

- **Linking Orthodontics with Periodontal Health**  
Linking Orthodontics with Periodontal Health Coordinating with Oral Surgeons for Jaw Corrections Integrating Pediatric Dentistry for Early Intervention Combining Endodontic Care in Complex Cases Collaborative Planning with Prosthodontists Sharing Diagnostic Data Across Multiple Specialists Addressing Aesthetic and Functional Goals Together Communication Strategies Among Dental Teams Balancing Orthodontic Solutions and Restorative Needs Encouraging Holistic Treatment Approaches Managing Patients with Special Medical Conditions Efficient Referrals That Improve Patient Outcomes
- **AI Driven Aligners That Predict Movement**  
AI Driven Aligners That Predict Movement Cloud Based Case Tracking for Efficient Management Digital Impressions That Replace Traditional Molds Virtual Consultations for Remote Care 3D Printing Applications in Orthodontic Appliances Teledentistry and Its Impact on Patient Convenience Software Innovations for Treatment Simulations Aligning Treatment Goals with Technological Advances Advantages of Using Digital Models in Planning Modern Approaches to Virtual Monitoring Reducing Errors Through Computerized Analysis The Future of Orthodontics in a Digital Era
- **About Us**



Okay, let's talk about how braces and gums get along in kids and teens. It's a crucial relationship, really. When we're moving teeth with braces, we're applying force, right? That force doesn't just act on the tooth itself. It also affects the stuff around the tooth – the gums, the bone, the ligaments that hold everything in place. We call all that "periodontal tissues."

Orthodontic expanders can create more space in the mouth for teeth Child-friendly orthodontic solutions mouth.

Now, in younger patients, these tissues are still developing and adapting. That's good, because it means teeth can move more easily. But it also means they're more vulnerable. If the forces from the braces are too strong, or if oral hygiene isn't great, we can run into problems. Gums can get inflamed, bone can resorb, and we can even end up with gum recession or bone loss. Nobody wants that!

So, orthodontists have to be super careful. We need to use the right amount of force, in the right direction, for the right amount of time. And equally important, we need to educate our young patients (and their parents!) about keeping their teeth and gums squeaky clean. Brushing, flossing, regular check-ups – it all matters.

Basically, it's a balancing act. We want to move the teeth to create a beautiful smile, but we also want to keep the gums and bone healthy and happy. When orthodontists understand this interplay between force and tissue, and when patients are committed to good oral hygiene, we can achieve amazing results without compromising periodontal health. It's a team effort, and a really important one for a lifetime of healthy smiles.

## **\* Common periodontal issues in children undergoing orthodontic treatment. —**

- \* The interplay between orthodontic forces and periodontal tissues in young patients.
- \* Common periodontal issues in children undergoing orthodontic treatment.
- \* Preventive measures to maintain periodontal health during orthodontic treatment.
- \* The role of oral hygiene instructions for children and parental involvement.
- \* Early detection and management of periodontal problems during orthodontic care.
- \* Collaboration between orthodontists and periodontists for optimal outcomes.

Okay, let's talk about how braces and gums get along, especially in kids. You know, getting braces is a big deal for a lot of kids. Straight teeth, confident smiles – it's all good stuff. But sometimes, that journey to a perfect smile can hit a few bumps in the road, especially when it comes to their gums.

Think about it. Braces create all these little nooks and crannies where food and plaque can hide out. And kids, bless their hearts, aren't always the best at brushing every single speck away, even without the added challenge of wires and brackets. So, what happens?

Well, common periodontal (gum) issues start popping up. Things like gingivitis, which is basically inflamed and irritated gums. You might see some redness, swelling, and maybe even a little bleeding when brushing. It's usually reversible with better oral hygiene, but if it's not taken care of, it can lead to more serious problems down the line.

Another thing we see is gum recession, where the gums start to pull back from the teeth. This can make the teeth look longer and can sometimes lead to sensitivity. Orthodontic movement itself, especially if it's too fast or too forceful, can sometimes contribute to recession, particularly if there's already thin gum tissue there.

And, rarely, we might see something called periodontitis, which is a more advanced form of gum disease that can actually damage the bone supporting the teeth.

## **Linking Orthodontics with Periodontal Health - wire**

1. child
2. Align Technology
3. ceramic

This is less common in kids, but it's definitely something to be aware of, especially if there's a family history of gum disease or if oral hygiene is consistently poor.

The key takeaway is that keeping gums healthy during orthodontic treatment is super important. Regular check-ups with the dentist and orthodontist are crucial. And, of course, good brushing and flossing habits are non-negotiable. It's a team effort between the child, their parents, and their dental professionals to make sure that beautiful, straight smile is sitting on a foundation of healthy gums.

