrics

To treat well you must know how to assess pain in the child! Children’s pain can be difficult to recognize.

**PAIN ASSESSMENT ALLOWS:**

- identifying and recognizing the child with pain
- quantifying and assessing the pain
- establishing standards of communication within the health team, facilitating consistent decision making
- adapting personalized treatment of pain
- evaluating the efficacy of analgesia techniques
- establishing a relationship of trust with the child

**NEWBORNS**

For example, the NIPS (Neonatal Infant Pain Scale) is used for premature and full-term newborns. There are other scales.

**CHILDREN UNDER 4 YEARS OLD OR CHILDREN UNABLE TO VERBALIZE**

The FLACC scale (Face, Legs, Activity, Cry, Consolability) is one of the most used scales.

**FROM THE AGE OF 4, IT CAN BE USED:**

The Wong-Baker Faces Pain Rating Scale

**HOW TO USE PAIN SCALES**

1. Explain: These faces show how much something can hurt.
2. This face (point to face on far left) shows no pain.
3. The faces show more and more pain [point to each from left to right] up to this one [point to face on far right] - it shows very much pain.
4. Ask the child: Point to the face that shows how much you hurt or it hurts [right now].
FROM THE AGE OF 6:
The Visual Analogue Scale (VAS) and the Numerical Rating Scale (NRS)

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<tr>
<th>No pain</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
<th>Worst Possible Pain</th>
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THE CHILD WITH DISABILITY OR DEVELOPMENT PROBLEMS

Scales adapted to these children are:
FLACC-R Scale (Face, Legs, Activity, Cry, Consolability - Revised)

OTHER PAIN ASSESSMENT TOOLS

Multidimensional pain assessment:
APPT (Adolescent Pediatric Pain Tool) Scale: assessment of acute or chronic pain
Non-pharmacological pain management - physical interventions

Pain can be prevented, treated or minimized by combining pharmacological, physical and psychological interventions.

Pharmacological measures should be combined with non-pharmacological, integrative and supportive interventions that activate the descending inhibitory pain pathways.

CONCEPT OF MULTIMODAL ANALGESIA:
Various agents, interventions, rehabilitation and therapy act synergistically for pain control. It allows more effective treatment, with less side effects than just an analgesic monotherapy or a single therapeutic modality.

Swaddling and sucrose

NON-PHARMACOLOGICAL INTERVENTIONS FOR PAIN RELIEF
- are effective in mild pain and fast painful procedures
- may be used as a complement to analgesic medicines
- increase the feeling of controlling pain
- promote greater autonomy for the child and the family
- are safe, non-invasive, cheap
- the child and parents can learn to use them

CONTRIBUTE TO:
- reduce the perception of pain
- make pain more tolerable
- decrease anxiety and fear

* (transcutaneous electrical nerve stimulation)
Vibration application (Buzzy®)

PHYSICAL STRATEGIES

• massage or therapeutic touch
• comfort measures
• comfort positioning
• skin-to-skin contact in newborns and swaddling
• sucking and sucrose (<12 months)
• application of heat or cold
• vibration application (Buzzy®)
• acupuncture
• acupressure, reflexology, aromatherapy
Non-pharmacological pain management - psychological interventions

The presence of the parents is very important to reassure, distract, encourage and comfort the child.

DISTRACTION
Distraction helps redirect the child’s attention away from the painful stimulus toward an alternative and pleasant focus.
Distraction techniques that are multi-sensorial and interactive work best. Considering the interests and choices of the child, you can use: music, cartoons, books/stories, dolls, blowing bubbles, pinwheels, counting backwards, songs, toys (interactive, with sound, light, vibration), etc.

STIMULATE IMAGINATION
Encourage the child to imagine or travel to his favorite place, favorite activity, tell stories with superheroes and positive thoughts.

PREPARATORY INFORMATION
Explain what will happen during the procedure (developmentally appropriate language).
The involvement and participation of the family collaborating with the health team, is very important for the application of non-pharmacological interventions to control pain.

**RELAXATION TECHNIQUES**

Progressive muscle relaxation; deep breathing (diaphragmatic or abdominal). In younger children, you can use soap bubbles, windmills, or imagine blowing a balloon or a candle.