**More about us:**

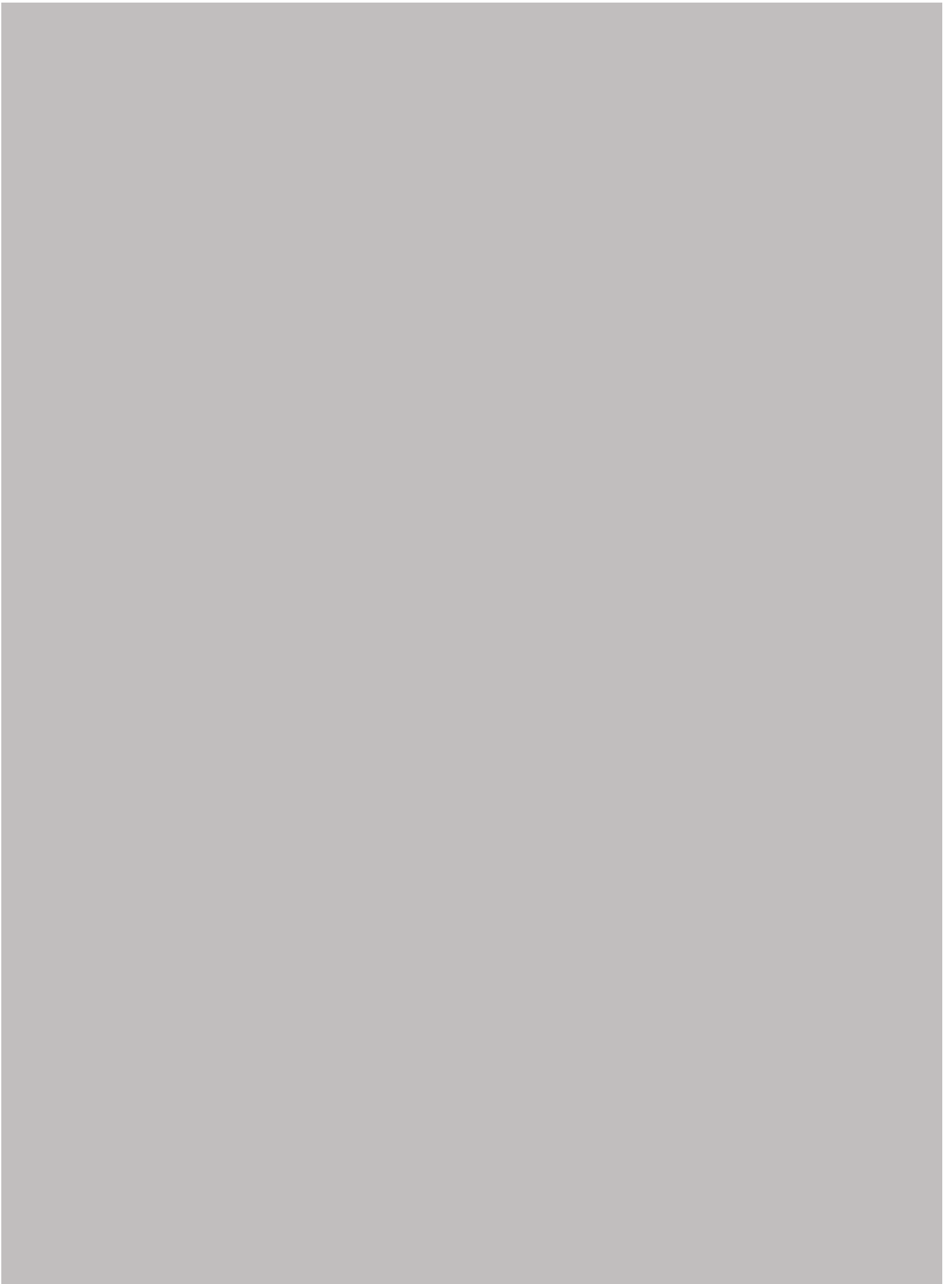


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# **\* Preventive measures to maintain periodontal health during orthodontic treatment.**

Okay, so you're getting braces, which is awesome for straightening your teeth and giving you that killer smile. But here's the thing: all those brackets and wires create extra nooks and crannies where plaque and bacteria just love to hang out. And that's where periodontal (gum) problems can sneak in. Trust me, you don't want inflamed, bleeding gums messing with your orthodontic journey – or your overall health, for that matter.

So, what can you do? Think of it as upping your oral hygiene game. Brushing becomes a real art form. You need to get around each bracket, making sure you're removing all that plaque. An electric toothbrush can be a huge help here. Flossing? Oh yeah, you gotta floss. Maybe invest in floss threaders or interdental brushes to get under the wires. And don't forget your tongue scraper!

Beyond the basics, your orthodontist and dentist are your best allies. They'll keep a close eye on your gums during your appointments, looking for any signs of trouble. Regular professional cleanings are non-negotiable; they can get to the plaque and tartar that you just can't reach at home. Your dentist might also recommend fluoride treatments or antimicrobial mouthwashes to give you an extra layer of protection.

## **Linking Orthodontics with Periodontal Health - dentistry**

1. medical specialty
2. molar
3. Stanford University School of Medicine

Basically, keeping your gums healthy during orthodontics is all about being proactive. It's a team effort between you, your orthodontist, and your dentist. Put in the extra effort now, and you'll not only have

perfectly aligned teeth, but also a healthy, happy smile that lasts a lifetime. It's totally worth it!

## **\* The role of oral hygiene instructions for children and parental involvement.**

Okay, let's talk about kids, braces, and healthy gums. It's a trio that needs a bit of attention! When we're thinking about straightening teeth, it's super easy to get caught up in the aesthetics – the perfect smile, the before-and-after pictures. But what about the health of the gums that are holding those teeth in place? That's where the link between orthodontics and periodontal health comes in, and it's especially important for children.

Think about it: braces create all sorts of new nooks and crannies where plaque can hide. For kids, who are still developing their brushing habits, this can be a recipe for trouble. That's why clear, age-appropriate oral hygiene instructions are absolutely crucial when a child is in orthodontic treatment. We're not just talking about "brush twice a day." We're talking about demonstrating how to effectively clean around brackets and wires, maybe even recommending special tools like interdental brushes or floss threaders. It's about empowering them to take control of their oral health.

And this is where parents come in. Parental involvement isn't just a nice-to-have; it's a need-to-have. Kids often need reminders, encouragement, and even supervision to make sure they're cleaning thoroughly. Parents can help by making oral hygiene a part of the daily routine, monitoring brushing habits, and even making it a family affair. Think of it as a team effort to protect that beautiful, soon-to-be-straight smile.

Ultimately, good oral hygiene instructions and active parental involvement are the cornerstones of preventing periodontal problems during orthodontic treatment in children. It's about setting them up for a lifetime of healthy teeth and gums, long after the braces come off. It's about more than just a straight smile; it's about a healthy one.

# **\* Early detection and management of periodontal problems during orthodontic care.**

Orthodontic treatment, while focused on aligning teeth, can sometimes inadvertently stir up trouble in the gum department. That's where the early detection and management of periodontal problems come in as a crucial piece of the puzzle. Think of it like this: you're carefully rearranging furniture in a room, but you need to make sure you're not accidentally damaging the floorboards in the process.

Moving teeth around, applying forces, can potentially exacerbate existing gum issues or even create new ones. Things like inflammation, bleeding gums, or even the dreaded bone loss can rear their ugly heads if we're not vigilant. So, before, during, and after braces, a keen eye needs to be kept on the health of the gums and supporting structures.

Catching problems early is key. It means simpler solutions, like better oral hygiene instructions tailored to the patient's orthodontic appliances, professional cleanings, or maybe even adjusting the orthodontic treatment plan slightly.

## **Linking Orthodontics with Periodontal Health - wire**

1. retainer
2. dentistry
3. wire

Ignoring these early signs can lead to more serious and complex periodontal disease that could compromise the long-term success of both the orthodontic treatment and the patient's overall oral health. Basically, a healthy foundation of gums and bone is essential for teeth to stay put and function well after the braces come off. It's all about a team effort between the orthodontist and the patient to

ensure a beautiful smile sits atop a healthy, happy mouth.

## \* Collaboration between orthodontists and periodontists for optimal outcomes.

Alright, let's talk about teamwork. Specifically, the kind of teamwork that happens in your mouth, or rather, the kind that *should* be happening between the professionals who care for it. I'm talking about orthodontists and periodontists. You might think of them as working on separate floors of the dental building, one straightening teeth, the other dealing with gums. But the truth is, they're much more effective when they're collaborating, playing on the same team for a common goal: a healthy, beautiful smile that lasts.

Think of it this way: orthodontics is like building a beautiful house (your perfectly aligned teeth). But you can't build a house on a shaky foundation. That's where the periodontist comes in, ensuring the "ground" beneath the house – your gums and supporting bone – is strong and stable. If the foundation is weak due to periodontal disease (gum disease), moving teeth with braces can actually make things worse, potentially leading to bone loss and even tooth loss.

A good orthodontist will always assess your periodontal health *before* even thinking about starting treatment. And a smart periodontist will understand that sometimes, aligning teeth can make it easier to maintain good oral hygiene and prevent future gum problems. They'll communicate, share records, and develop a treatment plan that addresses both the alignment *and* the supporting tissues.

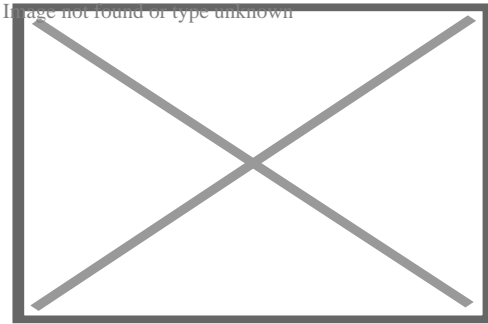
So, linking orthodontics with periodontal health isn't just a nice-to-have; it's essential for achieving truly optimal results. It's about looking at the whole picture, understanding how the position of your teeth impacts your gums and vice versa, and working together to create a smile that's not just pretty, but

healthy and strong for years to come. It's really just common sense, and good dentistry.

## About pediatrics

This article is about the branch of medicine. For the journal, see *Pediatrics* (journal). For the branch of dentistry, see *Pedodontics*.

### Pediatrics



A pediatrician examines a neonate.

<b>Focus</b>	<b>Infants, Children, Adolescents, and Young Adults</b>
<b>Subdivisions</b>	<i>Paediatric cardiology, neonatology, critical care, pediatric oncology, hospital medicine, primary care, others (see below)</i>
<b>Significant diseases</b>	Congenital diseases, Infectious diseases, Childhood cancer, Mental disorders
<b>Significant tests</b>	World Health Organization Child Growth Standards
<b>Specialist</b>	<b>Pediatrician</b>
<b>Glossary</b>	Glossary of medicine

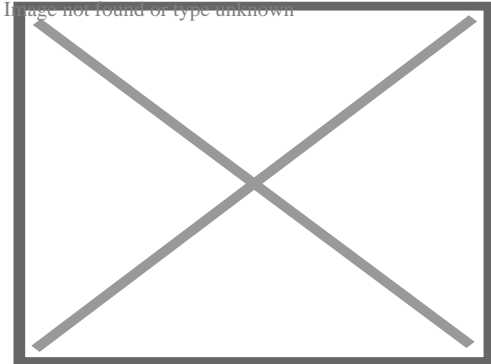
**Pediatrics** (American English) also spelled **paediatrics** (British English), is the branch of medicine that involves the medical care of infants, children, adolescents, and young adults. In the United Kingdom, pediatrics covers many of their youth until the age of 18.<sup>[1]</sup> The American Academy of Pediatrics recommends people seek pediatric care through the age of 21, but some pediatric subspecialists continue to care for adults up to 25.<sup>[2][3]</sup> Worldwide age limits of pediatrics have been trending upward year after year.<sup>[4]</sup> A medical doctor who specializes in this area is known as a **pediatrician**, or **paediatrician**. The word *pediatrics* and its cognates mean "healer of children", derived from the two Greek words:

??*Παι* (país "child") and *ἴατρος* (*iatros* "doctor, healer"). Pediatricians work in clinics, research centers, universities, general

hospitals and children's hospitals, including those who practice pediatric subspecialties (e.g. neonatology requires resources available in a NICU).

## History

[edit]



Part of Great Ormond Street Hospital in London, United Kingdom, which was the first pediatric hospital in the English-speaking world.

The earliest mentions of child-specific medical problems appear in the *Hippocratic Corpus*, published in the fifth century B.C., and the famous *Sacred Disease*. These publications discussed topics such as childhood epilepsy and premature births. From the first to fourth centuries A.D., Greek philosophers and physicians Celsus, Soranus of Ephesus, Aretaeus, Galen, and Oribasius, also discussed specific illnesses affecting children in their works, such as rashes, epilepsy, and meningitis.<sup>[5]</sup> Already Hippocrates, Aristotle, Celsus, Soranus, and Galen<sup>[6]</sup> understood the differences in growing and maturing organisms that necessitated different treatment: *Ex toto non sic pueri ut viri curari debent* ("In general, boys should not be treated in the same way as men").<sup>[7]</sup> Some of the oldest traces of pediatrics can be discovered in Ancient India where children's doctors were called *kumara bhrtya*.<sup>[6]</sup>

Even though some pediatric works existed during this time, they were scarce and rarely published due to a lack of knowledge in pediatric medicine. *Sushruta Samhita*, an ayurvedic text composed during the sixth century BCE, contains the text about pediatrics.<sup>[8]</sup> Another ayurvedic text from this period is *Kashyapa Samhita*.<sup>[9]</sup><sup>[10]</sup> A second century AD manuscript by the Greek physician and gynecologist Soranus of Ephesus dealt with neonatal pediatrics.<sup>[11]</sup> Byzantine physicians Oribasius, Aëtius of Amida, Alexander Trallianus, and Paulus Aegineta contributed to the field.<sup>[6]</sup> The Byzantines also built *brephotrophia* (crèches).<sup>[6]</sup> Islamic Golden Age writers served as a bridge for Greco-Roman and Byzantine medicine and added ideas of their own, especially Haly Abbas, Yahya Serapion, Abulcasis, Avicenna, and Averroes. The Persian philosopher and physician al-Razi (865–925), sometimes called the father of pediatrics, published a monograph on pediatrics titled *Diseases in Children*.<sup>[12]</sup><sup>[13]</sup> Also among the first books about pediatrics was *Libellus [Opusculum] de aegritudinibus et remediis infantium* 1472 ("Little Book on Children Diseases and Treatment"), by the Italian pediatrician Paolo Bagellardo.<sup>[14]</sup><sup>[5]</sup> In sequence came Bartholomäus Metlinger's *Ein*