**CLINICAL HYPNOSIS**

Can be used to relieve acute and chronic pain

- the magic glove
- the favorite place
- the pain switch

**POSITIVE REINFORCEMENT AND REWARDS**

It includes praise and prizes/diplomas awards
Comfort positioning offers parents the opportunity to reduce their children’s pain and anxiety during medical procedures. Collaboration between parents and health professionals should be in agreement to get the most of these techniques.

These positions can be adapted to the child and to the procedure.

- Parent’s lap and distraction techniques
- Breastfeeding
- Parent’s lap and non-nutritive sucking
Comfort positioning
Parent’s lap
Parent’s lap, supportive hug and upright positions promote a sense of control and safety.

Swaddling
For infants 0–6 months;
Associated with sucrose and non-nutritive sucking;
Leave out limb for procedure;
After the procedure, comfort hold/swaddle the infant to facilitate recovery and calmness.

Appropriate positioning increases comfort and minimizes pain of medical procedures which children in hospitals have to get through.
Pharmacological treatment of pain

The selection of the most appropriate analgesic depends on the characteristics of each child his illness, and assessment of the intensity of the pain. Drugs should always be associated with non-pharmacological interventions.

**BASIC PRINCIPLES OF ANALGESIC PRESCRIPTION**

- choose the treatment according to the intensity of the pain
- administer the treatment by the least invasive route possible – oral
- administer the treatment on a regular schedule, BY THE CLOCK
- adjust the treatment to the result achieved, adapted to each individual child

**MOST USED DRUGS**


**MILD PAIN**

- Paracetamol

**MODERATE TO SEVERE PAIN**

- Strong opioids

**PAIN PATHWAYS AND PRIMARY SITES OF ANALGESICS ACTION**

- NSAIDs
- Opioids, Paracetamol
- Fibers (δ or C)
- Thalamus
- Periaqueductal grey matter (endorphins)
- integrative therapies (non-pharmacological)

**NSAIDs**: non-steroidal anti-inflammatory drugs
MILD-MODERATE PAIN

PARACETAMOL
- is the most widely used analgesic
- is effective in mild pain
- is used to lower fever
- has no anti-inflammatory effect

NON-Steroidal ANti-INFLAMMATORY DRUGS (NSAIDS)
- used to control pain associated with inflammation of the tissues, e.g., during trauma or infection/inflammation
- the NSAIDs most commonly used are: ibuprofen, ketorolac and diclofenac

SEVERE PAIN

When the pain increases in intensity it is necessary to associate opioids and sometimes choose intravenous administration.

Morphine
- used in severe pain
- potent analgesic, group of opioids

When administered properly:
- does not cause dependency
- does not cause euphoria or delusion
- does not cause confusion
- does not cause respiratory depression

To obtain the necessary analgesic effect, the dose may be increased.

The ideal dose for each child is the dose that controls pain with as few side effects as possible.
Pain treatment during
- medical and surgical procedures

There are several techniques of analgesia and pain control that ensure the safety and effectiveness of procedures, and the comfort of the child.

When a child needs to undergo diagnostic or treatment procedures that cause discomfort, we must:

• prevent pain
• minimize anxiety and fear
• inform and promote the cooperation of parents and caregivers

The choice of drugs and the way they are administered depend on the type of pain and anxiety that the procedures cause, and whether or not the child needs to be immobilized. Depending on the procedure to be performed we can use:

**LOCAL ANESTHESIA**
Can be performed with:

• skin sprays (ethyl chloride)
• cream or patch with local anesthetic (lidocaine/prilocaine) - placed on the skin an hour before; can be used at any age
• intradermal/subcutaneous injection of lidocaine: sutures, punctures, superficial surgical or dermatological procedures
• lidocaine gel and spray

**INTRANASAL SEDATION AND ANALGESIA**
With the use of a nasal atomizer it is possible to administer analgesic and sedative drugs:

• fentanyl, ketamine, midazolam

**SEDATION AND ANALGESIA BY INHALATION**
Sedation and analgesia by inhalation with MEOPA - What is it?
It is a mixture of two gases: oxygen and nitrous oxide
What is it for?
It allows slight sedation and analgesia, for procedures generating high anxiety and short-term mild to moderate pain:
- placing catheters, blood tests, wound suturing and dressing, lumbar puncture, etc.

The child becomes relaxed, has less pain and becomes less anxious. It is particularly effective and potentiated by non-pharmacological interventions such as breathing, imagery or hypnosis.

How is it used?
The child must breathe through a nasobucal mask. It is most effective from 3 years of age, when the child is able to collaborate.

INTRAVENOUS SEDATION AND ANALGESIA

Most used drugs
- opioids: alfentanil, fentanyl, morphine
- other drugs: ketamine, midazolam, propofol

The sedation and analgesia obtained with these drugs is not a general anesthesia, if under the recommended safety and efficacy conditions.

When general anesthesia is indicated, it can be done at the Operating Room or in more differentiated units.
It doesn’t have to hurt!

It’s possible to prevent and minimize pain through non-pharmacological and pharmacological interventions.

Going to the hospital, doing a diagnostic test or a therapeutic procedure, even if a little invasive method, may be experienced with great anxiety by the little ones.

What children most fear when going to the hospital or seeing a doctor?... the needles and the pricks!!!

The pain caused by procedures can have emotional and psychological implications in children.

Going to the hospital, doing a diagnostic test or a therapeutic procedure, even if a little invasive method, may be experienced with great anxiety by the little ones.

What children most fear when going to the hospital or seeing a doctor?... the needles and the pricks!!!

THE MOST FREQUENT PROCEDURES ARE:

- Blood draws
- Obtaining IV access
- Suture and wound cleaning
- Wound dressings

Marco Agostinho da Silva, 8 years
TALKING TO CHILDREN MUST CREATE A PEACEFUL AND RELIABLE ENVIRONMENT:

- use a calm voice
- be honest, don’t lie (e.g. do not say “it does not hurt at all”)
- do not threaten (e.g. “if you behave badly you’ll get a shot”; “if you behave badly, mom will leave”)
- avoid words that direct attention to the procedure: “pain”, “shot”, “injection”, “sting”
- avoid words related to security: “it will end quickly”, “you will be fine”
- avoid empathic phrases or apologies: “sorry, you have to go through this’, “I know it hurts”
- promote the child’s involvement in the distraction

DO NOT FORGET SIMPLE MEASURES SUCH AS:

Breastfeeding or sucrose
- in newborns and infants (0-12 months)

Comfort positioning
- forced restraint should not be used

Distraction – direct the child’s attention away from the painful stimuli

- babies - toys with sound/light/color, pacifier
- small children - interactive toys/books, kaleidoscopes, blowing bubbles, songs/music, singing, puppets
- school children - toys, stories, videos/television, books, playing, counting, deep breathing, blowing bubbles, pinwheels, hypnosis, imagery
- teenagers - games, videos, books, jokes, music, talk about something not related to the procedure, deep breathing, anti-stress balls, imagery, favorite place

Topical or local anesthetic
- for example cream (lidocaine/prilocaine)

[Image of children’s drawings]
Pain in the newborn

Even premature babies feel pain.

The ascending nerve pathways required for the experience of pain are present in fetal life from the 20th gestational week and are fully developed about the 28th gestational week. On the other hand, the descending control pathways are still immature, which results in a hypersensitivity to painful stimuli, in preterm newborns.

Early and repeated pain experiences in the neonatal period seem to have influence on later pain experiences, both in terms of pain sensibility and in dealing with stress.

Kangaroo mother care

Swaddling and sucrose

Non-nutritive sucking

Breastfeeding
Babies show their pain in many ways:
- facial expression
- crying
- restlessness
- increased heartbeat

In the neonatal units, it is possible to prevent babies stress and pain through:
- quiet environment with little noise and controlled light
- comfort positioning
- parents contact with the baby
- minimum handling

The pain related with the most frequent procedures can be reduced with: (non-pharmacological treatment)
- breastfeeding
- skin-to-skin contact
- sucrose (sugar water)
- pacifier
- swaddling

Infants' pain can be assessed through their behavior (facial expression, motor activity, crying, consolability, sleep) with the help of appropriate scales.