*Regiment der Jungerkinder* 1473, Cornelius Roelans (1450–1525) no title Buchlein, or Latin compendium, 1483, and Heinrich von Louffenburg (1391–1460) *Versehung des Leibs* written in 1429 (published 1491), together form the *Pediatric Incunabula*, four great medical treatises on children's physiology and pathology.<sup>[6]</sup>

While more information about childhood diseases became available, there was little evidence that children received the same kind of medical care that adults did.<sup>[15]</sup> It was during the seventeenth and eighteenth centuries that medical experts started offering specialized care for children.<sup>[5]</sup> The Swedish physician Nils Rosén von Rosenstein (1706–1773) is considered to be the founder of modern pediatrics as a medical specialty,<sup>[16][17]</sup> while his work *The diseases of children, and their remedies* (1764) is considered to be "the first modern textbook on the subject".<sup>[18]</sup> However, it was not until the nineteenth century that medical professionals acknowledged pediatrics as a separate field of medicine. The first pediatric-specific publications appeared between the 1790s and the 1920s.<sup>[19]</sup>

## Etymology

[edit]

The term pediatrics was first introduced in English in 1859 by Abraham Jacobi. In 1860, he became "the first dedicated professor of pediatrics in the world."<sup>[20]</sup> Jacobi is known as the *father of American pediatrics* because of his many contributions to the field.<sup>[21][22]</sup> He received his medical training in Germany and later practiced in New York City.<sup>[23]</sup>

The first generally accepted pediatric hospital is the *Hôpital des Enfants Malades* (French: *Hospital for Sick Children*), which opened in Paris in June 1802 on the site of a previous orphanage.<sup>[24]</sup> From its beginning, this famous hospital accepted patients up to the age of fifteen years,<sup>[25]</sup> and it continues to this day as the pediatric division of the Necker-Enfants Malades Hospital, created in 1920 by merging with the nearby *Necker Hospital*, founded in 1778.<sup>[26]</sup>

In other European countries, the Charité (a hospital founded in 1710) in Berlin established a separate Pediatric Pavilion in 1830, followed by similar institutions at Saint Petersburg in 1834, and at Vienna and Breslau (now

Wrocław) both in 1837. In 1852 Britain's first pediatric hospital, the Hospital for Sick Children, Great Ormond Street was founded by Charles West.<sup>[24]</sup> The first Children's hospital in Scotland opened in 1860 in Edinburgh.<sup>[27]</sup> In the US, the first similar institutions were the Children's Hospital of Philadelphia, which opened in 1855, and then Boston Children's Hospital (1869).<sup>[28]</sup> Subspecialties in pediatrics were created at the Harriet Lane Home at Johns Hopkins by Edwards A. Park.<sup>[29]</sup>



## Differences between adult and pediatric medicine

[edit]

The body size differences are paralleled by maturation changes. The smaller body of an infant or neonate is substantially different physiologically from that of an adult. Congenital defects, genetic variance, and developmental issues are of greater concern to pediatricians than they often are to adult physicians. A common adage is that children are not simply "little adults". The clinician must take into account the immature physiology of the infant or child when considering symptoms, prescribing medications, and diagnosing illnesses.<sup>[30]</sup>

Pediatric physiology directly impacts the pharmacokinetic properties of drugs that enter the body. The absorption, distribution, metabolism, and elimination of medications differ between developing children and grown adults.<sup>[30]</sup><sup>[31]</sup><sup>[32]</sup> Despite completed studies and reviews, continual research is needed to better understand how these factors should affect the decisions of healthcare providers when prescribing and administering medications to the pediatric population.<sup>[30]</sup>

## Absorption

[edit]

Many drug absorption differences between pediatric and adult populations revolve around the stomach. Neonates and young infants have increased stomach pH due to decreased acid secretion, thereby creating a more basic environment for drugs that are taken by mouth.<sup>[31]</sup><sup>[30]</sup><sup>[32]</sup> Acid is essential to degrading certain oral drugs before systemic absorption. Therefore, the absorption of these drugs in children is greater than in adults due to decreased breakdown and increased preservation in a less acidic gastric space.<sup>[31]</sup>

Children also have an extended rate of gastric emptying, which slows the rate of drug absorption.<sup>[31]</sup><sup>[32]</sup>

Drug absorption also depends on specific enzymes that come in contact with the oral drug as it travels through the body. Supply of these enzymes increase as children continue to develop their gastrointestinal tract.<sup>[31]</sup><sup>[32]</sup> Pediatric patients have underdeveloped proteins, which leads to decreased metabolism and increased serum concentrations of specific drugs. However, prodrugs experience the opposite effect because enzymes are necessary for allowing their active form to enter systemic circulation.<sup>[31]</sup>

# Distribution

[edit]

Percentage of total body water and extracellular fluid volume both decrease as children grow and develop with time. Pediatric patients thus have a larger volume of distribution than adults, which directly affects the dosing of hydrophilic drugs such as beta-lactam antibiotics like ampicillin.<sup>[31]</sup> Thus, these drugs are administered at greater weight-based doses or with adjusted dosing intervals in children to account for this key difference in body composition.<sup>[31]</sup><sup>[30]</sup>

Infants and neonates also have fewer plasma proteins. Thus, highly protein-bound drugs have fewer opportunities for protein binding, leading to increased distribution.<sup>[30]</sup>

# Metabolism

[edit]

Drug metabolism primarily occurs via enzymes in the liver and can vary according to which specific enzymes are affected in a specific stage of development.<sup>[31]</sup> Phase I and Phase II enzymes have different rates of maturation and development, depending on their specific mechanism of action (i.e. oxidation, hydrolysis, acetylation, methylation, etc.). Enzyme capacity, clearance, and half-life are all factors that contribute to metabolism differences between children and adults.<sup>[31]</sup><sup>[32]</sup> Drug metabolism can even differ within the pediatric population, separating neonates and infants from young children.<sup>[30]</sup>

# Elimination

[edit]

Drug elimination is primarily facilitated via the liver and kidneys.<sup>[31]</sup> In infants and young children, the larger relative size of their kidneys leads to increased renal clearance of medications that are eliminated through urine.<sup>[32]</sup> In preterm neonates and infants, their kidneys are slower to mature and thus are unable to clear as much drug as fully developed kidneys. This can cause unwanted drug build-up, which is why it is important to consider lower doses and greater dosing intervals for this population.<sup>[30]</sup><sup>[31]</sup> Diseases that negatively affect kidney function can also have the same effect and thus warrant similar considerations.<sup>[31]</sup>