The presence of the parents contributes to pain control.

Persistent pain, more painful procedures, and surgical pain can be alleviated with appropriate medication.
Vaccination pain

Vaccination does not have to hurt!

Vaccines help keep children healthy by protecting them from serious infections. However, vaccines can be painful and can cause stress and anxiety in children and their parents. Some techniques can help reduce fear of injections and pain during vaccines.

REDUCE PAIN OF VACCINATION IN BABIES

How to do it?

- **Topical anesthetic cream**: an hour before, applicate the anesthetic cream stickers where the injections will be given; this cream numbs the skin a bit and reduces the pain of the vaccine.

- **Positioning**: keep the baby on the mother’s lap in an upright position; safe and comforting contact helps reduce pain and keeps the baby calmer.

- **Distracting**: singing a song, with toys [with sound, light, vibration], puppets, blowing bubbles, etc. Maintain a calm attitude, speak with a normal and positive voice; this will help the baby feel calm.

- **Provide sucrose and non-nutritive sucking (pacifier)** to infants up to 12 months of age who are not breastfeeding.

- **Breastfeeding**: if the baby is breastfeeding, nursing the baby before, during and after vaccination is the best way to reduce pain and provide comfort.
REDUCE PAIN OF VACCINATION IN OLDER CHILDREN

How to do it?

- **Topical anesthetic cream**: an hour before, applicate the anesthetic cream stickers where the injections will be given.

- **Prepare the child before vaccination**: give an honest explanation of the procedure.

- **Comfort positioning**: on the parent’s lap (with a comforting embrace) or sitting on the couch in an upright position (give a choice in older children).

- **Distracting**: use an age-appropriate distraction shifting the child’s attention away from the needle.

- **Use relaxation techniques**: encourage deep and slow breathing, lead the child to travel to his/her favorite place.

The more involved the child is in distraction, the better it will work.

Do not forget that praising and offering a reward after vaccines can help kids and teens of all ages!
Post-surgical pain

Post-surgical pain should be prevented and treated before it happens!

The year 2017 was designated as the Global Year Against Pain After Surgery due to the high occurrence of situations in which post-surgical pain is not well controlled, situation that still needs to be improved.

POST-SURGICAL ANALGESIA IN PEDIATRICS

The postoperative pain should have a multimodal approach: we must combine several techniques and medications, to obtain greater efficacy and with less adverse effects.

PHARMACOLOGICAL THERAPY

The choice of drugs and of the route of administration depends on the type of surgery, the type of injury and the child’s age.

The most commonly used drugs include:

- paracetamol
- non-steroidal anti-inflammatory
- opioids: fentanyl, morphine
- other drugs: ketamine

ROUTES OF ADMINISTRATION

Analgesic drugs can be used orally or intravenously.

The intravenous route may be used, especially for analgesics such as morphine, through a perfusion pump in which the patient himself may trigger the administration of successive doses, within intervals established by the doctors (PCA-patient controlled analgesia device).
REGIONAL AND LOCAL TECHNIQUES

Regional anesthesia and analgesia techniques allow analgesia or anesthesia only in the region of the body that will undergo surgery: for example a finger, an arm or a leg. With these techniques, local anesthetics will act through the blockage of nerves.

- **Infiltration of the surgical wound**: it consists on the injection of local anesthetic at the site of the surgical incision.

- **Peripheral nerve block and plexus block (set of nerves)**: usually used for limb surgery, it can be used during or after surgery, it decreases the consumption of analgesics needed to relieve pain.

- **Neuroaxial block (subarachnoid and epidural)** are used for surgery of the thorax, abdomen or lower limbs. They allow excellent analgesic quality and minor side effects, with a reduction of administration of drugs by other routes.

NON-PHARMACOLOGICAL INTERVENTIONS (PSYCHOLOGICAL AND PHYSICAL)

These interventions are very important, they are also inexpensive and safe!

The role of parents:

- care for their child, comfort and calm them
- provide distraction, support and comfort
- collaborate with health care providers

Sónia Beatriz Abreu Faria, 9 years old

Vânia Paula Mendes Gonçalves, 11 years old

Maria Marques Guarda, 8 years old
WHAT IS CHRONIC PAIN?

The pain becomes chronic when persists for more than 3 months or exceeds the predictable time of healing of the initial injury, no longer acting as a warning and protective sign of the body.

The pain itself becomes an independent and autonomous phenomenon in relation to its origin, no longer being a simple symptom.

CHRONIC PAIN IN PEDIATRICS

Chronic pain in pediatrics is associated with multiple pathologies, has an important impact on the daily life activities of the child and families. Chronic pain in pediatrics leads to increase sensibility to pain in adulthood.

Currently, chronic pain in pediatrics remains:

- underdiagnosed
- undertreated
- has an unknown exact incidence (prevalence between 6-37%)
- under-recognized

WHAT IS THE IMPACT OF CHRONIC PAIN IN CHILDREN?

Chronic pain will interfere in all areas of the child’s and family’s life, leading to situations of great disability and family dysfunction, such as:

- school absence, decrease school performance
- sleep disturbances, psychological impact, isolation
- functional impairment (e.g. gait lost)
- limited participation in normal physical and social activities for their age
- development delay or regression
- loss of quality of life
WHAT ARE THE MAIN CAUSES OF CHRONIC PAIN IN CHILDREN?

Pain can arise in different contexts, but the most frequent situations are:
- recurrent headaches
- abdominal pain
- back pain
- complex regional pain syndrome
- localized or diffuse musculoskeletal pain
- pain in chronic diseases: neurologic, rheumatologic, genetic, hematologic diseases
- pain in oncologic disease

WHAT IS THE MOST APPROPRIATE TREATMENT?

The treatment should be multimodal, including different areas of intervention, through a multidisciplinary team, in order to maximize its efficiency.

Drugs are not the only answer! They’re used when needed.

4 IMPORTANT STRATEGIES:

1. REHABILITATION (physical therapy, physical exercise, occupational therapy)
2. PSYCHOTHERAPY - managing stress, anxiety, emotions; sometimes family therapy
3. DISTRACTION AND RELAXATION TECHNIQUES [mind-body techniques]: deep breathing, progressive muscle relaxation, biofeedback, hypnosis (favorite place, pain switch), etc.
4. RETURN TO NORMAL LIFE - social, school and family life.

ROLE OF PARENT

Parents and caregivers play a role of major importance: they are the ones who best understand the most subtle signs of pain in their child.

They also play a key role in implementing rules and strategies that allow the child to return to his/her usual activities as early as possible.
The ideal pediatric pain unit

In the pain unit, therapeutic programs are individualized and adjusted to each child or adolescent, and family. Intervention in chronic pain should focus on recovering the child’s functionality and not just on treating pain.

The current recommendations for the treatment of chronic pain include a multidisciplinary team approach organized in a functional unit that allows the improvement of the functional capacity and return to the previous activities of the child or adolescent.

The multidisciplinary team consists of professionals specialized in chronic pain and pediatric care:

- Physicians (Pediatrician, Anesthesiologist, Neuropediatrician, Physiatrist, Pedopsychiatrist)
- Psychologists
- Nurses
- Physiotherapists
- Occupational therapists
- Social workers
- Others

In the pain units, the multidisciplinary programs can be:

- on outpatient basis
- in day hospital
- hospitalization
The therapeutic approach consists in combining various treatment modalities:

- **PHARMACOLOGICAL**: medication under medical supervision and adjusted on a case-to-case basis, whenever required.
- **REHABILITATION**: specific programs for chronic pain that have as main purpose improving functional capacity and the returning to previous activities besides reducing the pain, which include physiotherapy, occupational therapy, and physical exercise.
- **PSYCHOLOGICAL**: interventions to reduce anxiety and negative feelings in children and their families, such as cognitive-behavioral therapy. Teaching of distraction and relaxation techniques: diaphragmatic breathing, progressive muscle relaxation, biofeedback, etc.
- **COMPLEMENTARY AND INTEGRATIVE THERAPIES**: acupuncture, hypnosis, music therapy, massage, art therapy, meditation and mindfulness, etc.