## Pediatric autonomy in healthcare

[edit]

A major difference between the practice of pediatric and adult medicine is that children, in most jurisdictions and with certain exceptions, cannot make decisions for themselves. The issues of guardianship, privacy, legal responsibility, and informed consent must always be considered in every pediatric procedure. Pediatricians often have to treat the parents and sometimes, the family, rather than just the child. Adolescents are in their own legal class, having rights to their own health care decisions in certain circumstances. The concept of legal consent combined with the non-legal consent (assent) of the child when considering treatment options, especially in the face of conditions with poor prognosis or complicated and painful procedures/surgeries, means the pediatrician must take into account the desires of many people, in addition to those of the patient.<sup>[*citation needed*]</sup>

## History of pediatric autonomy

[edit]

The term autonomy is traceable to ethical theory and law, where it states that autonomous individuals can make decisions based on their own logic.<sup>[33]</sup> Hippocrates was the first to use the term in a medical setting. He created a code of ethics for doctors called the *Hippocratic Oath* that highlighted the importance of putting patients' interests first, making autonomy for patients a top priority in health care.<sup>[34]</sup>

In ancient times, society did not view pediatric medicine as essential or scientific.<sup>[35]</sup> Experts considered professional medicine unsuitable for treating children. Children also had no rights. Fathers regarded their children as property, so their children's health decisions were entrusted to them.<sup>[5]</sup> As a result, mothers, midwives, "wise women", and general practitioners treated the children instead of doctors.<sup>[35]</sup> Since mothers could not rely on professional medicine to take care of their children, they developed their own methods, such as using alkaline soda ash to remove the vernix at birth and treating teething pain with opium or wine. The absence of proper pediatric care, rights, and laws in health care to prioritize children's health led to many of their deaths. Ancient Greeks and Romans sometimes even killed healthy female babies and infants with deformities since they had no adequate medical treatment and no laws prohibiting infanticide.<sup>[5]</sup>

In the twentieth century, medical experts began to put more emphasis on children's rights. In 1989, in the United Nations Rights of the Child Convention, medical experts developed the Best Interest Standard of Child to prioritize children's rights and best interests. This event marked the onset of pediatric autonomy. In 1995, the American Academy of Pediatrics (AAP) finally acknowledged the Best Interest Standard of a Child as an ethical principle for pediatric

decision-making, and it is still being used today.[<sup>34</sup>]

## Parental authority and current medical issues

[edit]

The majority of the time, parents have the authority to decide what happens to their child. Philosopher John Locke argued that it is the responsibility of parents to raise their children and that God gave them this authority. In modern society, Jeffrey Blustein, modern philosopher and author of the book *Parents and Children: The Ethics of Family*, argues that parental authority is granted because the child requires parents to satisfy their needs. He believes that parental autonomy is more about parents providing good care for their children and treating them with respect than parents having rights.[<sup>36</sup>] The researcher Kyriakos Martakis, MD, MSc, explains that research shows parental influence negatively affects children's ability to form autonomy. However, involving children in the decision-making process allows children to develop their cognitive skills and create their own opinions and, thus, decisions about their health. Parental authority affects the degree of autonomy the child patient has. As a result, in Argentina, the new National Civil and Commercial Code has enacted various changes to the healthcare system to encourage children and adolescents to develop autonomy. It has become more crucial to let children take accountability for their own health decisions.[<sup>37</sup>]

In most cases, the pediatrician, parent, and child work as a team to make the best possible medical decision. The pediatrician has the right to intervene for the child's welfare and seek advice from an ethics committee. However, in recent studies, authors have denied that complete autonomy is present in pediatric healthcare. The same moral standards should apply to children as they do to adults. In support of this idea is the concept of paternalism, which negates autonomy when it is in the patient's interests. This concept aims to keep the child's best interests in mind regarding autonomy. Pediatricians can interact with patients and help them make decisions that will benefit them, thus enhancing their autonomy. However, radical theories that question a child's moral worth continue to be debated today.[<sup>37</sup>] Authors often question whether the treatment and equality of a child and an adult should be the same. Author Tamar Schapiro notes that children need nurturing and cannot exercise the same level of authority as adults.[<sup>38</sup>] Hence, continuing the discussion on whether children are capable of making important health decisions until this day.

## Modern advancements

[edit]

According to the Subcommittee of Clinical Ethics of the Argentinean Pediatric Society (SAP), children can understand moral feelings at all ages and can make reasonable decisions based on those feelings. Therefore, children and teens are deemed capable of making their own health decisions when they reach the age of 13. Recently, studies made on the decision-making of children have challenged that age to be 12.[<sup>37</sup>]

Technology has made several modern advancements that contribute to the future development of child autonomy, for example, unsolicited findings (U.F.s) of pediatric exome sequencing. They are findings based on pediatric exome sequencing that explain in greater detail the intellectual disability of a child and predict to what extent it will affect the child in the future. Genetic and intellectual disorders in children make them incapable of making moral decisions, so people look down upon this kind of testing because the child's future autonomy is at risk. It is still in question whether parents should request these types of testing for their children. Medical experts argue that it could endanger the autonomous rights the child will possess in the future. However, the parents contend that genetic testing would benefit the welfare of their children since it would allow them to make better health care decisions.[<sup>39</sup>]

Exome sequencing for children and the decision to grant parents the right to request them is a medically ethical issue that many still debate today.