Programs should be child- and family-centered and include:

- **EDUCATION** (on chronic pain, measures for sleep hygiene and nutrition advice)
- **STRATEGIES FOR DEALING WITH PAIN** (distraction, exercise)
- **FAMILY THERAPY**
- **INCLUSION IN THERAPEUTIC GROUPS**

**THE SPACE AND LOCAL OF THE PAIN UNIT**

It should be a space adapted to children and adolescents – warm, inviting and fun.
Myths and facts about pediatric pain

**MYTHS**: barriers to effective pain management in children

**FACTS**: what is observed in the children’s reality

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**MYTH**
Younger children do not feel pain. The child’s nervous system is immature and unable to perceive an experience of pain in the same way as an adult.

**FACT**
Still in the mother’s womb, at 24 weeks of gestation, the central nervous system already has the anatomical and neurochemical capabilities that allow the baby to feel pain.

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**MYTH**
Children tolerate pain better than adults.

**FACT**
On the opposite, younger children experience higher levels of pain than older children. Only with age the tolerance to pain increases.

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**MYTH**
Children are unable to tell where they feel pain.

**FACT**
Children may not express their pain in the same way as adults, but they are able to indicate the area in their body where it hurts. They can also explain how much it hurts using appropriate scales, and even express by a drawing the type of pain they have.

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**MYTH**
Children will get used to pain or painful procedures.

**FACT**
On the opposite, repeated exposure to painful procedures increases their anxiety and the perception of pain, untreated ongoing pain may cause long-term changes in the child’s nervous system.

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**MYTH**
Children always say when they feel pain.

**FACT**
Children often do not complain of pain because they are afraid of painful administration of analgesics (injection) or are afraid of returning to the hospital.
MYTH
Morphine is a very strong analgesic and should be avoided in children.

FACT
Morphine (and other opioids) can and should be given to children with moderate to severe pain under medical supervision. These strong analgesics, when indicated for the treatment of very young children do not interfere with their neurodevelopment. Even if there are side effects they are often transient and manageable by the attending physicians.

MYTH
If the child can be distracted, the child is not in pain.

FACT
Momentary distraction does not exclude the existence of pain. It means that the child uses his cognitive abilities focus the attention away from the pain.

MYTH
The child will easily become addicted to opioids.

FACT
Scientific research shows that when opioids are used properly and under surveillance they do not create addiction.
Since 2005, APED – Portuguese Association for the Study of Pain promotes the contest “I’m Going to Draw My Pain”.

The contest “I’m Going to Draw My Pain” annually evaluates the works done by hospitalized children in Portugal, which reveal their personal perspectives on pain.

The contest is intended for all children up to 12 years of age who are hospitalized in national health facilities or being treated in day hospitals. Three children are awarded in each of the three age groups: children under 6; from 6 to 8; from 9 to 12 years old.

With this initiative, APED, currently supported by bene Pharmaceutical, intends to raise awareness for the importance of valuing the complaints of the little ones and treating them properly.
Raissa Luiana Camueje, 9 years old
Throughout the 13 years of the “I’m Going to Draw My Pain” contest, it was impossible to be indifferent to the candor with which children draw their experience of pain. With these children’s illustrations, in 2017 we created the exhibition “Drawings of My Pain”, which adds scientific knowledge to the experience lived in the first person, travelling through Portugal hospitals.

In 2018, in a concerted initiative of IASP and EFIC, in which APED is integrated, the “Global Year for Excellence in Pain Education” was celebrated, with the mission of filling the existing gap between knowledge and practice.

Integrated in this Global Year, which motto was “Teaching better, learning better and doing better”, the book “Drawings of My Pain” presented itself as a training and educational tool for the pediatric pain approach, suitable for professionals, patients and caregivers, equipping them with knowledge and strategies about the management of pain in this age group.

2019 will be the “Global Year Against Pain in the Most Vulnerable”, which undoubtedly integrate children, keeping this book as an important tool in the pursuit of the proposed goals.

I am confident that this book maintains its interest in our daily practice.

Ana Pedro
President of APED, January 2019.
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DRAWINGS
OF MY PAIN

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