## Education requirements

[edit]

The examples and perspective in this section **deal primarily with United States and Globe** **do not represent a worldwide view of the subject**. You may improve this section, **discuss the issue on the talk page**, or create a new section, as appropriate. ( Image not found *September 2019*) (*Learn how and when to remove this message*)

Aspiring medical students will need 4 years of undergraduate courses at a college or university, which will get them a BS, BA or other bachelor's degree. After completing college, future pediatricians will need to attend 4 years of medical school (MD/DO/MBBS) and later do 3 more years of residency training, the first year of which is called "internship." After completing the 3 years of residency, physicians are eligible to become certified in pediatrics by passing a rigorous test that deals with medical conditions related to young children.[*citation needed*]

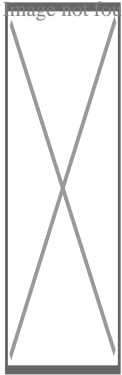
In high school, future pediatricians are required to take basic science classes such as biology, chemistry, physics, algebra, geometry, and calculus. It is also advisable to learn a foreign language (preferably Spanish in the United States) and be involved in high school organizations and extracurricular activities. After high school, college students simply need to fulfill the basic science course requirements that most medical schools recommend and will need to prepare to take the MCAT (Medical College Admission Test) in their junior or early senior year in college. Once attending medical school, student courses will focus on basic medical sciences like human anatomy, physiology, chemistry, etc., for the first three years, the second year of which is when medical students start to get hands-on experience with actual patients.[<sup>40</sup>]

## Training of pediatricians

[edit]

Pediatrics

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### Occupation

#### Names

- Pediatrician
- Paediatrician

**Occupation type** Specialty

**Activity sectors** Medicine

### Description

#### Education required

- Doctor of Medicine
- Doctor of Osteopathic Medicine
- Bachelor of Medicine, Bachelor of Surgery (MBBS/MBChB)

#### Fields of employment

Hospitals, Clinics

The training of pediatricians varies considerably across the world. Depending on jurisdiction and university, a medical degree course may be either undergraduate-entry or graduate-entry. The former commonly takes five or six years and has been usual in the Commonwealth. Entrants to graduate-entry courses (as in the US), usually lasting four or five years, have previously completed a three- or four-year university degree, commonly but by no means always in sciences. Medical graduates hold a degree specific to the country and university in and from which they graduated. This degree qualifies that medical practitioner to become licensed or registered under the laws of that particular country, and sometimes of several countries, subject to requirements for "internship" or "conditional registration".

Pediatricians must undertake further training in their chosen field. This may take from four to eleven or more years depending on jurisdiction and the degree of specialization.

In the United States, a medical school graduate wishing to specialize in pediatrics must undergo a three-year residency composed of outpatient, inpatient, and critical care rotations. Subspecialties within pediatrics require further training in the form of 3-year fellowships. Subspecialties include critical care, gastroenterology, neurology, infectious disease, hematology/oncology, rheumatology, pulmonology, child abuse, emergency medicine, endocrinology, neonatology, and others.<sup>[41]</sup>

In most jurisdictions, entry-level degrees are common to all branches of the medical profession, but in some jurisdictions, specialization in pediatrics may begin before completion of this degree. In some jurisdictions, pediatric training is begun immediately following the completion of entry-level training. In other jurisdictions, junior medical doctors must undertake generalist (unstreamed) training for a number of years before commencing pediatric (or any other) specialization. Specialist training is often largely under the control of *pediatric organizations* (see below) rather than universities and depends on the jurisdiction.

## **Subspecialties**

[edit]

Subspecialties of pediatrics include:

*(not an exhaustive list)*

- Addiction medicine (multidisciplinary)
- Adolescent medicine
- Child abuse pediatrics
- Clinical genetics
- Clinical informatics
- Developmental-behavioral pediatrics
- Headache medicine
- Hospital medicine
- Medical toxicology
- Metabolic medicine
- Neonatology/Perinatology
- Pain medicine (multidisciplinary)
- Palliative care (multidisciplinary)
- Pediatric allergy and immunology
- Pediatric cardiology
  - Pediatric cardiac critical care
- Pediatric critical care
  - Neurocritical care
  - Pediatric cardiac critical care
- Pediatric emergency medicine
- Pediatric endocrinology

- Pediatric gastroenterology
  - Transplant hepatology
- Pediatric hematology
- Pediatric infectious disease
- Pediatric nephrology
- Pediatric oncology
  - Pediatric neuro-oncology
- Pediatric pulmonology
- Primary care
- Pediatric rheumatology
- Sleep medicine (multidisciplinary)
- Social pediatrics
- Sports medicine

## **Other specialties that care for children**

[edit]

*(not an exhaustive list)*

- Child neurology
  - Addiction medicine (multidisciplinary)
  - Brain injury medicine
  - Clinical neurophysiology
  - Epilepsy
  - Headache medicine
  - Neurocritical care
  - Neuroimmunology
  - Neuromuscular medicine
  - Pain medicine (multidisciplinary)
  - Palliative care (multidisciplinary)
  - Pediatric neuro-oncology
  - Sleep medicine (multidisciplinary)
- Child and adolescent psychiatry, subspecialty of psychiatry
- Neurodevelopmental disabilities
- Pediatric anesthesiology, subspecialty of anesthesiology
- Pediatric dentistry, subspecialty of dentistry
- Pediatric dermatology, subspecialty of dermatology
- Pediatric gynecology
- Pediatric neurosurgery, subspecialty of neurosurgery
- Pediatric ophthalmology, subspecialty of ophthalmology
- Pediatric orthopedic surgery, subspecialty of orthopedic surgery
- Pediatric otolaryngology, subspecialty of otolaryngology
- Pediatric plastic surgery, subspecialty of plastic surgery



- Pediatric radiology, subspecialty of radiology
- Pediatric rehabilitation medicine, subspecialty of physical medicine and rehabilitation
- Pediatric surgery, subspecialty of general surgery
- Pediatric urology, subspecialty of urology

## See also

[edit]

- American Academy of Pediatrics
- American Osteopathic Board of Pediatrics
- Center on Media and Child Health (CMCH)
- Children's hospital
- List of pediatric organizations
- List of pediatrics journals
- Medical specialty
- Pediatric Oncall
- Pain in babies
- Royal College of Paediatrics and Child Health
- Pediatric environmental health

## References

[edit]

- <sup>^</sup> "Paediatrics" (PDF). *nhs.uk*. Archived (PDF) from the original on 13 July 2020. Retrieved 2 July 2020.
- <sup>^</sup> "Choosing a Pediatrician for Your New Baby (for Parents) - Nemours KidsHealth". *kidshealth.org*. Archived from the original on 14 July 2020. Retrieved 13 July 2020.
- <sup>^</sup> "Age limits of pediatrics". *Pediatrics*. **81** (5): 736. May 1988. doi:10.1542/peds.81.5.736. PMID 3357740. S2CID 245164191. Archived from the original on 19 April 2017. Retrieved 18 April 2017.
- <sup>^</sup> Sawyer, Susan M.; McNeil, Robyn; Francis, Kate L.; Matskarofski, Juliet Z.; Patton, George C.; Bhutta, Zulfiqar A.; Esangbedo, Dorothy O.; Klein, Jonathan D. (1 November 2019). "The age of paediatrics". *The Lancet Child & Adolescent Health*. **3** (11): 822–830. doi:10.1016/S2352-4642(19)30266-4. ISSN 2352-4642. PMID 31542355. S2CID 202732818.
- <sup>^</sup> **a b c d e** Duffin, Jacalyn (2010). *History of Medicine, Second Edition: A Scandalously Short Introduction*. University of Toronto Press.
- <sup>^</sup> **a b c d e** Colón, A. R.; Colón, P. A. (January 1999). *Nurturing children: a history of pediatrics*. Greenwood Press. ISBN 978-0-313-31080-5. Retrieved 20 October 2012.
- <sup>^</sup> Celsus, *De Medicina*, Book 3, Chapter 7, § 1.
- <sup>^</sup> John G. Raffensperger. *Children's Surgery: A Worldwide History*. McFarland. p. 21.

9. ^ David Levinson; Karen Christensen. *Encyclopedia of modern Asia*. Vol. 4. Charles Scribner's Sons. p. 116.
10. ^ Desai, A.B. *Textbook Of Paediatrics*. Orient blackswan. p. 1.
11. ^ Dunn, P. M. (1995). "Soranus of Ephesus (Circa AD 98-138) and perinatal care in Roman times". *Archives of Disease in Childhood. Fetal and Neonatal Edition*. **73** (1): F51 – F52. doi:10.1136/fn.73.1.f51. PMC 2528358. PMID 7552600.
12. ^ Elgood, Cyril (2010). *A Medical History of Persia and The Eastern Caliphate* (1st ed.). London: Cambridge. pp. 202–203. ISBN 978-1-108-01588-2. "By writing a monograph on 'Diseases in Children' he may also be looked upon as the father of paediatrics."
13. ^ U.S. National Library of Medicine, "Islamic Culture and the Medical Arts, Al-Razi, the Clinician" [1] Archived 5 January 2018 at the Wayback Machine
14. ^ "Achar S Textbook Of Pediatrics (Third Edition)". A. B. Desai (ed.) (1989). p.1. ISBN 81-250-0440-8
15. ^ Stern, Alexandra Minna; Markel, Howard (2002). *Formative Years: Children's Health in the United States, 1880-2000*. University of Michigan Press. pp. 23–24. doi:10.3998/mpub.17065. ISBN 978-0-472-02503-9. Archived from the original on 30 November 2021. Retrieved 30 November 2021.
16. ^ Lock, Stephen; John M. Last; George Dunea (2001). *The Oxford illustrated companion to medicine*. Oxford University Press US. p. 173. ISBN 978-0-19-262950-0. Retrieved 9 July 2010. "Rosen von Rosenstein."
17. ^ Roberts, Michael (2003). *The Age of Liberty: Sweden 1719–1772*. Cambridge University Press. p. 216. ISBN 978-0-521-52707-1. Retrieved 9 July 2010.
18. ^ Dallas, John. "Classics of Child Care". Royal College of Physicians of Edinburgh. Archived from the original on 27 July 2011. Retrieved 9 July 2010.
19. ^ Duffin, Jacalyn (29 May 2010). *History of Medicine, Second Edition: A Scandalously Short Introduction*. University of Toronto Press.
20. ^ Stern, Alexandra Minna; Markel, Howard (2002). *Formative Years: Children's Health in the United States, 1880-2000*. University of Michigan Press. pp. 23–24. doi:10.3998/mpub.17065. ISBN 978-0-472-02503-9. Archived from the original on 30 November 2021. Retrieved 30 November 2021.
21. ^ "Broadribb's Introductory Pediatric Nursing". Nancy T. Hatfield (2007). p.4. ISBN 0-7817-7706-2
22. ^ "Jacobi Medical Center - General Information". Archived from the original on 18 April 2006. Retrieved 6 April 2006.
23. ^ Kutzsche, Stefan (8 April 2021). "Abraham Jacobi (1830–1919) and his transition from political to medical activist". *Acta Paediatrica*. **110** (8): 2303–2305. doi:10.1111/apa.15887. ISSN 0803-5253. PMID 33963612. S2CID 233998658. Archived from the original on 7 May 2023. Retrieved 7 May 2023.
24. ^ a b Ballbriga, Angel (1991). "One century of pediatrics in Europe (section: development of pediatric hospitals in Europe)". In Nichols, Burford L.; et al. (eds.). *History of Paediatrics 1850–1950*. Nestlé Nutrition Workshop Series. Vol. 22. New York: Raven Press. pp. 6–8. ISBN 0-88167-695-0.
25. ^ official history site (in French) of nineteenth century paediatric hospitals in Paris

26. ^ "Introducing the Necker-Enfants Malades Hospital". *Hôpital des Necker-Enfants Malades*.
27. ^ Young, D.G. (August 1999). "The Mason Brown Lecture: Scots and paediatric surgery". *Journal of the Royal College of Surgeons Edinburgh*. **44** (4): 211–5. PMID 10453141. Archived from the original on 14 July 2014.
28. ^ Pearson, Howard A. (1991). "Pediatrics in the United States". In Nichols, Burford L.; et al. (eds.). *History of Paediatrics 1850–1950*. Nestlé Nutrition Workshop Series. Vol. 22. New York: Raven Press. pp. 55–63. ISBN 0-88167-695-0.
29. ^ "Commentaries: Edwards A Park". *Pediatrics*. **44** (6). American Academy of Pediatrics: 897–901. 1969. doi:10.1542/peds.44.6.897. PMID 4903838. S2CID 43298798.
30. ^ **a b c d e f g h** O'Hara, Kate (2016). "Paediatric pharmacokinetics and drug doses". *Australian Prescriber*. **39** (6): 208–210. doi:10.18773/austprescr.2016.071. ISSN 0312-8008. PMC 5155058. PMID 27990048.
31. ^ **a b c d e f g h i j k l m** Wagner, Jonathan; Abdel-Rahman, Susan M. (2013). "Pediatric pharmacokinetics". *Pediatrics in Review*. **34** (6): 258–269. doi:10.1542/pir.34-6-258. ISSN 1526-3347. PMID 23729775.
32. ^ **a b c d e f** Batchelor, Hannah Katharine; Marriott, John Francis (2015). "Paediatric pharmacokinetics: key considerations". *British Journal of Clinical Pharmacology*. **79** (3): 395–404. doi:10.1111/bcp.12267. ISSN 1365-2125. PMC 4345950. PMID 25855821.
33. ^ Katz, Aviva L.; Webb, Sally A.; COMMITTEE ON BIOETHICS; Macauley, Robert C.; Mercurio, Mark R.; Moon, Margaret R.; Okun, Alexander L.; Opel, Douglas J.; Statter, Mindy B. (1 August 2016). "Informed Consent in Decision-Making in Pediatric Practice". *Pediatrics*. **138** (2): e20161485. doi:10.1542/peds.2016-1485. ISSN 0031-4005. PMID 27456510. S2CID 7951515.
34. ^ **a b** Mazur, Kate A.; Berg, Stacey L., eds. (2020). *Ethical Issues in Pediatric Hematology/Oncology*. pp. 13–21. doi:10.1007/978-3-030-22684-8. ISBN 978-3-030-22683-1. S2CID 208302429.
35. ^ **a b** Stern, Alexandra Minna; Markel, Howard (2002). *Formative Years: Children's Health in the United States, 1880-2000*. University of Michigan Press. pp. 23–24. doi:10.3998/mpub.17065. ISBN 978-0-472-02503-9. Archived from the original on 30 November 2021. Retrieved 30 November 2021.
36. ^ Friedman, Lainie Ross (2004). *Children, families, and health care decision making*. Clarendon Press. ISBN 0-19-925154-1. OCLC 756393117.
37. ^ **a b c** Martakis, K.; Schröder-Bäck, P.; Brand, H. (1 June 2018). "Developing child autonomy in pediatric healthcare: towards an ethical model". *Archivos Argentinos de Pediatría*. **116** (3): e401 – e408. doi:10.5546/aap.2018.eng.e401. ISSN 0325-0075. PMID 29756714. S2CID 46889502.
38. ^ Schapiro, Tamar (1 July 1999). "What Is a Child?". *Ethics*. **109** (4): 715–738. doi:10.1086/233943. ISSN 0014-1704. S2CID 170129444. Archived from the original on 30 November 2021. Retrieved 30 November 2021.
39. ^ Dondorp, W.; Bolt, I.; Tibben, A.; De Wert, G.; Van Summeren, M. (1 September 2021). "'We Should View Him as an Individual': The Role of the Child's Future Autonomy in Shared Decision-Making About Unsolicited Findings in Pediatric Exome Sequencing". *Health Care Analysis*. **29** (3): 249–261. doi:10.1007/s10728-020-00425-7. ISSN 1573-

3394. PMID 33389383. S2CID 230112761.

40. ^ "What Education Is Required to Be a Pediatrician?". Archived from the original on 7 June 2017. Retrieved 14 June 2017.
41. ^ "CoPS". *www.pedsubs.org*. Archived from the original on 18 September 2013. Retrieved 14 August 2015.

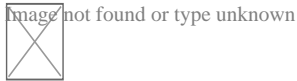
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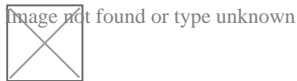
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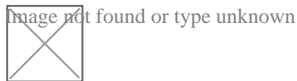
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Medicine

## **Surgery**

- Cardiac surgery
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- Otolaryngology
  - ENT
- Pediatric surgery
- Plastic surgery
- Reproductive surgery
- Surgical oncology
- Transplant surgery
- Trauma surgery
- Urology
  - Andrology
- Vascular surgery

## **Internal medicine**

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- Angiology
- Cardiology
- Endocrinology
- Gastroenterology
  - Hepatology
- Geriatrics
- Hematology
- Hospital medicine
- Infectious diseases
- Nephrology
- Oncology
- Pulmonology
- Rheumatology

## **Obstetrics and gynaecology**






- Gynaecology
- Gynecologic oncology
- Maternal–fetal medicine
- Obstetrics
- Reproductive endocrinology and infertility
- Urogynecology

## Medical education

- Medical school
- Bachelor of Medicine, Bachelor of Surgery
- Bachelor of Medical Sciences
- Master of Medicine
- Master of Surgery
- Doctor of Medicine
- Doctor of Osteopathic Medicine
- MD–PhD
  - Medical Scientist Training Program

## Related topics

- Alternative medicine
- Allied health
- Molecular oncology
- Nanomedicine
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- Therapy
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Infants and their care

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## **Health (Pediatrics)**

- Baby food
- Birth weight
- Breast pump
- Breastfeeding
- Breastfeeding and medications
- Breastfeeding and mental health
- Bottle feeding
- Colic
- Cradle cap
- Esotropia
- Failure to thrive
- Immunization
- Infant and toddler safety
- Infant bathing
- Infant feeding
- Infant food safety
- Infant formula
- Infant massage
- Infant respiratory distress syndrome
- Infant sleep training
- Neonatal intensive care unit
- Newborn care and safety
- Oral rehydration therapy
  - Pedialyte
- Preterm birth
- Shaken baby syndrome
- Soy formula
- SIDS

## **Development**

- Attachment parenting
- Baby-led weaning
- Baby talk
- Babbling
- Birth defect
- Childbirth
- Crawling
- Gestational age
- Infant visual development
- Irritant diaper dermatitis
- Infant cognitive development
- Infant crying
- Kangaroo care
- Mother
- Nursery rhyme
- Object permanence
- Parent
- Parenting
- Peekaboo
- Play
- Prenatal development
- Prenatal development table
- Teething
- Walking
- Weaning

## **Socialization and Culture**

- Attachment
- Babysitting
- Child abuse
- Child care
- Child custody
- Children's rights
  - UN Child rights
- Circumcision
- Foster care
- Grandparent visitation
- Infant swimming
- Milk bank
- Nanny
- Wet nurse



## **Infant care and equipment**

- Baby bouncer
- Baby gate
- Baby monitor/Hidden camera
- Baby powder
- Baby shampoo
- Baby toy
- Baby walker
- Bib
- Baby swing
- Baby transport
- Bassinet
- Car seat safety
- Cloth diaper
- Cradle board
- Diaper
- Diaper bag
- Baby wipes
- Haberman Feeder
- High chair
- Infant bed (*American 'crib' and 'cradle', British 'cot'*)
- Infant carrier
- Infant clothing
- Pacifier
- Playpen
- Stroller
- Supplemental nursing system
- Swaddling
- Swim diaper
- Teether
- Travel cot

## Other topics

- Baby shower
- Babywearing
- Child neglect
- Closed adoption
- Cry room
- Infant ear piercing
- Open adoption
- Prenatal cocaine exposure
- Neonatal withdrawal syndrome
- Parental child abduction
- Parental responsibility
- Parenting plan
- Paternity
  - Paternity fraud

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